Chapter 1

Appendix 1-A

SVBGSA Joint Exercise of Powers Agreement

JOINT EXERCISE OF POWERS AGREEMENT

establishing the

SALINAS VALLEY BASIN GROUNDWATER SUSTAINABILITY AGENCY

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THIS JOINT EXERCISE OF POWERS AGREEMENT ("Agreement') establishing the Salinas Valley Basin Groundwater Sustainability Agency ("Agency") is made and entered into as of 12/22/16 ("Effective Date"), by and among the public agencies listed on the attached Exhibit "A" (collectively "Members" and individually "Member") for the purpose of forming a Groundwater Sustainable Agency ("GSA") and achieving groundwater sustainability in the Salinas Valley Groundwater Basin.

RECITALS

WHEREAS, in the fall of 2014 the California legislature adopted, and the Governor signed into law, three bills (SB 1168, AB 1739, and SB 1319) collectively referred to as the "Sustainable Groundwater Management Act" ("SGMA"), that initially became effective on January 1, 2015, and that has been amended from time-to-time thereafter; and

WHEREAS, the stated purpose of SGMA, as set forth in California Water Code section 10720.1, is to provide for the sustainable management of groundwater basins at a local level by providing local groundwater agencies with the authority, and technical and financial assistance necessary, to sustainably manage groundwater; and

WHEREAS, SGMA requires the designation of Groundwater Sustainability Agencies ("GSAs") for the purpose of achieving groundwater sustainability through the adoption and implementation of Groundwater Sustainability Plans ("GSPs") or an alternative plan for all medium and high priority basins as designated by the California Department of Water Resources; and

WHEREAS, SGMA requires that the Basin have a designated GSA by no later than June 30, 2017, and an adopted GSP by no later than January 31, 2020, if a high or medium priority basin in critical overdraft, and no later than January 31, 2022, if a high or medium priority basin; and

WHEREAS, SGMA authorizes a combination of local agencies to form a GSA by entering into a joint powers agreement as authorized by the Joint Exercise of Powers Act (Chapter 5 of Division 7 of Title 1 of the California Government Code) ("Act"); and

WHEREAS, each Member is a local agency, as defined by SGMA, within that portion of the Salinas Valley Groundwater Basin ("Basin" and as more fully described below) within Monterey County, which is designated basin number 3-004 in Department of Water Resources Bulletin No. 118 (update 2016), and consisting of seven sub-basins plus that portion of the Paso Robles sub-basin within Monterey County (but not including the adjudicated portion of the

Seaside sub-basin), each of which is designated as either a high or medium priority basin, and one of which (the 180/400 ft. aquifer) is designated in critical overdraft; and

WHEREAS, the Members are therefore authorized to create the Agency for the purpose of jointly exercising those powers granted by the Act, SGMA, and any additional powers which are common among them; and

WHEREAS, the Members, individually and collectively, have the goal of cost effective sustainable groundwater management that considers the interests and concerns of all beneficial uses and users of groundwater within and adjacent to the Basin; and

WHEREAS, the Members hereby enter into this Agreement to establish the Agency to serve as a GSA for the Basin and undertake the management of groundwater resources pursuant to SGMA; and

WHEREAS, the Members intend to cooperate with adjacent GSAs such as any GSA formed over a portion of the Paso Robles sub-basin (3-04.06) within San Luis Obispo County, and the Pajaro Valley Water Management Agency; and

WHEREAS, the Members intend to study the potential for state legislation to, among other amendments, amend the WRA Act to modify the governance structure of the WRA in a form similar to the governance of the Agency established herein and to establish that agency as the statutorily designated GSA for the Basin, or establish a new entity to be so designated;

NOW THEREFORE,

In consideration of the matters recited and the mutual promises, covenants, and conditions set forth in this Agreement, the Members hereby agree as follows:

Article I: Definitions

Section 1.1 – Definitions.

As used in this Agreement, unless the context requires otherwise, the meaning of the terms hereinafter set forth shall be as follows:

(a) "Act" means the Joint Exercise of Powers Act, set forth in Chapter 5 of Division 7 of Title 1 of the California Government Code, sections 6500, *et seq.*, as may be amended from time-to-time.

(b) "Agreement" means this Joint Exercise of Powers Agreement establishing the Salinas Valley Basin Groundwater Sustainability Agency.

(c) "Agency" means the Salinas Valley Basin Groundwater Sustainability Agency, which is a separate entity created by this Agreement pursuant to the provisions of the Act and SGMA.

(d) "Agricultural Directors" means the four Directors representing agricultural interests, as more fully set forth in rows (f) – (i) of Exhibit B of this Agreement.

(e) "Agricultural Association" means the Salinas Basin Agricultural Water Association.

(f) "Alternate Director" means an Alternate Director appointed pursuant to Section 6.6 of this Agreement.

(g) "Appointing Authority" means the entity authorized to appoint Primary and Alternate Directors pursuant to Sections 6.2, 6.3 and 6.6 of this Agreement and as identified in Exhibit B to this Agreement.

(h) "Basin" means that portion of the Salinas Valley Groundwater Basin, newly designated no. 3-004 in the Department of Water Resources' Bulletin No. 118 (update 2016), within the County of Monterey and that includes the following sub-basins: 1) 180/400 Foot Aquifer (No. 3-004.01); 2) East Side Aquifer (3-004.02); 3) Forebay Aquifer (3-004.04); 4) Upper Valley Aquifer (3-004.05); 5) Langley Area (3-004.09); 7) the newly designated Monterey sub-basin (3-004.10); and, 8) the portion of the Paso Robles Area (3-004.06) in Monterey County; but not including that portion of the Seaside Area that has been adjudicated, all as their boundaries may be modified from time to time through the procedures described in California Water Code section 10722.2 or by the Department of Water Resources under its separate authority, and not including any other area for which a GSA has been established pursuant to SGMA.

(i) "Board of Directors" or "Board" means the governing body of the Agency as established by Section 6.1 of this Agreement.

(j) "Brown Act" means the California Open Meeting Law, Government Code section 54950 *et seq.*

(k) "Bylaws" means the bylaws adopted by the Board of Directors pursuant to Section 6.8 of this Agreement to govern the day-to-day operations of the Agency.

(l) "Cause" means a conviction of a crime i) of moral turpitude, or ii) involving fraud, misrepresentation, or financial mismanagement, or iii) a finding by an administrative body or agency, or a court of law, that the person has violated any conflict of interest provision of federal, state or local law.

(m) "City Selection sub-Committee" means a subcommittee of the Monterey County City Selection Committee, established by Government Code section 50270 et seq, and consisting of the mayors of the following cities: Gonzales, Soledad, Greenfield, and King City.

(n) "County" means the County of Monterey.

(o) "CPUC" means the California Public Utilities Commission.

(p) "CPUC Regulated Water Company" means an investor owned water company operating in the Basin that has been granted a certificate of public convenience and necessity by the CPUC and is regulated by the CPUC.

(q) "Determination Date" means the date on which the Agency votes to notify the State of its intent to become a GSA as provided in Water Code sections 10723 (a) and (b).

(r) "Director" or "Directors" means Primary and Alternate Directors as set forth in Section 6.6 of this Agreement.

(s) "Director Position(s)" means those eleven Board positions, singularly or plural, established pursuant to Section 6.1 of this Agreement.

(t) "Disadvantaged Community" means a disadvantaged community or economically distressed area as those terms are defined in Water Code section 79702 (as may be amended from time-to-time) within the Basin.

(u) "Effective Date" means the date by which two Members have executed this Agreement which date shall be set forth in the introductory paragraph of this Agreement.

(v) "Fiscal Year" means that period of 12 months beginning July 1 and ending June 30 of each calendar year.

(w) "Groundwater Sustainability Agency" or "GSA" has the meaning set forth in California Water Code section 10721(j).

(x) "Groundwater Sustainability Plan" or "GSP" has the meaning set forth in California Water Code section 10721(k).

(y) "GSA Eligible Entity or Entities" means those entities eligible to become a GSA pursuant to SGMA.

(z) "Initial Board" means the initial Board of Directors established pursuant to Section 6.2, below.

(aa) "Initial Contribution" means the required contribution of Members as set forth in Section 10.4 of this Agreement.

(bb) "Local Agency" or "Local Agencies" has the meaning set forth in California Water Code Section 10721(n).

(cc) "Local small water system" means a system for the provision of piped water for human consumption that serves at least two, but not more than four, service connections, including any collection, treatment, storage, and distribution facilities under control of the operator of such system which are used primarily in connection with such system, and any collection or pretreatment storage facilities not under the control of the operator which are used primarily in connection with such system; it does not include two or more service connections, which supply dwelling units occupied by members of the same family, on one parcel, all as set forth in Monterey County Code section 15.04.020 (g).

(dd) "Majority Vote" means the affirmative vote of six Directors then present and voting at a meeting of the Board.

(ee) "Member" or "Members" means the GSA Eligible Entities listed in the attached Exhibit "A" that have executed this Agreement, including any new Members that may subsequently join this Agency with the authorization of the Board, pursuant to Section 5.2 of this Agreement.

(ff) "Mutual Water Company" has the meaning set forth in Corporations Code section 14300.

(gg) "Permanent Board" means the permanent Board of Directors established pursuant to Section 6.3 of this Agreement.

(hh) "Permanent Director" means a Director appointed to the Permanent Board.

(ii) "Permanent Director Position" means a Director Position on the Permanent Board.

(jj) "Primary Director" means a Primary Director appointed pursuant to Sections 6.4 of this Agreement.

(kk) "Public Water System" means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. A public water system includes the following: (1) Any collection, treatment, storage, and distribution facilities under control of the operator of the system that are used primarily in connection with the system, (2) Any collection or pretreatment storage facilities not under the control of the operator that are used primarily in connection with the system, or (3) Any water system that treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption, all as set forth in Health and Safety Code section 116275 (h).

(ll) "South County Cities" means the cities of Gonzales, Soledad, Greenfield and King City.

(mm) "State" means the State of California.

(nn) "State Small Water System" means a system for the provision of piped water to the public for human consumption that serves at least five, but not more than 14, service connections and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year, as set forth in California Health and Safety Code section 116275 (n).

(oo) "Super Majority Vote" means the affirmative vote of eight Directors then present and voting at a meeting of the Board.

(pp) "Super Majority Plus Vote" means the affirmative vote of eight Directors then present and voting at a meeting of the Board but including the affirmative vote of three of the Agricultural Directors.

(qq) "Sustainable Groundwater Management Act" or "SGMA" means the comprehensive groundwater legislation collectively enacted and referred to as the "Sustainable Groundwater Management Act" as codified in California Water Code Sections 10720 *et seq.* and as may be amended from time-to-time.

(rr) "WRA" means the Water Resources Agency of the County of Monterey.

Unless otherwise indicated, all statutory references are to the statutory codes of the State.

Article II: The Agency

Section 2.1 – Agency Established.

There is hereby established a joint powers agency known as the Salinas Valley Basin Groundwater Sustainability Agency. The Agency shall be, to the extent provided by law, a public entity separate from the Members of this Agreement.

Section 2.2 – Purpose Of The Agency.

The purpose of Agency is to cooperatively carry out the requirements of SGMA including, but not limited to, serving as the GSA for the Basin and developing, adopting and implementing a GSP that achieves groundwater sustainability in the Basin, all through the exercise of powers granted to a GSA by SGMA and those powers common to the members as provided in the Act.

Article III: Term

Section 3.1 – Term.

This Agreement shall become operative on the Effective Date. Subject to the terms of Sections 11.6, 11.7 and 11.8, below, this Agreement shall remain in effect unless terminated pursuant to Section 11.10, below.

Article IV: Powers

Section 4.1 – Powers.

The Agency shall possess the ability to exercise those powers specifically granted by the Act, SGMA, and the common powers of its Members related to the purposes of the Agency, including, but not limited to, the following:

a) To designate itself the GSA for the Basin pursuant to SGMA.

b) To adopt rules, regulations, policies, bylaws and procedures governing the operation of the Agency and the adoption and implementation of the GSP.

c) To develop, adopt and implement a GSP for the Basin pursuant to SGMA.

d) To retain or employ consultants, advisors, independent contractors, agents and employees.

e) To obtain legal, financial, accounting, technical, engineering, and other services needed to carry out the purposes of this Agreement.

f) To conduct studies, collect and monitor all data related and beneficial to the development, adoption and implementation of the GSP for the Basin.

g) To perform periodic reviews of the GSP including submittal of annual reports.

h) To register and monitor wells.

i) To issue revenue bonds or other appropriate public or private debt and incur debts, liabilities or obligations.

j) To levy taxes, assessments, charges and fees as provided in SGMA or as otherwise provided by law.

k) To regulate and monitor groundwater extractions as permitted by SGMA, provided that this provision does not extend to a Member's operation of its system to distribute water once extracted or otherwise obtained, unless and to the extent required by other laws now in existence or as may otherwise be adopted.

l) To establish and administer projects and programs for the benefit of the Basin.

m) To cooperate, act in conjunction, and contract with the United States, the State, or any agency thereof, counties, municipalities, special districts, groundwater sustainability agencies, public and private corporations of any kind (including without limitation, investor-owned utilities), and individuals, or any of them, for any and all purposes necessary or convenient for the full exercise of the powers of the Agency.

n) To accumulate operating and reserve funds and invest the same as allowed by law for the purposes of the Agency.

o) To apply for and accept grants, contributions, donations and loans under any federal, state or local programs for assistance in developing or implementing any of its projects or programs in connection with any project untaken in the Agency's name for the purposes of the Agency.

p) To acquire by negotiation, lease, purchase, construct, hold, manage, maintain, operate and dispose of any buildings, property, water rights, works or improvements within and without the respective jurisdictional boundaries of the Members necessary to accomplish the purposes describe herein.

q) To sue or be sued in its own name.

r) To invest funds as allowed by law.

s) Any additional powers conferred under SGMA or the Act, or under applicable law, insofar as such powers are needed to accomplish the purposes of SGMA, including all powers granted to the Agency under Article 4 of the Act which are in addition to the common powers of the Members, including the power to issue bonds or otherwise incur debts, liabilities or obligations to the extent authorized by the Act or any other applicable provision of law and to pledge any property or revenues of the rights thereto as security for such bonds and other indebtedness.

t) Any power necessary or incidental to the foregoing powers in the manner and according to the procedures provided for under the law applicable to the Members to this Agreement and to perform all other acts necessary or proper to fully carry out the purposes of this Agreement.

Section 4.2 – Exercise Of Powers.

In accordance with Section 6509 of the Act, the foregoing powers shall be subject to the restrictions upon the manner of exercising such powers pertaining to the County.

Section 4.3 – Water Rights And Consideration Of All Beneficial Uses And Users Of Groundwater In The Basin.

As set forth in Water Code section 10723.2 the GSA shall consider the interests of all beneficial uses and users of groundwater in the Basin, as well as those responsible for implementing the GSP. Additionally, as set forth in Water Code section 10720.5(a) any GSP adopted pursuant to this Agreement shall be consistent with Section 2 of Article X of the California Constitution and nothing in this Agreement modifies the rights or priorities to use or store groundwater consistent with Section 2 of Article X of the California Constitution, with the exception that no extraction of groundwater between January 1, 2015 and the date the GSP is adopted may be used as evidence of, or to establish or defend against, any claim of prescription. Likewise, as set forth in Water Code section 10720.5(b) nothing in this Agreement or any GSP adopted pursuant to this Agreement determines or alters surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights.

Section 4.4 – Preservation Of Police Powers.

Nothing set forth in this Agreement shall be deemed to modify or otherwise limit a Member's police powers in any way, or any authority to regulate groundwater under existing law or any amendment thereto.

Article V: Membership

Section 5.1 – Members.

The Members of the Agency shall be the entities listed on the attached Exhibit A so long as their membership has not been withdrawn or terminated pursuant to the provisions of Article XI of this Agreement. GSA Eligible Entities shall have until the Determination Date to execute this Agreement and pay their Initial Contribution, and become Members. Any GSA Eligible Entity that has not executed this Agreement and paid their Initial Contribution by the Determination Date shall be subject to the process described in Section 5.2, below, to become a Member.

Section 5.2 – New Members.

New Members may be added to the Agency by the unanimous vote of all other Members so long as: 1) the new Member is a GSA Eligible Entity; and, 2) the new Member agrees to or has met any other conditions that the existing Members may establish from time-to-time.

Once an application is approved unanimously by the existing Members the attached Exhibit A shall be amended to reflect the new Member.

Article VI: Directors And Officers

Section 6.1 – Board Of Directors.

The Agency shall be governed and administered by an eleven (11) member Board of Directors which is hereby established. All voting power of the Agency shall reside in the Board.

Section 6.2 – Initial Board of Directors.

An Initial Board shall be composed of the Director Positions with the qualifications and Appointing Authority as described in Exhibit B. The nominating groups identified in Section 6.5, below, may, but are not required to, provide nominations to the relevant Appointing Authority for the Initial Board; however, any such nomination must be received by the respective Appointing Authority no later than January 31, 2017. If such nominations are received no later than the time specified the Appointing Authorities shall follow the respective procedures for appointment to the Permanent Board set forth in Section 6.5, below. If such nominations are not received by the time specified, the Appointing Authority may make appointments to the Initial Board as it determines in its sole discretion.

The Initial Board shall serve only until September 30, 2017, at which time a Permanent Board shall be appointed as described below.

Section 6.3 – Permanent Board.

Subject to the Appointment and Nominating procedures set forth in Section 6.5, below, beginning on October 1, 2017, a Permanent Board shall be established consisting of the Director Positions with the qualifications and Appointing Authority as described in Exhibit B. With the exception of the CPUC Regulated Water Company Director Position, each Permanent Director Position shall have a term consisting of three (3) years and shall hold office until their successor is appointed by their Appointing Authority and the Agency has been notified of the succession. The terms of Permanent Director Positions shall be staggered, with Director Positions identified in rows (a), (c), (f), (h) and (j) of exhibit C serving three (3) year terms from initial appointment, and those identified in rows (b), (d), (g), (i), and (k) serving two (2) year terms from initial appointment, and thereafter serving three (3) year terms. The CPUC Regulated Water Company Director Position shall serve a term of two (2) years, and a Director shall hold office until their successor is appointed and the Agency has been notified of the succession. Notwithstanding the actual date of their initial appointment, for purposes of establishing the terms of Permanent Directors such initial appointment shall be deemed to have commenced on the July 1 preceding such initial appointment, and the terms of Directors shall thereafter commence on July 1 of the respective appointing year. Each Director Position shall require an affirmative appointment by the Appointing Authority for every term.

Section 6.4 – General Qualifications.

a) Each Director, whether on the Initial Board or Permanent Board, must have the following general qualifications:

i. General education and/or knowledge, interest in and experience relating to the control, storage, and beneficial use of groundwater.

ii. General understanding and knowledge of the Basin and all its beneficial users.

iii. Working knowledge and understanding of how to develop strategic plans, policies, programs, and financing/funding mechanisms.

iv. Genuine commitment to collaboratively work together to (i) achieve groundwater sustainability through the adoption and implementation of a GSP for the Basin, and all its beneficial uses; and (ii) provide for the ongoing sustainable management of the Basin.

v. General knowledge and understanding of one or more of the different facets (administration, financial, legal, organizational, personnel, etc.) needed for a successful and productive organization.

vi. Ability to commit the time necessary, estimated at a minimum 15-20 hours per month, to responsibly fulfill their commitment to the organization. This includes, but is not limited to: (i) Board meetings, (ii) Board training, (iii) analyzing financial statements and technical reports, (iv) reviewing Board documents before Board meetings, (v) attending Board meetings, and (vi) serving on committees to which they are assigned.

vii. A permanent resident within the Basin, or a representative of an agency with jurisdiction, or a business or organization with a presence, within the Basin.

b) Nominating groups and Appointing Authorities, as described in Section 6.5, should endeavor to avoid nominating or appointing a person to a Director Position that, because of his or her employment or other financial interest, is likely to be disqualified from a substantial number of decisions to be made by the Board on the basis of conflict-of-interest requirements.

Section 6.5 – Appointments and Nominations for Director Positions on the Permanent Board.

The appointment and nominating process for each Primary and Alternate Director Positions on the Permanent Board shall be as follows:

a) City of Salinas Director Position.

The City of Salinas shall appoint the Director Position listed in Row (a) of Exhibit B, the specific qualifications of such Director Position to be at the discretion of the City of Salinas.

b) South County Cities Director Position.

The Director Position listed in Row (b) of Exhibit B shall be filled by a representative from one of the four cities listed therein. The City Selection sub-Committee shall determine which city shall be the Appointing Authority for each term of the Director Position. The specific qualifications of such Director Position shall be at the discretion of that city designated the Appointing Authority. If the City Selection sub-Committee cannot reach agreement on a city to be the Appointing Authority for this Director Position, the County Board of Supervisors shall decide which city shall be the Appointing Authority.

c) Other GSA Eligible Entity Director Position.

i. Representative of the entities listed on Exhibit C shall be eligible to participate in the nominating process for the Other GSA Eligible Entity Director Position listed in Row (c) of Exhibit B.

ii. The representatives collectively by agreement among themselves shall make nominations to the Appointing Authority for the persons to fill both the Primary and Alternate Director Positions when the term of such position are expiring or are vacant.

iii. The representatives shall nominate one or more persons to fill both the Primary and Alternate Director Positions. If more than one person is nominated the representatives shall indicate the preferred nominee.

iv The Appointing Authority shall appoint the nominee (if only one) or appoint from among the nominees; the Appointing Authority may reject a nominee only for Cause. If the representatives cannot or do not forward any nominations the Appointing Authority shall make the appointment based upon its own determination.

v. The representatives may also advise the Appointing Authority regarding the removal of their nominee from the Director Positions for Cause. If the Appointing Authority determines that Cause exists such Director shall be removed and a new Director appointed to fill out the remaining term of the removed Director. The representatives may also request that their nominee in the Director Position be removed for any reason or no reason. If such request is made the Appointing Authority shall remove the Director and a new Director appointed to fill out the remaining term of the removed Director.

vi. From time-to-time entities may ask to be removed from Exhibit C. If such request is made the Appointing Authority shall notify the other Members and the Board, and Exhibit C shall be modified accordingly.

vii. From time-to-time other entities may request to be included on Exhibit C. The then-existing representatives shall inform the Appointing Authority if such requests are acceptable. If accepted by the representatives the Appointing Authority shall notify the other Members and the Board, and Exhibit C shall be modified accordingly.

d) Disadvantaged Community, or Public Water System Systems, including Mutual Water Companies serving residential customers, Director Position.

i. Representative of the entities listed on Exhibit D shall be eligible to participate in the nominating process for the Disadvantaged Community, or Public Water System Systems, including Mutual Water Companies serving residential customers, Director Position listed in Row (d) of Exhibit B.

ii. The representatives by agreement among themselves shall collectively make nominations to the Appointing Authority for the persons to fill both the Primary and Alternate Director Positions when the term of such positions are expiring or are vacant.

iii. The representatives shall nominate one or more persons to fill both the Primary and Alternate Director Positions. If more than one person is nominated the representatives shall indicate the preferred nominee.

iv. The Appointing Authority shall appoint the nominee (if only one) or appoint from among the nominees; the Appointing Authority may reject a nominee only for Cause. If the representatives cannot or do not forward any nominations the Appointing Authority shall make the appointment based upon its own determination.

v. The representatives may also advise the Appointing Authority regarding the removal of their nominee from the Director Positions for Cause. If the Appointing Authority determines that Cause exists such Director shall be removed and a new Director appointed to fill out the remaining term of the removed Director. The representatives may also request that their nominee in the Director Position may be removed for any reason or no reason. If such request is made the Appointing Authority shall remove the Director and a new Director appointed to fill out the remaining term of the removed Director.

vi. From time-to-time entities may ask to be removed from Exhibit D. If such request is made the Appointing Authority shall notify the other Members and the Board, and Exhibit D shall be modified accordingly.

vii. From time-to-time other entities may request to be included on Exhibit D. The then-existing representatives shall inform the Appointing Authority if such requests are acceptable. If accepted by the representatives the Appointing Authority shall notify the other Members and the Board, and Exhibit D shall be modified accordingly.

e) CPUC Regulated Water Company Director Position.

i. Representative of the entities listed on Exhibit E must meet the requirements of Section 1.1 (o) and shall be eligible to participate in the nominating process for the CPUC Regulated Water Company Director Position listed in Row (e) of Exhibit B.

ii. The representatives by agreement among themselves shall collectively make nominations to the Appointing Authority for the persons to fill both the Primary and Alternate Director Positions when the term of such position are expiring or are vacant.

iii. The representatives shall nominate one or more persons to fill both the Primary and Alternate Director Positions. If more than one person is nominated the representatives shall indicate the preferred nominee.

iv The Appointing Authority shall appoint the nominee (if only one) or appoint from among the nominees; the Appointing Authority may reject a nominee only for Cause. If the representatives cannot or do not forward any nominations the Appointing Authority shall make the appointment of an employee or agent of a CPUC Regulated Water Company listed on Exhibit E based upon its own determination.

v. The representatives may also advise the Appointing Authority regarding the removal of their nominee from the Director Position for Cause, although such authority to remove shall rest solely with the Appointing Authority.

vi. From time-to-time entities may ask to be removed from Exhibit E. If such request is made the Appointing Authority shall notify the other Members and the Board, and Exhibit E shall be modified accordingly.

vii. From time-to-time other entities may request to be included on Exhibit E. The then-existing representatives shall inform the Appointing Authority if such requests are acceptable. If accepted by the representatives the Appointing Authority shall notify the other Members and the Board, and Exhibit E shall be modified accordingly.

f) Agriculture Director Positions.

i. The Agricultural Association shall be eligible to participate in the nominating process for the Agriculture Director Positions listed in Rows (f) – (i) of Exhibit B. The Agricultural Association shall be solely responsible for its membership.

ii. The Agricultural Association shall make nominations to the Appointing Authority for the persons to fill each Primary and Alternate Director Position when the terms of such positions are expiring or are vacant.

iii. The Agricultural Association shall nominate at least two persons to fill each Director Position; the Agricultural Association shall indicate the preferred nominee for each Director Position.

iv The Appointing Authority shall appoint from among the nominees for each Director Position; the Appointing Authority may reject a nominee only for Cause. If the Agricultural Association cannot or does not forward any nominations the Appointing Authority shall make the appointment based upon its own determination.

v. The Agricultural Association may also advise the Appointing Authority regarding the removal of a nominee from a Director Position for Cause. If the Appointing Authority determines that Cause exists such Director shall be removed and a new Director appointed to fill out the remaining term of the removed Director. The Agricultural Association may also request that their nominee in a Director Position may be removed for any reason or no reason. If such request is made the Appointing Authority shall remove the Director and a new Director appointed to fill out the remaining term of the removed Director.

g) Environment Director Position.

i. Representative of the entities listed on Exhibit F shall be eligible to participate in the nominating process for the Environment Director Position listed in Row (j) of Exhibit B.

ii. The representatives by agreement among themselves shall collectively make nominations to the Appointing Authority for the persons to fill both the Primary and Alternate Director Positions when the term of such positions are expiring or are vacant.

iii. The representatives shall nominate at least two persons to fill both the Primary and Alternate Director Positions and the representatives shall indicate the preferred nominee.

iv The Appointing Authority shall appoint from among the nominees; the Appointing Authority may reject a nominee only for Cause. If the representatives cannot or do not forward any nominations the Board shall solicit applications from interested persons. At an open public meeting, the Board shall select qualified applicants whose names shall be forwarded to the Appointing Authority. The Board may indicate a preferred nominee. The Appointing Authority shall make the appointment from the list of candidates in its sole discretion. If the Board cannot, or does not, forward a list of candidates, the Appointing Authority shall make the appointment based upon its own determination.

v. The representatives may also advise the Appointing Authority regarding the removal of their nominee from the Director Position for Cause. If the Appointing Authority determines that Cause exists such Director shall be removed and a new Director appointed to fill out the remaining term of the removed Director. The representatives may also request that their nominee in the Director Position may be removed for any reason or no reason. If such request is made the Appointing Authority shall remove the Director and a new Director appointed to fill out the remaining term of the removed Director.

vi. From time-to-time entities may ask to be removed from Exhibit F. If such request is made the Appointing Authority shall notify the other Members and the Board, and Exhibit F shall be modified accordingly.

vii. From time-to-time other entities may request to be included on Exhibit F. The then-existing representatives shall inform the Appointing Authority if such requests are acceptable. If accepted by the representatives the

Appointing Authority shall notify the other Members and the Board, and Exhibit F shall be modified accordingly.

h) Public Member Director Position.

i. The Public Member Primary and Alternate Director Positions listed in Row (k) of Exhibit B shall be filled by application to the Board when the term of such position is expiring or is vacant.

ii. Board staff shall process the applications to an open and public meeting of the Board.

iii. At the public hearing, the Board shall select the qualified applicants whose names shall be forwarded to the Appointing Authority. The Board may indicate a preferred nominee.

iv The Appointing Authority shall appoint from among the nominees in its sole discretion. If the Board cannot or does not forward any nominations the Appointing Authority shall make the appointment based upon its own determination.

v. The Board may also advise the Appointing Authority regarding the removal of the Public Member Director for Cause, although such authority to remove shall rest solely with the Appointing Authority.

Section 6.6 – Primary Directors And Alternates.

Subject to the Appointing and Nominating procedures set forth in Section 6.5, above, each Appointing Authority shall appoint one Primary Director and one Alternate Director for each Director Position. With the exception of the Chairperson and Vice-Chairperson duties as more fully described in Section 6.7, below, the Alternate Director shall serve and assume the rights and duties of the Primary Director when the Primary Director is unable to attend or participate in a Board meeting. Unless appearing as a substitute for a Primary Director, Alternate Directors shall have no vote, and shall not participate in any discussions or deliberations of the Board, but may appear at Board meetings as members of the public. The Primary and Alternate Directors may be removed by their Appointing Authority only for Cause only upon the recommendation of or consultation with the nominating body for that Director Position, or upon the request of the nominating body for that Director Position. In the event that a Primary or Alternate Director is removed from their position, that Director Position shall become vacant and the Appointing Authority for that Director Position shall appoint a new Primary or Alternate Director pursuant to the provisions of Section 6.5 who shall fill the remaining term of that Director Position. In the event that a Director resigns from a Director Position, the Board shall notify the nominating body for that Director Position and the Appointing Authority for that Director Position shall appoint a new Primary or Alternate Director pursuant to the provisions of Section 6.5 who shall fill the remaining term of that Director Position.

Section 6.7 – Officers Of The Board.

a) Designation.

Officers of the Board shall consist of a Chairperson and Vice-Chairperson who shall be selected from the Primary Directors. The Chairperson shall preside at all meetings of the Board. Notwithstanding the appointment of an Alternate Director for the Chairperson, the Vice-Chairperson shall perform the duties of the Chairperson in the absence or disability of the Chairperson; however, the Alternate Director may otherwise attend and participate in the meeting as a substitute for the absent Primary Director. The Chairperson and Vice-Chairperson shall exercise and perform such other powers and duties as may be assigned by the Board. In the absence of both the Chairperson and Vice-Chairperson, and notwithstanding the appointment of an Alternate Director for the Director Position serving as Vice-Chairperson, the Board shall elect a Chairperson Pro-Tem from the Primary Directors to preside at a meeting; however, the Alternate Director for the Vice-Chairperson may otherwise attend and participate in the meeting as a substitute for the absent Primary Director.

b) Election.

The Board shall elect officers at the initial meeting of the Board, described in Section 7.1, below. The Primary Director appointed by the City of Salinas shall be designated as the Chairperson Pro Tem to convene and preside at the initial meeting of the Board, described in Section 7.1, until a Chairperson is elected by the Board. The Chairperson so elected shall serve in such capacity until June 30 of the succeeding calendar year. Thereafter, the Board shall annually elect the officers of the Board from the Primary Directors. Officers of the Board shall hold office for a term of one year commencing on July 1 of each calendar year and they may serve for multiple consecutive terms. Officers of the Board may be removed and replaced at any time, with or without cause, by a Majority Vote. In the event that an officer loses their position as a Primary Director, that officer position shall become vacant and the Board shall elect a new officer from existing Primary Directors to serve the remaining officer term.

Section 6.8 – Bylaws.

The Board shall adopt Bylaws governing the conduct of meetings and the day-to-day operations of the Agency on or before the first anniversary of the Effective Date.

Section 6.9 – Official Seal And Letterhead.

The Board may adopt, and/or amend, an official seal and letterhead for the Agency.

Section 6.10 – Conflict of Interest.

Directors shall be subject to the provisions of the California Political Reform Act, California Government Code section 81000 et seq, and all other laws governing conflicts of interests. Directors shall file the statements required by Government Code section 87200, et seq.

Article VII: Board Meetings And Actions

Section 7.1 – Initial Meeting.

The initial meeting of the Board shall be held at either the County Board of Supervisors chambers, located at 168 W. Alisal Street in Salinas, or at the Salinas City Council chambers, located at 200 Lincoln Avenue in Salinas within thirty days (30) days of the Effective Date of this Agreement. The date and time of the meeting shall be prominently publicized and noticed in addition to any requirements of the Brown Act in an effort to maximize public participation.

Section 7.2 – Regular Meeting Schedule.

At its initial meeting, and annually before July 1 of each calendar year thereafter, the Board shall establish a schedule of regular meetings, including time and place, at a location overlying the Basin. The Board may vote to change the regular meeting location, time and place, and may call special or emergency meetings, provided that the new, special or emergency meeting location remains at a place overlying the Basin, unless otherwise authorized by the Brown Act.

Section 7.3 – Principal Office.

At its initial meeting the Board shall establish a principal office for the Agency, which shall be located at a place overlying the Basin. The Board may change the principal office from time to time as the Board sees fit so long as that principal office remains at a location overlying the Basin.

Section 7.4 – Conduct Of Board Meetings.

Meetings of the Board of Directors shall be noticed, held, and conducted in accordance with the provisions of the Brown Act and such By-laws as the Board may adopt that are consistent with the Brown Act.

Section 7.5 – Quorum.

A quorum of the Board shall consist of a majority of the Director Positions.

Section 7.6 – Voting.

Each Director Position shall have one vote. In all cases, when a quorum is present, a Majority Vote shall be required to conduct business, unless a Super Majority Vote or a Super Majority Plus Vote is required.

Section 7.7 – Super Majority Vote Requirement.

Items that require a Super Majority Vote include the following unless otherwise required by law:

a) Approval of a GSP;

b) Amendment of budget and transfer of appropriations;

c) Withdrawal of Members pursuant to Section 11.6 (d); and,

d) Termination of Members pursuant to Section 11.7 (c).

Section 7.8 – Super Majority Plus Vote Requirement.

Items that require a Super Majority Plus Vote include the following unless otherwise required by law:

a) Decisions to impose fees not requiring a vote of the electorate or property owners;

b) Proposals to submit to the electorate or property owners (as required by law) decisions to impose fees or taxes; and

c) Limitations on well extractions (pumping limits).

Section 7.9 – Conflict Of Interest Code.

At the initial meeting of Board, the Board shall begin the process for adoption and filing of a Conflict of Interest Code pursuant to the provisions of the Political Reform Act of 1974 (Government Code section 81000 et seq.).

Article VIII: Board Committees

Section 8.1 – Committees Of The Board.

a) Board Committees.

The Board may from time-to-time establish one or more standing or ad hoc committees consisting of Directors to assist in carrying out the purposes and objects of the Agency, including but not limited to a Budget and Finance Committee, Planning Committee, and an Executive Committee. The Board shall determine the purpose and need for such committees. Meetings of standing committees shall be subject to the requirements of the Brown Act.

b) Advisory Committee.

The Board shall establish an advisory committee consisting of Directors and non-Directors. The advisory committee shall be designed to ensure participation by and input to the Board of those constituencies set forth in Water Code section 10723.2 whose interests are not directly represented on the Board. The Board shall determine the number and qualifications of committee members.

Article IX: Operations And Management

Section 9.1 – Initial Administrative And Legal Services.

One or more of the Members shall provide initial administrative, legal and other support services to the Agency at no charge until the appointment of the Permanent Board as provided in Section 6.3, above. The Members shall collectively determine which of the Members shall provide such services.

Section 9.2 – Contracting Administrative And Legal Services.

The Agency may engage one or more Members to provide administrative or legal services following the conclusion of the initial administrative and legal services described in Section 9.1 of this Agreement, on terms and conditions acceptable to the Board. Any Member so engaged shall have such responsibilities as are set forth in the contract for such Member's services.

Section 9.3 – Executive Director.

The Agency may appoint an Executive Director from time-to-time under terms and conditions to be determined by the Board. The Executive Director shall report to and serve at the pleasure of the Board. The Executive Director shall be responsible for the general administration of the Agency, the preparation and implementation of a GSP, and such other duties as may be determined by the Board. If the Board has contracted for administrative services as described in Section 9.2, above, and appoints an Executive Director, the Executive Director shall be responsible for the oversight and control of such contracted administrative services pursuant to the policies and directives established by the Board.

Section 9.4 – Legal Counsel And Other Officers.

a) General Counsel

The Agency may appoint a General Counsel from time-to-time under terms and conditions to be determined by the Board. The General Counsel shall report to and serve at the pleasure of the Board. The General Counsel shall be responsible for the general oversight of the Agency's legal affairs, including litigation. The Board may contract with other counsel for specialized legal services under the supervision of the General Counsel.

b) Treasurer and Auditor

The City of Salinas shall serve as the initial Treasurer and Auditor for the Agency upon its formation, and shall discharge the duties set forth in Sections 6505 and 6505.5 of the Act. Subsequent to formation of the Agency, the Board may appoint a separate Treasurer or separate Auditor pursuant to Section 6505.6 of the Act, and those officers shall discharge the duties set forth in Sections 6505 and 6505.5 of the Act, respectively. The Board may change such Auditor or Treasurer from time-to-time provided such chance is consistent with the Act.

c) Custodian of Property

The Public Works Director of the City of Salinas ("PW Director") shall serve as the initial Custodian of the Agency's Property as set forth in Section 6505.1 of the Act upon the Agency's formation. The PW Director shall file an official bond as described in Government Code section 1450 et seq. in the amount of $50,000, the premium of which shall be paid by the Agency. Subsequent to the formation of the Agency, the Board may designate a different Custodian provided such Custodian files an official bond in an amount required by the Board.

b) Other Officers

Subject to the limits of the Agency's approved budget, the Board may establish other officer positions and appoint and contract for the services of such other officers as it may deem necessary or convenient for the business of the Agency, all of whom shall serve at the pleasure of the Board.

Section 9.5 – Employees.

Subject to the limits of the Agency's approved budget, the Agency may hire employees to discharge the duties and responsibilities of the Agency, subject to the general oversight and control of the Executive Director.

Section 9.6 – Independent Contractors.

Subject to the limits of the Agency's approved budget, the Board may contract for the services of such consultants, advisers and independent contractors as it may deem necessary or convenient for the business of the Agency.

Article X: Financial Provisions

Section 10.1 – Fiscal Year.

The Fiscal Year of the Agency shall be July 1 – June 30.

Section 10.2 – Establishment Of Funds.

The Board shall establish and maintain such funds and accounts as may be required by generally accepted government accounting practices. The Agency shall maintain strict accountability of all funds and report all receipts and disbursements of the Agency on no less than a quarterly basis.

Section 10.3 – Budgets.

a) Initial Budgets

The initial budget of the Agency for the Fiscal Year ending June 30, 2017, shall not exceed $50,000. The budgets of the Agency for Fiscal Years 2017 – 2018 and 2018 – 2019 shall not exceed $1,100,000 each unless otherwise agreed to by the unanimous vote of the Members as described in Section 10.4, below.

b) Regular Budgets

Beginning for Fiscal Year 2019 – 2020, no later than sixty (60) days prior to the end of each Fiscal Year, the Board shall adopt a budget for the Agency for the ensuing Fiscal Year. The Board may authorize mid-year budget adjustments, as needed by Super Majority Vote.

Section 10.4 – Initial Contributions.

a) Fiscal Years 2017 – 2018 and 2018 - 2019

In order to provide the necessary capital to initially fund the Agency during Fiscal Year 2017 - 2018, the Members identified below shall each provide the listed Initial Contribution to the Agency's Treasurer/Auditor no later than July 7, 2017:

1) County:	$670,000
2) WRA:	$ 20,000
3) City of Salinas:	$330,000
4) City of Gonzales:	$ 20,000
5) City of Soledad:	$ 35,000
6) City of Greenfield:	$ 35,000
7) City of King:	$ 30,000
8) Castroville CSD	$ 20,000

In order to provide the necessary capital to fund the Agency during Fiscal Year 2018 – 2019, the Members identified below shall each provide the listed Initial Contribution to the Agency's Treasurer/Auditor no later than July 6, 2018:

1) County:	$670,000
2) WRA:	$ 20,000
3) City of Salinas:	$330,000
4) City of Gonzales:	$ 20,000
5) City of Soledad:	$ 35,000
6) City of Greenfield:	$ 35,000
7) City of King:	$ 30,000
8) Castroville CSD	$ 20,000

b) Additional Initial Contributions

New Members not listed above executing this Agreement no later than the Determination Date shall pay a minimum Initial Contribution of twenty thousand dollars ($20,000) per year for the two fiscal years. New Members not listed above executing this Agreement after the

Determination Date shall pay a minimum Initial Contribution of fifty thousand dollars ($50,000) per year for the two fiscal years.

Should the Board determine that additional funding for each of Fiscal Years 2017 – 2018 and 2018 – 2019 is necessary for Agency operations the Board shall adopt a resolution requesting each of the Members to consider additional funding and demonstrating in detail 1) the need for the funding, and 2) the purposes for which the additional funding will be utilized. Such requested funding shall be in the same proportion as the Initial Contributions set forth in Section 10.4 (a) unless the Members unanimously agree otherwise.

Upon receipt of the resolution requesting additional funding representatives of the Members may meet and confer regarding the request; however, each Member shall consider and act upon the request no later than 30 (thirty) days following the adoption of the resolution by the Board.

c) <u>Reimbursement of Initial Contributions</u>

To the extent the Agency is able to secure other funding sources, and to the extent permitted by law, the Agency shall reimburse these Initial Contributions to the Members on a proportionate basis in relation to their cumulative Initial Contributions to the Agency.

Section 10.5 – Payments To The Agency.

All costs and expenses of the Agency may be funded from: (i) voluntary contributions from third parties; (ii) grants; (iii) contributions from Members from time to time to supplement financing of the activities of the Agency; (iv) advances or loans from the Members or other sources; (v) bond revenue; and, (vi) taxes, assessments, fees and/or charges levied by the Agency under the provisions of SGMA or as otherwise authorized by law.

Section 10.6 – Directors' Stipends and Expenses.

Directors shall be eligible to receive a stipend in the amount of $ 100 for each Board meeting actually attended plus mileage to and from Board meetings. In addition, Directors shall be reimbursed for the actual and necessary expenses incurred in the discharge of their duties pursuant to an adopted Board policy. Directors are not required to accept the stipend or mileage, or expenses, and may decline the same by written notice to the Board.

Article XI: Relationship Of Agency And Its Members

Section 11.1 – Separate Entity.

In accordance with Sections 6506 and 6507 of the Act, the Agency shall be a public entity separate and apart from the Members.

Section 11.2 – Liabilities.

In accordance with Section 6507 of the Act, the debt, liabilities and obligations of the Agency shall be the debts, liabilities and obligations of the Agency alone and not of its Members. The Members do not intend hereby to be obligated either jointly or severally for the debts, liabilities or obligations of the Agency, except as may be specifically provided for in California Government Code Section 895.2 as amended or supplemented.

Section 11.3 – Insurance.

The Agency shall procure appropriate policies of insurance providing coverage to the Agency and its Directors, officers and employees for general liability, errors and omissions, property, workers compensation, and any other coverage the Board deems appropriate. Such policies shall name the Members, their officers and employees as additional insureds.

Section 11.4 – Indemnity.

Funds of the Agency may be used to defend, indemnify, and hold harmless the Agency, each Member, each Director, and any officers, agents and employees of the Agency for their actions taken within the course and scope of their duties while acting on behalf of the Agency. To the fullest extent permitted by law, the Agency agrees to save, indemnify, defend and hold harmless each Member from any liability, claims, suits, actions, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses or costs of any kind, whether actual, alleged or threatened, including attorney's fees and costs, court costs, interest, defense costs, and expert witness fees, where the same arise out of, or are attributable in whole or in part, to negligent acts or omissions of the Agency or its employees, officers or agents or the employees, officers or agents of any Member, while acting within the course and scope of an Member relationship with the Agency. Notwithstanding the foregoing, the sole negligence, gross negligence, or intentional acts of any Member is exempted from this Section 11.3 - Indemnity.

Section 11.5 – Agreements With Members

The Agency intends to carry out activities in furtherance of its purposes consistent with the powers established by this Agreement and with the participation of all Members. Notwithstanding the foregoing, the Board shall have the authority to approve any agreements with one or more Members in order to further the purposes of the Agency, including, but not limited to, the commencement of a condemnation action within the jurisdictional boundary of the agreeing Member or Members.

Section 11.6 – Withdrawal Of Members.

a) Any Member shall the have the ability to withdraw by providing ninety (90) days written notice of its intention to withdraw. Said notice shall be given to the Board and to each of the other Members. If such Member is an Appointing Authority, the Member's withdrawal shall not be effective unless and until the non-withdrawing Members agree to an amendment to this

Agreement providing for the composition of and appointment to the Board.

b) A Member shall not be fiscally liable for any contribution to an adopted budget provided that the Member provides written notice ninety (90) days prior to the adoption of the budget of its intention to withdraw.

c) In the event of a withdrawal, this Agreement shall continue in full force and effect among the remaining members as set forth in Section 11.8, below.

d) Notwithstanding the foregoing, Members shall not have the ability to withdraw if there is outstanding bonded debt or other long term liability of the Agency unless and until it is determined by the Board by Super Majority Vote that the withdrawal of the Member shall not adversely affect the ability of the Agency to perform its financial obligations pursuant to the bonded debt or other liability. The Board shall communicate its finding to the non-withdrawing Members who may approve the withdrawal by unanimous vote.

Section 11.7 – Termination Of Members.

a) As an alternative to pursuing litigation against a Member for failure to meet its funding obligations set forth in this Agreement or as may be adopted by the Board from time to time, the Board may vote to terminate such Member. The Board shall transmit its determination to the Members who may approve the termination by unanimous vote of the Members not proposed to be terminated. If such Member is an Appointing Authority, the Member's termination shall not be effective unless and until the non-terminated Members agree to an amendment to this Agreement providing for the composition of and appointment to the Board.

b) In the event of a termination, this Agreement shall continue in full force and effect among the remaining members as set forth in Section 11.8, below.

c) Notwithstanding the foregoing, Members may not be terminated if there is outstanding bonded debt or other long term liability of the Agency unless and until it is determined by the Board by Super Majority Vote that the termination of the Member shall not adversely affect the ability of the Agency to perform its financial obligations pursuant to the bonded debt or other liability. The Board shall communicate its finding to the Members who may approve the termination by unanimous vote of the Members not proposed to be terminated.

Section 11.8 – Continuing Obligations: Withdrawal Or Termination.

a) Provided that at least two Members remain, the withdrawal or termination of one or more Members shall not terminate this Agreement or result in the dissolution of the Agency; this Agreement shall remain in full force and effect among the remaining Members; and the Agency shall remain in operation.

b) Except as provided in Section 11.6 (b), any withdrawal or termination of a Member shall not relieve the Member of its financial obligations under this Agreement in effect prior to the effective date of the withdrawal or termination.

Section 11.9 – Disposition Of Money Or Property Upon Board Determination Of Surplus.

Upon determination by the Board that any surplus money is on hand, such surplus money shall be returned to the then existing Members in proportion to their cumulative contributions to the Agency, or such surplus money may be deposited in a Board designated reserve account. Upon determination by the Board that any surplus properties, works, rights and interests of the Agency are on hand, the Board shall first offer any such surplus for sale to the Members and such sale shall be based on highest bid received. If no such sale is consummated, the Board shall offer the surplus properties, works, rights and interests of the Agency for sale in accordance with applicable law to any governmental agency, private entity or persons for good and adequate consideration.

Section 11.10 – Termination And Dissolution.

a) Mutual Consent

i) Except as otherwise provided in this Section 11.10 (a), this Agreement may be terminated and the Agency dissolved at any time upon the unanimous approval of the Members provided that provision has been made by the Members for the payment, refunding, retirement, or other disposition of any bonded debt or other long term liability in the name of the Agency.

ii) Upon Dissolution of the Agency, each then existing Member shall receive a proportionate share, based upon the cumulative contributions of all then remaining Members, of any remaining assets after all Agency liabilities and obligations have been paid in full. The distribution of remaining assets may be made "in kind" or assets may be sold and the proceeds thereof distributed to the Members. The Agency shall remain in existence for such time as is required to determine such distribution, and the Board, or other person or entity appointed by the Members, shall be responsible for its determination. Such distribution shall occur within a reasonable time after a decision to terminate this Agreement and dissolve the Agency has been approved by the Members. No former Member that previously withdrew or was terminated as of the effective date of the decision to terminate this Agreement and dissolve the Agency shall be entitled to a distribution upon dissolution.

b) Insufficient Members

Subject to the provisions of Sections 11.6 and 11.7, should Members either be terminated or withdraw such that only one Member remains, this Agreement shall terminate and the Agency dissolved. In such event the last remaining Member shall be entitled to all assets of the Agency.

c) Failure to be Financially Sustainable

In the event that the Agency does not take the necessary actions to create a sustainable revenue stream necessary to fully finance its operating budget by the end of Fiscal Year 2018 – 2019 this Agreement shall terminate and the Agency shall be dissolved, unless otherwise agreed to by amendment to this Agreement approved unanimously by all then-existing Members. In the event of such termination and dissolution, the process of dissolution shall begin on July 1, 2019, and proceed as set forth in Section 11.10 (a) (ii), above.

d) Legislative Determination

Should the State adopt legislation specifying that the Basin should be managed by a statutorily designated entity this Agreement shall terminate and the Agency shall be dissolved upon such terms and conditions as the legislation may designate. Upon such dissolution, the assets and liabilities of the Agency shall be disposed of in the manner specified by the legislation. If the legislation does not so specify, the assets and liabilities of the Agency shall be disposed of in the manner provided in Section 11.10 (a), above.

Article XII: Miscellaneous Provisions

Section 12.1 – Complete Agreement.

The foregoing constitutes the full and complete Agreement of the Members. This Agreement supersedes all prior agreements and understandings, whether in writing or oral, related to the subject matter of this Agreement that are not set forth in writing herein.

Section 12.2 – Amendment.

This Agreement may be amended from time-to-time by the unanimous consent of the Members, acting through their governing bodies. Such amendments shall be in the form of a writing signed by each Member.

Section 12.3 – Successors And Assigns.

The rights and duties of the Members may not be assigned or delegated without the written consent of all other Members. Any attempt to assign or delegate such rights or duties in contravention of this Agreement shall be null and void. Any assignment or delegation permitted under the terms of this Agreement shall be consistent with the terms of any contracts, resolutions or indentures of the Agency then in effect.

This Agreement shall inure to the benefit of and be binding upon the successors and assigns of the Members hereto. This section does not prohibit a Member from entering into an independent agreement with another person, entity, or agency regarding the financing of that Member's contributions to the Agency or the disposition of proceeds, which that Member receives under this Agreement so long as such independent agreement does not affect, or purport to affect, the rights and duties of the Agency or the Members under this Agreement.

Section 12.4 – Dispute Resolution.

In the event there are disputes and/or controversies relating to the interpretation, construction, performance, termination, breach of, or withdrawal from this Agreement, the Members involved shall in good faith meet and confer within twenty-one (21) calendar days after written notice has been sent to all the Members. In the event that the Members involved in the dispute ("Disputing Members") are not able to resolve the dispute through informal negotiation, the Disputing Members agree to submit such dispute to formal mediation before litigation. If Disputing Members cannot agree upon the identity of a mediator within ten (10) business days after a Disputing Member requests mediation, then the non-Disputing Members shall select a mediator to mediate the dispute. The Disputing Members shall share equally in the cost of the mediator who ultimately mediates the dispute, but neither of the Disputing Members shall be entitled to collect or be reimbursed for other related costs, including but not limited to attorneys' fees. If mediation proves unsuccessful and litigation of any dispute occurs, the prevailing Member shall be entitled to reasonable attorneys' fees, costs and expenses in addition to any other relief to which the Member may be entitled. If a Disputing Members refuses to participate in mediation prior to commencing litigation, that Member shall have waived its right to attorneys' fees and costs as the prevailing party.

<u>Section 12.5 – Execution In Parts Or Counterparts.</u>

This Agreement may be executed in parts or counterparts, each part or counterpart being an exact duplicate of all other parts or counterparts, and all parts or counterparts shall be considered as constituting one complete original and may be attached together when executed by the Members hereto. Facsimile or electronic signatures shall be binding.

<u>Section 12.6 – Member Authorization.</u>

The governing bodies of the Members have each authorized execution of this Agreement, as evidenced by their respective signatures below.

<u>Section 12.7 – No Predetermination Or Irrevocable Commitment of Resources.</u>

Nothing herein shall constitute a determination by the Agency or any Members that any action shall be undertaken or that any unconditional or irrevocable commitment of resources shall be made, until such time as the required compliance with all local, state, or federal laws, including without limitation the California Environmental Quality Act, National Environmental Policy Act, or permit requirements, as applicable, have been completed.

<u>Section 12.8 – Notices.</u>

Notices authorized or required to be given pursuant to this Agreement shall be in writing and shall be deemed to have been given when mailed, postage prepaid, or delivered during working hours to the addresses set forth for each of the Members hereto on Exhibit "A" of this Agreement, or to such other changed addresses communicated to the Agency and the Members in writing.

<u>Section 12.9 – Severability And Validity Of Agreement.</u>

Should the participation of any Member, or any part, term or provision of this Agreement, be decided by the courts or the legislature to be illegal, in excess of that Member's authority, in conflict with any law of the State, or otherwise rendered unenforceable or ineffectual, the validity of the remaining portions, terms or provisions of this Agreement shall not be affected thereby and each Member hereby agrees it would have entered into this Agreement upon the same remaining terms as provided herein.

Section 12.10 – Singular Includes Plural.

Whenever used in this Agreement, the singular form of any term includes the plural form and the plural form includes the singular form.

IN WITNESS WHEREOF, the Members hereto, pursuant to resolutions duly and regularly adopted by their respective governing boards, have caused their names to be affixed by their proper and respective officers as of the day and year so indicated.

COUNTY OF MONTEREY

By Jane B Parker
Chair of the Board of Supervisors

Dated: 12-22-16

APPROVED AS TO FORM

CHARLES J. MCKEE, County Counsel

By
LESLIE J. GIRARD

WATER RESOURCES AGENCY OF THE COUNTY OF MONTEREY

By
Chair of the Board of Supervisors of the Water Resources Agency

Dated: 1-31-2017

APPROVED AS TO FORM

CHARLES J. MCKEE, County Counsel

By

CITY OF SALINAS

By____________________
Mayor

Dated: ____________________

Section 12.10 – Singular Includes Plural.

Whenever used in this Agreement, the singular form of any term includes the plural form and the plural form includes the singular form.

IN WITNESS WHEREOF, the Members hereto, pursuant to resolutions duly and regularly adopted by their respective governing boards, have caused their names to be affixed by their proper and respective officers as of the day and year so indicated.

COUNTY OF MONTEREY

By____________________________________

Chair of the Board of Supervisors

Dated: ____________________________

APPROVED AS TO FORM

CHARLES J. MCKEE, County Counsel

By____________________________________

WATER RESOURCES AGENCY OF THE COUNTY OF MONTEREY

By____________________________________

Chair of the Board of Supervisors of the Water Resources Agency

Dated: ____________________________

APPROVED AS TO FORM

CHARLES J. MCKEE, County Counsel

By____________________________________

CITY OF SALINAS

By____________________________________

Mayor

Dated: 12-20-16

APPROVED AS TO FORM

CHRISTOPHER CALLIHAN, City Attorney

By Chirl S. Call

CITY OF SOLEDAD

By______________________________________
Mayor

Dated: ____________________________

APPROVED AS TO FORM

____________________, City Attorney

By______________________________________

CITY OF GONZALES

By______________________________________
Mayor

Dated: ____________________________

APPROVED AS TO FORM

____________________, City Attorney

By______________________________________

CITY OF GREENFIELD

By______________________________________
Mayor

Dated: ____________________________

APPROVED AS TO FORM

CHRISTOPHER CALLIHAN, City Attorney

By__________________________________

CITY OF SOLEDAD

By__________________________________

Mayor

Dated: 03/03/17

APPROVED AS TO FORM

Michael Rodriquez, City Attorney

By__________________________________

CITY OF GONZALES

By__________________________________

Mayor

Dated: __________________________

APPROVED AS TO FORM

____________________, City Attorney

By__________________________________

CITY OF GREENFIELD

By__________________________________

Mayor

Dated: __________________________

CITY OF GONZALES

By Maria Orozco
Maria Orozco, Mayor

Dated: 2/21/17

APPROVED AS TO FORM

By
Michael F. Rodriquez, City Attorney

Dated: 2-21-2017

APPROVED AS TO FORM

____________________, City Attorney

By______________________________________

CITY OF KING

By______________________________________
Mayor

Dated: 3-24-2017

APPROVED AS TO FORM

____________________, City Attorney

By 3-24-2017

CASTROVILLE COMMUNITY SERVICES

By______________________________________
Chair of the Board of Directors

APPROVED AS TO FORM

____________________, District Counsel

MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY

By______________________________________
Chair of the Board of Directors

APPROVED AS TO FORM

____________________, Agency Counsel

APPROVED AS TO FORM

____________________, City Attorney

By______________________________________

CITY OF KING

By______________________________________

Mayor

Dated: ____________________________

APPROVED AS TO FORM

____________________, City Attorney

By______________________________________

CASTROVILLE COMMUNITY SERVICES

By______________________________________

Chair of the Board of Directors

APPROVED AS TO FORM

____________________ District Counsel

APPROVED AS TO FORM

____________________, City Attorney

By____

CITY OF KING

By____
Mayor

Dated: ______________________________

APPROVED AS TO FORM

____________________, City Attorney

By____

CASTROVILLE COMMUNITY SERVICES

By____
Chair of the Board of Directors

APPROVED AS TO FORM

____________________, District Counsel

MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY

By Gloria De La Rosa
Chair of the Board of Directors

APPROVED AS TO FORM

Robert R. Wellington, Agency Counsel

<u>**EXHIBIT A**</u>

<u>MEMBERS</u>

COUNTY OF MONTEREY
County Administrative Officer
168 W. Alisal St., Salinas, CA 93901

WATER RESOURCES AGENCY OF MONTEREY COUNTY
General Manager

CITY OF SALINAS
City Manager

CITY OF SOLEDAD
City Manager

CITY OF GONZALES
City Manager

CITY OF GREENFIELD
City Manager

CITY OF KING (KING CITY)
City Manager

CASTROVILLE COMMUNITY SERVICES DISTRICT
General Manager

EXHIBIT B

BOARD OF DIRECTORS

	Director	Representing	Specific Qualifications	Appointing Authority
a)	City of Salinas.	City of Salinas.	To be determined by the Appointing Authority.	Salinas City Council.
b)	South County Cities.	Cities of Gonzales, Soledad, Greenfield, and King City.	To be determined by the Appointing Authority.	Appropriate City Council as recommended by the City Selection sub-Committee.
c)	Other GSA Eligible Entity.	GSA Eligible Entities but not including the cities of Salinas, Gonzales, Soledad, Greenfield or King City.	Must be a representative of a GSA Eligible Entity but not including the cities of Salinas, Gonzales, Soledad, Greenfield or King City.	Monterey County Board of Supervisors.
d)	Disadvantaged Community, or Public Water System, including Mutual Water Companies serving residential customers.	Unincorporated Disadvantaged Communities, or Public Water Systems, including Mutual Water Companies serving residential customers only.	Must be a resident of a Disadvantaged Community in the unincorporated area, or a representative Public Water System, including Mutual Water Companies serving residential customers only.	Castroville Community Services District.
e)	CPUC Regulated Water Company.	CPUC Regulated Water Companies in the Basin.	Must be a representative of a CPUC Regulated Water	Salinas City Council.

			Company.	
f)	Agriculture.	Agricultural interests.	Must be an individual that is: 1) engaged in, and derives the majority of his or her gross income or revenue from, commercial agricultural production or operations; or 2) designated by an entity this is engaged in commercial agricultural production or operations, and the individual derives the majority of his or her gross income or revenue from agricultural production or operations, including as an owner, lessor, lessee, manager, officer, or substantial shareholder of a corporate entity.	Monterey County Board of Supervisors.
g)	Agriculture.	Agricultural interests.	Same as (f).	Monterey County Board of Supervisors.
h)	Agriculture.	Agricultural interests.	Same as (f).	Monterey County Board of Supervisors.
i)	Agriculture.	Agricultural interests.	Same as (f).	Monterey County Board of Supervisors.
j)	Environment.	Environmental users and interests.	Must be a representative of an	Monterey County

			established environmental organization that has a presence or is otherwise active in the Basin.	Board of Supervisors.
k)	Public Member.	Interests not otherwise represented on the Board.	A rural residential well owner; an industrial processor; a Local Small or State Small Water System; or other mutual water company.	Monterey County Board of Supervisors.

EXHIBIT C

OTHER GSA ELIGIBLE ENTITY DIRECTOR POSITION NOMINATING GROUP

COUNTY OF MONTEREY

WATER RESOURCES AGENCY OF MONTEREY COUNTY

MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY

EXHIBIT D

DISADVANTAGED COMMUNITY, OR PUBLIC WATER SYSTEM, INCLUDING MUTUAL WATER COMPANIES SERVING RESIDENTIAL CUSTOMERS DIRECTOR POSITION NOMINATING GROUP

CASTROVILLE COMMUNITY SERVICES DISTRICT (Group Contact)
Eric Tynan, General Manager
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ENVIRONMENTAL JUSTICE COALITION FOR WATER

SAN JERARDO COOPERATIVE

SAN ARDO WATER DISTRICT

SAN VICENTE MUTUAL WATER COMPANY

EXHIBIT E

CPUC REGULATED WATER COMPANY DIRECTOR POSITION NOMINATING GROUP

ALISAL WATER CORPORATION DBA ALCO WATER SERVICE (Group Contact)
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Salinas, CA 93905
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831-424-0611 fax
tom@alcowater.com

CALIFORNIA WATER SERVICE COMPANY

EXHIBIT F

ENVIRONMENT DIRECTOR POSITION NOMINATING GROUP

SUSTAINABLE MONTEREY COUNTY

LEAGUE OF WOMEN VOTERS OF MONTEREY COUNTY

LANDWATCH MONTEREY COUNTY

FRIENDS AND NEIGHBORS OF ELKHORN SLOUGH

CALIFORNIA NATIVE PLANT SOCIETY, MONTEREY CHAPTER

TROUT UNLIMITED

SURFRIDERS

THE NATURE CONSERVANCY

CARMEL RIVER STEELHEAD ASSOCIATION

Chapter 2
Appendix 2-A

Comments on the Draft GSP

1. Comment Table
2. Comment Letters
3. Comment Letters Responses

COMMENTS RECEIVED JUNE 12, 2020 TO JULY 07, 2021

Number	Chapter	Table	Page	Figure	Comment Type	Date	Commenter	Comment	Response	Action
1					Meeting	6/12/2020	**Nancy Isakson**	Will these slide presentations be posted to the website in an area we can find them?	Yes	Meeting comment - noted.
2					Meeting	6/12/2020	**Tom Virsik**	Based on what we heard at the BOD on the modeling, when will chapters 6, 9, and 10 be realistically available and when will the models be available to cross-check. Raising as continuing concern.	We are building chapters as we go. This is truly a planning process. Our goal is that you become our advisors in this process, you are really the first step to provide guidance. We do not have written chapters hiding anywhere. We want to honor the process. A committee-based, stakeholder-based process. I appreciate your comment.	Meeting comment - noted.
3					Meeting	6/12/2020	**Bill Lipe**	I think we need to release all the chapters now. The slow-release underestimates people's ability to take in a lot of information, esp people who have been dealing with these issues for many years. I request all chapters be released so we can know what to expect. We're being told things can be changed down the road, but it's quite a process. Let people know, esp people who will financially be on the hook for these plans, let them see the whole picture. We need to be able to understand what all the moving parts are in these plans. Many people have concerns about the moving parts, the projects, the costs. I think this is the fair thing to do.	It is true, we have not written other chapters. Emily pointed out we are able to allude to them because we know the structure, so we know where the other information will be held. I will talk to staff about a different approach, possibly about releasing all information at once, 6-8 months. There is a way we can do that, but it won't be for some time. (DW)	Meeting comment - noted.
4					Meeting	6/12/2020	**Bill Lipe**	There is concern about how we're going to pay for things. If you wait until the last minute to release the financial obligations with the plan, people are going to have concerns. I don't think we should wait on this, or when all the chapters are available. This started in 2017, and you ran a rigorous process, but I would think you're better at this now. I would hope you would be able to come up with a plan quicker this time.	Comment received. The plan is to receive direction from the committee on projects in October, the water charges framework in March and implementation direction in May.	Meeting comment - noted.
5					Meeting	6/12/2020	**Grant Cremers**	I've had people reach out to me with similar concerns. They don't want to be at the point where it all comes into full view at the end, leaving a limited amount of time to work on it. I've spoken with business owners. They want to know the big picture and move on.	Comment received. The plan is to receive direction from the committee on projects in October, the water charges framework in March and implementation direction in May.	Meeting comment - noted.
6					Meeting	6/12/2020	**Jason Smith**	I would add in what this will cost. This is all related to chapters, the models from the USGS, and money we're going to have to spend. I will say, we've all been most concerned about, is the transparency and communication. I don't know any other board or committee or agency with as much transparency as this one. We are a committee to address things to go to the AC to the BOD to go to public comment. I don't know how many more layers we'll need.	Comment received.	Meeting comment - noted.
7					Meeting	6/12/2020	**Grant Cremers**	Will our estimate of current rangeland and crop land diminish the future ability of rangeland to be converted to crop land?	Comment Received. The estimate of current crop land and current rangeland will be used to estimate the volume of water used at this time for the water budget.	Meeting comment - noted.
8					Meeting	6/12/2020	**Jason Smith**	You said you're not going to make a determination about what is SW and what is GW. This has been a frustrating process because the double-counting has been used against us.	DW: I forgot to say I am not addressing what is GW and what is SW at this point. Will come back to us later, with attorneys. I am not making that assessment at this point, but we will have to address it later.	Meeting comment - noted.

9					Meeting	6/12/2020	**Nancy Isakson**	I submitted comments from the SVWC. I think it's important to present data in factual way. This will come up in water budget. How will you account for different sources and how they're used, will be important for everyone to understand.	DW: Comment from your letter, re: water budget. The water budgets for the other subbasins we are looking at now will be divided in a more granular way: stream percolation, reservoir release, irrigation return flow. With water budget, still about accounting. But in plans, will need to be more detailed about what is GW and SW because this will be important in future.	Meeting comment - noted.
								Second question, comments from letter, how will those be responded to and when?	DW: Most of those comments are factual changes, or what Emily would call Admin comments. We will record them, and respond with how those changes will be made. We will not make the changes until the drafts go through all the committees to prevent multiple versions. We will be keeping a list as we go, then present to BOD how we'll address them.	
10	1				Meeting	6/12/2020	**Tom Virsik**	Page 1-1, many typos.	Typos corrected	Noted. Text revised.
11	3				Meeting	6/12/2020	**Tom Virsik**	Two pages labelled 3-2.	Page numbers fixed.	Noted. Text revised.
12					Meeting	6/12/2020	**Tom Virsik**	On SW/GW issue, potential ramifications. Want to point out, Zone 2C is not entirety of previous Bulletin 118 boundary. I have clients that report to control board. They have extractions just outside the Zone 2C boundary.	Page numbers fixed.	Meeting comment - noted.
13	3				Meeting	6/12/2020	**Tom Virsik**	Also, page 3-18, 3.4.3, MCWRA collects information from all wells. Not true.	Comment received.	Noted. Text revised.
14	3				Meeting	6/12/2020	**Tom Virsik**	Page 3-2, description of MCWRA structure. Not quite right, not wildly wrong, have Mr. Girard or someone should look and make it accurate.	Comment received.	Noted.
15					Meeting	6/12/2020	**Nancy Isakson**	For 180/400, you did a table of comments and your response. Will you do that as you go through each chapter? What about additional comments posted by the public?	DW: We try to keep the list as updated as possible to be sent to Adv. Committee. We're working on it now, incl online comment form. This will allow us to create table more automatically. So I will be promoting it more, and hopefully it will be online beginning next week.	Meeting comment - noted.
16					Meeting	6/12/2020	**Bill Lipe**	Will you be taking a closer look at SW/GW reporting? The determination of whether you're pumping underflow vs GW, there's no legal declaration and I haven't seen much science.	DW: I am simply going to talk about what's reported to state and to MCWRA. The time will come when we will have to make assessments about what water is being pumped. I don't want to discuss underflow at this point. There will be other questions about MCWRA releases, conservation releases. They are releasing diverted water. What is that. Important questions when we start talking about what water and who's water. I don't know if we'll get conclusion during GSP process. We'll address at some time in future.	Meeting comment - noted.
17					Meeting	6/12/2020	**Bill Lipe**	Water is diverted to stop floods and provide conservation. The claims are that the downstream rights supersede the rights of the diverter. Some people would say "if that diversion wasn't there, it'd be natural flow and percolate." We know regionally the water acts different in different areas.	DW: Not my position now to say what is GW and what is SW. Needs to be part of process, but after we have Water Budgets more established.	Meeting comment - noted.
18					Meeting	6/12/2020	**Steve McIntyre**	How are you going to get away from the possibility that much of this water is reported twice, and subsequently double counted? 30-40 wells I know are reported to both agencies. Are you going to add those? Will it skew water budget?	DW: It will not skew our water budget because we're going to use GW models and it will not double count. We can have discussion in the future about how much model works.	Noted. Text revised.
19					Meeting	6/12/2020	**Grant Cremers**	Sounds like we will try to address computation of SW/GW reporting. This is big point we want clarity on. Want something everyone in the basin will agree too.	Comment received.	Meeting comment - noted.
20			1		Meeting	6/12/2020	**Grant Cremers**	On released chapters, wording issues pg 1, 3rd para: wells were impacted or rendered unusable.... Needs rewording because that was due to reservoir management, we know from lawsuit settlement. Don't want to characterize basin as super-susceptible to drought.	Comment received.	Noted. Text revised.

21					Meeting	6/12/2020	**Grant Cremers**	4th para: outline of how GSP will outline sustainability. We may already be in sustainability. Maybe we don't need to say that. Maybe we want to show how the subbasin is already sustainable.	Comment received.	Meeting comment - noted.
22					Meeting	6/12/2020	**Grant Cremers**	What is the current sustainability goal for subbasin? I don't see that anywhere.	Comment received.	Noted. Text revised.
23					Meeting	6/12/2020	**Bill Lipe**	When subbasin boundary was extended to county line, the Upper Valley was very close to being low-priority, already pretty sustainable. No water for 3 years reached Spreckles, was a very unique situation. If reservoirs/respective rivers are impaired, repercussions for years. Recharge from rivers is ~85%. Upper Valley is unique, relatively balanced b/t water resources and water use.	Comment received.	Meeting comment - noted.
24					Meeting	6/12/2020	**Emily**	The Upper Valley Subbasin Committee provided the following motion regarding the strategic direction for the draft Chapters 1, 3 and 4: 1) share information and Chapters as soon as possible; 2) the Subbasin should not be categorized as susceptible to drought and it should be shown how the Subbasin is already sustainable."	Motion was passed by Committee and will be incorporated.	Meeting comment - noted.
25	3	2-Mar			JotForm	7/16/2020	**Heather Lukacs**	We request that this table include all Monterey County regulated drinking water systems and clearly distinguish between type of drinking water system. Local small water systems serve 2-4 connections, state small water systems serve 5-14 connections, private domestic wells serve 1 connection. In addition this table should list agricultural and industrial users as separate well types. This distinction is made in Figure 3-6 but not in this Table. It is important to distinguish between well type here in order to set the stage for good water budget estimates, for the monitoring network, and throughout the plan. This data is all readily available to the public and GSA.	Comment received.	Table 3-2 was made using DWR's OSWCR database, and it does not provide information on the amount of agricultural and industrial wells so these categories have to be combined into the production category. The parcel data used to make Figure 3-6 came from Monterey Country, not from DWR so it is unlikely that these two data sources match up exactly.

26	9				Meeting	8/3/2020	**Roger Moitoso**	RE: GSP Development Process Update: As we get to October, you'll be looking at projects. As we sit now, we have the basin and reservoirs. Those reservoirs control 55% of the recharge in the basin. It's a manipulated recharge. The biological opinion was tied into the last project we built is now expired. NMFS and everyone is pushing for a habitat conversation plan which can be lengthy and robust. I think this committee should get on board with the HCP, and see what that does to the operation of the reservoirs and what that does to the Upper Valley. There have been a few studies I've shared with committee members about the historical benefit analysis for before/after reservoirs. The benefit to the southern half of the Upper Valley was basically nil. Between the Green Bridge at San Lucas to the King City Bridge there was some groundwater elevation gain from conservation releases, but not much. The Committee should keep in mind that the Habitat Conservation Plan that wants more water released to match fish flows from the Arroyo Seco can change how the reservoirs are run, and it will impact our sustainability and recharge. When we did Salinas Valley Project, we did EIR. Between voting yes and building the reservoirs, the EIR and mitigated measures changed and they came up with a biological opinion. Then there were different releases and different mitigated measures. Before we discuss projects and fee structures, let's know what we got. If the HCP completed in 2023 upends and derails everything we do for the GSP plan submitted in 2022, then we didn't accomplish anything. We know the HCP is coming, so let's keep that in mind.	Comment received.	Meeting comment - noted.
27					Meeting	8/3/2020	**Jason Smith**	In order to discuss projects, we need to know things we may not know now. I know this plan is due January 2022, and some of this is putting the cart before the horse, but my understanding is that it's a live document, nothing is concrete.	Comment received.	Meeting comment - noted.
28					Meeting	8/3/2020	**Bill Lipe**	Somewhere between Greenfield and King City, east of 101, the southern end of the Forebay and the entire Upper Valley, are dependent on reservoir releases. Depending on how those releases are managed will dictate the conditions we have. The HCP is likely going to change how things work. Everyone is open to that, and it's going to dictate how things go in the Upper Valley. There's also an agency lobbying for a major project in Monterey County, which this Agency doesn't have any say over, and we don't know how that will impact things.	Comment received.	Meeting comment - noted.
29					Meeting	8/3/2020	**Nancy Isakson**	I am concerned that the committee will not see the revised chapters. They'll provide direction, but not have the opportunity to see those changes before they go to the advisory committee and board. I think it would be stronger to allow the committee members to see and approve the changes.	Comment received.	Meeting comment - noted.
30					Meeting	8/3/2020	**Tom Virsik**	One thing to keep in mind, the GSP is due January 2022. The other reports are due when they are due. You don't know when they will come out, but there is potential value in the GSP being as thorough as possible, and those other reports coming later will take the GSP into consideration. Moving forward with a reasonable pace is probably in your best interest.	Comment received.	Meeting comment - noted.
31					Meeting	8/3/2020	**Jason Smith**	Will there be an opportunity to see those changes before the chapters go to the advisory committee?	Emily: I think everyone agrees that would be really ideal. However, there are major time constraints. M&A is creating these chapters as we're going, and to ask for editing as they go effectively doubles their workload.	Meeting comment - noted.
32					Meeting	8/3/2020	**Jason Smith**	I think we need them to vet ideas pretty well. I understand the framework and timeline. We're not building a project yet, we're creating a living document that will change over time. Should be robust enough to start off.	Emily: What you're asking for is to get a good sense of the response and the action taken for each comment.	Meeting comment - noted.

33					Meeting	8/3/2020	**Jason Smith**	As we go further, it will get more complicated. I understand Nancy's point, and I believe as we do this process, there's going to have to be some trust. People just don't want to get backdoored and we need to make sure we are comfortable with the process.	Emily: If we use the strategic direction tool, we can get the input we need and the components we can commit to while explaining the degree of uncertainty. DW: I think it's a pretty good idea. When we go through the action items, we can give an opinion about whether we think we can implement it or if we need to do more research. For example, this group expressed at the last meeting that the GSP should be written from the perspective that it is already sustainable. I can confidently say on some things we can agree on. Other comments, we'll have to say "we'll get back to you" but we can definitely respond to the strategic direction.	Meeting comment - noted.
34	8				Meeting	8/3/2020	**Jason Smith**	RE: Subsidence: You're looking at data for the last four years, but what are we missing?	DW: We're looking at the last four years because that is what is available. There are UNAVSCO sites, but they are in the mountains and they monitor more for tectonic changes. Because GW elevations have been fairly constant throughout the valley for many years, and a lot of that geology doesn't lend itself to subsidence, I feel fairly confident that it's not a problem.	Meeting comment - noted.
35	8				Meeting	8/3/2020	**Bill Lipe**	RE: Depletion of ISW: How does this relate to GW levels? When you look at Upper Valley, these two things may be related.	DW: You're asking about the SMC relationship, not the physical relationship? So, let's say you think you can deplete more surface water, which means you can lower shallow GW levels. But for GW levels, you like where they're at. That's all okay. But you have to meet both of those criteria at the same time, and the higher GW level SMC will likely trump the other.	Meeting comment - noted.
36	8				Meeting	8/3/2020	**Bill Lipe**	What would be an acceptable surface water level? We know in 2016, even all the way back to the 1940s, water levels are fairly constant. In the 90's it went down and in the '14, '15, '16 water years, they went way down. I'm thinking these two criteria are intertwined. If the GW water level goes down, there's going to be a certain amount of recharge that needs to occur, and will occur, depending on the reservoir release rate.	DW: These criteria are very intertwined. For a fairly shallow aquifer in close connection with the river, these are absolutely connected. When you think about these to give advice, if you say, you want to lower GW levels, you're also saying you're okay with more stream depletion.	Meeting comment - noted.
37	8				Meeting	8/3/2020	**Roger Moitoso**	I think you touched on it. When you look historically, even when the reservoirs were built, the releases were always made. That depletion in '14, '15 and '16 was by the reservoir [operation], not by pumping.	DW: This is definitely going to be a discussion when we talk about projects. We will talk about undesirable results, and the undesirable results to avoid from the past.	Meeting comment - noted.
38	8				Meeting	8/3/2020	**Ann Myhre**	What Derrik suggested earlier, that we use GW elevations as a proxy, maybe some of these things will resolve themselves automatically.	DW: Good suggestion, please bring it up again in a couple of months. It might bring things together more clearly.	Meeting comment - noted.
39	8				Meeting	8/3/2020	**Jason Smith**	Re: Groundwater Elevation: Thinking about all our normal North/South disagreements, my question is as we put this together, and we are charged with no basin harming another basin, how can you and staff help convey that? Say we choose a GW/SW level criteria, and people in the North say "oh, well, they're going to keep doing what they're doing." How do we scientifically show that it's not going to negatively impact them in the North?	DW: This gets back to the point that it's an iterative process, but initially set the thresholds you want. As we make our way through the process, and we see, "oh, this may be very expensive." So you look at some other options that can reduce cost, and you say, "oh, well, maybe we take less." You may also want to consider seasonality, because it gives us more options how we operate things, and reduce costs, and get something out of it for everybody.	Meeting comment - noted.
40	8				Meeting	8/3/2020	**Mark Bloom**	Because of Jason's comments about the politics between the north and the south, as we make our suggestions [to the GSP], but we're not able to respond, the north is going to redline those and we won't be able to go back and forth and discuss.	DW: The only place that people outside the basin have some say in your plan is at the BOD level. This plan is for this subbasin. What we hear from you, as strategic direction, is how we'll move forward to the best of our ability. I don't believe there are people in the north that will torpedo this. I think this management system is set up so that the only people who have veto power are the people at the Board level.	Meeting comment - noted.
41	8				Meeting	8/3/2020	**Jason Smith**	At the Board level, there's also a three quarters vote by Ag for fees and extractions. My other question, you have the 180/400 that's already turned their Plan in, if the 180/400 set the GW levels at the 2015 level, how does the Agency go back iteratively work with other subbasin decisions?	DW: We're already planning on rewriting the 180/400 GSP. When the 2022 GSPs are submitted, there will also be a redraft of the 180/400 so all of the GSPs will work together.	Meeting comment - noted.

42	8				Meeting	8/3/2020	**Bill Lipe**	In 2015/2016, we know it was tough south of the confluence. North of the confluence, they benefitted from the rechage from the Arroyo Seco. We need to make sure we have the releases to keep the water levels up, and improve the conveyance. How many wells are we using to determine the GW elevations in the Upper Valley?	DW: We're using all the wells the MCWRA takes water levels from to create our contours. Something like 15-16 hydrographs, admittedly concentrated along the river. There is a large portion of the southeast of the subbasin where we are missing data.	Meeting comment - noted.
43	8				Meeting	8/3/2020	**Bill Lipe**	I've seen the letters to have well owners be a part of the monitoring network. Does that list gradually expand?	DW: Yes, absolutely the list can expand. It also means that well becomes a place where we have to hold minimum thresholds. I will say it makes our lives better to have more data points.	Meeting comment - noted.
44	8				Meeting	8/3/2020	**Bill Lipe**	Once you get away from the river, you have a different situation, or maybe some of the wells aren't being used. Can a subbasin be fractured into separate pieces? From south of King City, the underground is very different, especially with depth and width.	DW: We will not separate this subbasin into fractions. We do have management areas in other subbasins, but we don't have enough data to support that in this subbasin.	Meeting comment - noted.
45					Meeting	8/3/2020	**Tom Virsik**	I think from what's been explained, that if there are changes to the 180/400 GSP and any conflict, there will be integration. The integration committee will take a first look at that, to hopefully mitigate any surprise.	DW: You're absolutely right, that's the point of the ISP committee.	Meeting comment - noted.
46	8				Meeting	8/3/2020	**Roger Moitoso**	RE: Degraded Water Quality: This question goes back, a comment always comes up, "the UV is highly dependent on reservoir releases". I want to caveat that, by saying the UV is highly susceptible to reservoir releases. The historical analysis broke the valley up in to 11 subbasins; the UV was broken in two (northern end and southern end), the Forebay was three parts. There are five separate subbasins south of Gonzales and they all act different. Above the Arroyo Seco, there's no change because it's not altered. When you get to Lower Eastside Forebay and the lower Upper Valley, that's not a true statement. We saw in 2015 and 2016, the UV was upended. The ways the reservoirs were operated made the UV almost blow away. Get the Salinas river running in concert with the Arroyo Seco, it'll work out.	Comment received.	Meeting comment - noted.
47	8				Meeting	8/3/2020	**Jason Smith**	I understand everything Roger is talking about. How does that play in to the discussions in your decision making? If we had no dams, if we used the five basins as Roger said, it'd be sustainable. But we have the reservoirs, and if we didn't have them, we woudn't have the kind of agriculture we have.	DW: My general comment with the GSP is we build it with what we have today. It cuts both ways, we have a system to move water around and it makes are hydrology different. There is no intent to go back to previous situations. My approach is to deal with what we have today to deal with GW problems. Also why we havn't included the interlake tunnel project.	Meeting comment - noted.
48					Meeting	8/3/2020	**Bill Lipe**	What is the GSA estimate for overdraft for the whole Salinas basin?	DW: I believe it's on the order of 25,000 AFY.	Meeting comment - noted.
49					Meeting	8/3/2020	**Bill Lipe**	What's the estimate overdraft for the UV?	DW: Approximately 170 AFY	Meeting comment - noted.
50					Meeting	8/3/2020	**Bill Lipe**	Did you say that the sustainable yield was overestimated?	DW: You heard correctly. It's a problem for basins that not overdrafted and are in sustainability. It's hard to say what the sustainable yeild is because the boundaries haven't been pushed to find it. The UV could be able to pump more and still be OK.	Meeting comment - noted.
51					Meeting	8/3/2020	**Bill Lipe**	Would all subbasins be okay if there were no dams? Or would some areas have the same problem they have today?	DW: I would say yes, the reservoirs have benefitted some parts of the basin. They would look different (without reservoirs).	Meeting comment - noted.
52					Meeting	8/3/2020	**Bill Lipe**	Would some of these projects require more water to be stored or released?	DW: I would say yes but the timing of the release is important.	Meeting comment - noted.

53	5				Meeting	8/3/2020	**Tom Virsik**	On page 87, page 5-29, sect. 5.5.1 Data Sources, "There are currently no datasets that show reaches of interconnected…" When I read that, my impression was that the shallow aquifer in the Upper Valley is generally connected with the stream. This sentence suggests that nobody knows if that's true. If it's about the datasets, even if everyone knows, then the model is then characterized as the data. Is it nomenclature? I look at this language and it seems odd.	DW: We will clarify that. We are specifically talking about the datasets, the proof. The way the regulations are written, in this one situation the model is considered "data".	Noted. Text revised as suggested.
54	5.5.1		29-May		JotForm	8/3/2020	**Tom Virsik**	The first sentence states there are no datasets showing interconnected surface water. Discussion of the interconnected surface water SMC (including on 3 August) reflect a consensus that substantial parts of the River are connected to the shallow aquifer in the Upper Valley. That this content at Chapter 5 is preliminary and will later be updated with SVIHM analyses is understood, but 5.5.2 lacks any notation of any pre-model analysis or even suspicions. Reading only the draft content of Chapter 5 falsely creates the impression that the GSP creator(s) presently believe surface water is not interconnected. Suggestion: if the content will be circulated gain in its premodel state, include language that the modeling is "expected to show / detail/ identify etc." surface water connection. Ideally, the later draft(s) can also crossreference the GW SMC, as it is interrelated in this basin. Note also that 7.6 at page 7-16, section 5.5.1 is crossreferenced in support of a statement of "potential connection."	Comment received.	Noted. GSP text was revised.
55					Meeting	10/5/2020	**Grant Cremers**	If we're measuring difference in the land over time, is there earthquake influence on this? If we set the MO or MT at zero, how is this impacted by earthquakes?	Abby Ostovar: The specific text discusses land subsidence as a result of groundwater activities.	Meeting comment - noted.
56					Meeting	10/5/2020	**Grant Cremers**	How do earthquakes interact with groundwater?	DW: This is a big topic of debate in hydrology. We are focused more on subsidence due to improper management. This is also a question in storage. A large decline in storage during a drought year is not an undesirable result. As long as we show a reasonable management plan and management actions, we should be fine.	Meeting comment - noted.
57					Meeting	10/5/2020	**Bill Lipe**	What is the level of subsidence in the Upper Valley?	DW: It is 0, and is within a measurement error of +/-0.1 ft per year.	Meeting comment - noted.
58					Meeting	10/5/2020	**Bill Lipe**	Is there a standard for significant and unreasonable?	DW: There isn't. We're talking about how much subsidence is happening 20 years from now.	Meeting comment - noted.
59					Meeting	10/5/2020	**Tom Merrifield**	Just a comment about the relationship between earthquakes and subsidence. Generally speaking, they work opposite to each other, where we see it. Earthquakes are seen with injection of groundwater. Subsidence, as we're talking about it, is due to extraction of groundwater. You wouldn't see earthquakes as a result of GW withdrawal.	Comment received.	Meeting comment - noted.
60					Meeting	10/5/2020		Subsidence SMC: Motion to accept Option 1: Any subsidence anywhere in the Subbasin is significant and unreasonable using the metric of InSAR data	Motion was passed by Committee and will be incorporated into GSP.	**This will be incorporated into GSP development as a strategic comment. See memo for further discussion.**

61					Meeting	10/5/2020	**Grant Cremers**	Will the sustainable yield number be determined each year by a model?	DW: Yes, it is estimated by a model. Then, we look at pumping, and climate, and we ask "was our estimate of sustainable yield reasonable or not." We look at whether GW levels are dropping, and we reasses. Abby Ostovar: The GSPs also undergo 5-year updates. DW: Sustainable yield is easier to estimate in overdrafted basins. This basin is not overdrafted. Abby Ostovar: It's also challenging when we don't have enough data. We will be working on expanding our data collection and monitoring networks. It's a challenge here.	Meeting comment - noted.
62					Meeting	10/5/2020	**Bill Lipe**	Perhaps you have a scenario where groundwater levels don't fluctuate very much. But people look in and still want to say "you should still limit your pumping." How do you respond?	DW: We'll probably break water budget into two parts: natural recharge and what the MCWRA releases from the reservoir as conservation releases. As long as MCWRA continues to release that water, effectively for recharge, the UV is a beneficiary of that. If people say you're taking advantage, that is not a technical problem, it's a negotiation problem.	Meeting comment - noted.
63					Meeting	10/5/2020	**Grant Cremers**	On measuring this, in a regular year, you have sustainable yield. Then you get into a dry year, and you don't know if it's going to be many years. You lose some GW in a dry year, you are going to dip into your savings. Can we do that?	DW: Yes. In DWR BMP, reduction of GW storage during a drought is expected. As long as there is a plan in place to replenish that water and recover the storage.	Meeting comment - noted.
64					Meeting	10/5/2020	**Bill Lipe**	What is considered "long-term"?	DW: The way I view long-term, we are projecting what is going to be a successful plan based on a certain assumed hydrology. Average precip, average reservoir releases, etc. Long-term is what represents those average conditions. We are representing the conditions we assume about future climate.	Meeting comment - noted.
65					Meeting	10/5/2020	**Bill Lipe**	Both of these options talk about measurements. How would we measure extraction versus GW levels?	Abby Ostovar: Option 1 we would use the GEMS, which is why we talk about expanding it. The other one is using GW elevations and a storage coefficient to relate it to storage.	Meeting comment - noted.
66					Meeting	10/5/2020	**Jason Smith**	I think we should be discussing what the Forebay Subbasin Committee chose for SMC parameters as well.	Comment received.	Meeting comment - noted.
67					Meeting	10/5/2020	**Bill Lipe**	When there was a boundary modification, there was a reevaluation/repriortization process as well. We're classified as medium priority based on technicality, but there is a good story to tell about the UV subbasin, which now includes a large portion of the Paso Robles Basin.	Gary Peterson: Bill is right, it came very close to being sustainable. There were some technical matters that were worked through and required the GSP. That data is out there. Of all of the subbasins, UV including the new areas, is likely the most sustainable subbasin we have.	Meeting comment - noted.
68					Meeting	10/5/2020	**Grant Cremers**	We want to hold making numbers until we understand data of annual pumping from the UV. Whether we get it from GEMs or other people pumping outside of GEMS.	Abby Ostovar: We're going to talk about data gaps at the next meeting. The purposes of developing options is to have direction as we write the draft chapter, even without the specific numbers. DW: We're generally going in the direction of #1, but you want to reassess when we have numbers.	Meeting comment - noted.
69					Meeting	10/5/2020		Groundwater Storage SMC: Motion to accept Option 1: Pumping in excess of the sustainable yield leads to significant and unreasonable impacts. With further definition of MO and MT with numbers from GEMS and any other data relevant data collection outside of GEMS.	Motion was passed by Committee and will be incorporated into GSP.	**This will be incorporated into GSP development as a strategic comment. See memo for further discussion.**
70					Meeting	10/5/2020	**Bill Lipe**	Re: GEMS: It's not going to include SW diversions from State control board?	Abby Ostovar: We have looked at the double counting issue. Grant Cremers: It's only double counting if you include both. If you only use GEMs, you're not including the other. DW: If it is reported only as a diversion, we are not viewing it as GW. We view it as that diversion, and SW.	Meeting comment - noted.
71					Meeting	10/5/2020	**Bill Lipe**	Re: Groundwater Quality SMC: I think number 1 is the only option we've got. Maintain what we have and make it no worse. Where possible, and if possible, and if there's a will, then try to improve it.	Comment received.	Meeting comment - noted.

72					Meeting	10/5/2020	**Grant Cremers**	I think Option 1 leaves the door open to improve where we can. Is there a list of what is measured for water quality?	Abby Ostovar: The GAMA data, include ILRP data, and drinking water systems through the same GAMA database.	Meeting comment - noted.
73					Meeting	10/5/2020	**Grant Cremers**	What do you do if a well shows quality going backwards? Is it like canary in the coalmine or an outlier?	Abby Ostovar: First we look at if there are any GSA actions that would have had an impact. If there is a GSA action, we would look specifically at how it could impact and also monitor.	Meeting comment - noted.
74					Meeting	10/5/2020	**Bill Lipe**	What elements in the water are being measured? What components are being looked at and prioritized?	Abby Ostovar: We separate drinking water from Ag wells. We use Regulatory standards. We then assess how many wells are exceeding that. So, if you have 5 wells that are exceeding that, we don't want more than 5 wells exceeding that in the future. For Ag wells, we look at CoCs that would damage crops. We look at reports from the Basin Plan and we look at what will damage the crops. DW: We will only be concerned about constituents that have already been identified in the UV above the level of concern.	Meeting comment - noted.
75					Meeting	10/5/2020	**Bill Lipe**	Is there a difference between how drinking water wells and ag wells are treated?	DW: What we have set up what is sig and unreas; if the GSA does something that causes a well owner to spend money on treatment, abandonment, or other unreasonable financial burdens, that is sig & unreas. Ag and municiple wells are viewed the same in this way. Abby Ostovar: Re water quality data analysis of CoCs in the UV, shows the number of wells monitored and exceedances. The last column is the percentage of wells exceeding. We don't want that to increase.	Meeting comment - noted.
76					Meeting	10/5/2020	**Bill Lipe**	The slide shows 10mg/L of nitrates which is a DW standard and it is listed for an Ag well.	DW: We shouldn't include that and it should be fixed. The ag wells should have ag water quality standards.	Meeting comment - noted.
77					Meeting	10/5/2020	**Bill Lipe**	With the TDS, which may be unsatisfactory, is a secondary standard when you determine water quality. When you pull out certain contaminants, some have to be more strongly considered for water quality. TDS is a secondary contaminant.	Abby Ostovar: This is also our first cut proposal. If you feel like any of these exceedance standards should be different, let us know. Some people may not want to go beyond these standards. We want your feedback.	Meeting comment - noted.
78					Meeting	10/5/2020	**Justine Massey**	We understand SGMA doesn't require GSAs to improve water quality, and water quality must be maintained and not further degraded. I appreciate some of Bill's comments about where you *can* improve water quality. We'd love to see this subbasin look at multi-benefit projects. We want to empasize MO and MT be set at certain monitoring wells. This discussion has focused around the effects at DW and ag wells, which can have disastrous impacts on people's lives. It's appropriate to have attention paid to make sure water users aren't left behind. DW is designated as the highest priority use in state law. Monitoring is a big part of that.	Comment received.	Meeting comment - noted.
79					Meeting	10/5/2020	**Tom Merrifield**	I think you're proposing a set of analytes? We have to look at certain monitoring points to make these comparisons. Will we iron out the details later about what justifies an exceedance?	Abby Ostovar: We look for which ones are present above standards in the basin, and those are the ones we analyze on an annual basis .We'll dig into more of the details. The way we're proposing now is CoCs in any of the wells (ILRP, ag, domestic…) Looking at the exceedance.	Meeting comment - noted.
80					Meeting	10/5/2020	**Grant Cremers**	My understanding was that the GSA woud have no impacts on water quality. We have the regional quality control board. It's my thought that we want to hold and not degrade water quality. I think there will be things outside the GSA that will improve water quality.	Comment received.	Meeting comment - noted.
81					Meeting	10/5/2020	**Bill Lipe**	There are things already underway to improve water quality coming from the Regional Control Board and others, and we want to support those things, and improve where we can within our mandate. But we need to maintain water quality where we're at and make sure we don't make it worse.	Abby Ostovar: You can look at projects and management actions to look at improvements in water quality. This doesn't prohibit that.	Meeting comment - noted.
82					Meeting	10/5/2020	**Jason Smith**	None of us want to have bad water quality for domestics or farming. What we've learned is we can't turn things around overnight. It's taken decades, it will take decades.	Comment received.	Meeting comment - noted.

83					Meeting	10/5/2020	**Justine Massey**	I think that this conversation is getting at the heart of the discussions many GSAs have been having. I want to reiterate that these other programs that deal with water quality don't have exclusive jurisdiction. Nothing prevents GSAs from setting a goal to improve water quality. It sounds like there's interest in improving, or setting MOs to improve. I want to voice support for that. I also want to encourage you, as you get more detailed, those monitoring wells are important to establish baseline conditions so you can see where changes are happening. If there are water quality impacts at a domestic well, it will have a very different impact. Extra nitrate on a field is not the same as extra nitrate in DW well.	Comment received.	Meeting comment - noted.
84					Meeting	10/5/2020	**Bill Lipe**	I'm glad someone supports the GSA to have some authority. If the GSA could have some control over the water quality throughout the basin, as the sole authority, that'd be great. But getting authorization also means stepping on some toes.	Comment received.	Meeting comment - noted.
85					Meeting	10/5/2020	**Grant Cremers**	With a good GSA and GSP, I would hope to just improve our water resources. If we can improve our volume, it will improve quality.	Comment received.	Meeting comment - noted.
86					Meeting	10/5/2020	**Bill Lipe**	Also think about connecting DW users to DW systems. Some areas could really use it. It would improve in our county and our state. It's a human right.	Comment received.	Meeting comment - noted.
87					Meeting	10/5/2020		Water Quality SMC: Motion to accept Option 1: Degraded groundwater quality resulting from direct GSA actions is significant and unreasonable as measured by the number of supply wells.	Motion was passed by Committee and will be incorporated into GSP.	**This will be incorporated into GSP development as a strategic comment. See memo for further discussion.**
88					Meeting	10/5/2020	**Bill Lipe**	RE: Groundwater Levels SMC: I wouldn't be averse to selecting a certain year, 2015. We may have enough data.	DW: That is the direction the Forebay is going, 2015 is the year.	Meeting comment - noted.
89					Meeting	10/5/2020	**Justine Massey**	From community water center's perspective, GW level MT should be set to domestic wells, which are more shallow than ag wells. We recommend the GSA conduct a domestic well impact analysis for the proposed MO and MT, which should be done before setting SMCs. Drinking water users need to be notified. We recommend those studies be done before making this decision.	Abby Ostovar: We did do an assessment of the domestic wells in the 180/400, and we can do that here, too.	Meeting comment - noted.
90					Meeting	10/5/2020	**Grant Cremers**	Obviously we know the ag wells were impacted in 2015/2016. Were domestic wells impacted then, too?	DW: There is a DWR map that shows which domestic wells were impacted around the state. Several in the Paso Robles subbasin. There were very few in the Salinas Valley compared to the Paso Robles. Abby Ostovar: We do look at the GW levels and the depths of the domestic wells. We can look at that for whichever year we analyze.	Meeting comment - noted.
91					Meeting	10/5/2020	**Bill Lipe**	This is about whether you have supply to continue forward, right? You reach a point where you can't do more than this.	DW: We are asking about whether we are having an impact to a point where someone cannot pump water or get the water thay need.	Meeting comment - noted.
92					Meeting	10/5/2020	**Bill Lipe**	I know for the UV, when you look back 50-60 years, 2015 was one of the worst years on record. Using 2015 as the "we never really want to get below again."	DW: If you look at the graph, yes, 2015 is really one of the lowest points.	Meeting comment - noted.
93					Meeting	10/5/2020	**Jason Smith**	2015, if the reservoirs were operated the way we felt they should have been, we never would have been at this level. We don't want to be in that situation again. Should we choose another year?	DW: I think this is what Bill referred to earlier, where 2016 was really the lowest, but 2015 was the precursor. Abby Ostovar: This is MTs, MO can always be higher and what you're aiming for.	Meeting comment - noted.

94					Meeting	10/5/2020		Groundwater Elevation SMC: Motion to accept Option 1 , groundwater elevations in 2015 were significant and unreasonable.	Motion was passed by Committee.	**This will be incorporated into GSP development as a strategic comment. See memo for further discussion.**
95					Meeting	10/5/2020	**Bill Lipe**	Re: Interconnected Surface Water SMC: Legal requirements could weigh-in pretty heavily. This would have big implications. There are wells along the river. There is fuzzy area whether it is interconnected or not.	DW: In the 180/400, we looked at uses and users. We asked, if we chose Option 3, do we think we have legal impact on some other users? Is there a legal requirement for flows that we think we won't be able to meet. We decided we could meet the legal requirements. We could do the same analysis here.	Meeting comment - noted.
96					Meeting	10/5/2020	**Bill Lipe**	Besides environmental users, what other user classes are there?	DW: There was a question about whether there were any appropriative users that had not been able to take their appropriative right on the river, riparian users (only having a right to natural flows), and recreational users.	Meeting comment - noted.
97					Meeting	10/5/2020	**Les Girard**	SGMA regulates groundwater not surface water. Certain surface water users have rights which are regulated by the state, those are the appropriators. Riparian users have the right to riparian water for reasonable and beneficial uses. The science is going to be very delicate, as you get into that area between river water and groundwater. We're going to have to be very careful.	DW: What we did was not intended to be a legal analysis, just an acknowledgement of various users and to see if we could balance their interests.	Meeting comment - noted.
98					Meeting	10/5/2020	**Grant Cremers**	Please explain the MT and MO again, if you say equal to todays shallow GW levels?	Abby Ostovar: We will use the model, and look at where shallow GW levels are. Look at pumping areas. We will set up the monitoring network of shallow wells to monitor. On an annual basis, compare. Our initial cut is that it's mainly along the river. DW: This is similar to the loss of storage one. Look at levels in shallow wells along the river, and look for a long-term downward trend which may indicate a long-term depletion.	Meeting comment - noted.
99					Meeting	10/5/2020	**Bill Lipe**	This would be another long-term view? In my experience, that interconnected level can vary, and sometimes it's connected to releases and drought years. We should be looking at 10-20 years.	DW: That has been my attitude, and not everybody views it that way. Letters from NMFS and others say, "how would you adjust your pumping during dry years to deal with the issues of that year?" Generally, my response is that GW management as a long-term management issue, not as a response to every fluctuation. Just my advice.	Meeting comment - noted.
100					Meeting	10/5/2020	**Grant Cremers**	For shallow GW levels, are you measuring SW or GW?	DW: What you are measuring is how much "pull" there is on the SW. What is the difference between the river elevation and the GW.	Meeting comment - noted.
101					Meeting	10/5/2020	**Bill Lipe**	When there was a lot of stress in 2016 from all users, then in 2017 we got huge flows, and it took a few weeks and a couple of surges, and perhaps three weeks until the interconnection was reestablished. I'm glad Les chimed in.	Comment received.	Meeting comment - noted.
102					Meeting	10/5/2020		Depletion of Interconnected Surface Water SMC: Motion to accept Option 3: The current rate of surface water depletion is not unreasonable (although it may be significant). Using the metric of groundwater levels.	Motion was passed by Committee and will be incorporated into GSP.	**This will be incorporated into GSP development as a strategic comment. See memo for further discussion.**
103					Special Meeting	10/14/2020	**Bill Lipe**	You mentioned two knobs on pumping. I recall the [basin] prioritization process, ours reevaluated recently. There's an environmental score that had to do with habitat areas. Would that be a third knob? Would you agree? There may be project with respect to fish that would potentially get us to low priority status.	DW: I don't know if you'll ever get to low priority status. You're right, there was a new scoring process. I don't think you have a lot of control over the prioritization process. DWR's choice.	Meeting comment - noted.

104					Special Meeting	10/14/2020	**Bill Lipe**	BMPs, the RWQCB already imposes BMPs. Is that another instance of stepping on toes?	DW? The BMPs we're talking about are probably BMPs to be water efficient, to use less water w/o losing your crops or reducing your crops. The Regional Quality Control Board's BMPs are to control nitrate. We're talking about voluntary measures to reduce water usage.	Meeting comment - noted.
105					Special Meeting	10/14/2020	**Bill Lipe**	When you report to the RWQCB, they also look at water usage. If you report overpumping, they will call you on it. They do take into account water volume by commodity. Maybe go to Ag Associations or UCCE to see how efficient people are already being. Especially all the medium to large growers, they have implemented very efficient watering systems. I don't know how much more they can do, there's been a lot of innovation in the last 20-30 years.	Comment received.	Meeting comment - noted.
106					Special Meeting	10/14/2020	**Nancy Isakson**	I want to talk about the tool of pumping reductions. I've stated this in other committee meetings. The water coalition has discussed, it's a good tool to have. It's important to know the approval process. Will it be voted in by the land owners? BOD? If BOD, does it require a super majority? And then to implement, we believe there needs to be standards and criteria. Need to be a basis on understanding the implementation.	DW: Thank you. I do agree, the basis of implementation is a good step to have in these GSPs. Then it becomes less mysterious in the future if you implement it in the future. You bring up several legal questions about requirements to implement that I can't answer. Les: Nancy asked how things get implemented. If you look at JPA, a super majority plus vote is required on proposals to submit to the electorate or property owners, decisions to impose on fees or taxes. When you look at projects, you have to talk about how the projects will be financed, if it's funded by an assessment or tax, or a grant. If grant, you only need a simple majority if there is an indendent source of funds. If it has to go out to a vote, then you need a super majority plus before it goes to the electorate. A super majority vote is needed if you get a new source of funding, then you need to amend your budget. The vote requirements depend on what is being voted upon.	Meeting comment - noted.
107					Special Meeting	10/14/2020	**Tom Virsik**	My comment on the two or three knob analogy is that it would seem to be a good idea to concentrate on the dial that regulates the reservoirs. In subbasins not in overdraft, it is difficult to calculate a sustainable yield. So my suggestion for emphasizing the reservoir releases is that it would help to understand the sustainable yield.	DW: We will talk about reservoir reoperation in this presentation.	Meeting comment - noted.
108					Special Meeting	10/14/2020	**Tom Merrifield**	If we had additional releases from reservoirs, is that direct recharge?	DW: Yes, in a way it is. I would view as direct recharge. The conservation releases are direct recharge. The purpose is to provide water for users down the river, and to recharge the aquifers.	Meeting comment - noted.
109					Special Meeting	10/14/2020	**Tom Merrifield**	If we had something like a cost-benefit analysis, where you know what your rough investments are, that might help in the decision-making process down the road. It may assist.	DW: We will have costs in the GSPs, to give you an idea of cost per AF. Is a project to bring more water in compared to reducing pumping or other conservation…We will include that information.	Meeting comment - noted.
110					Special Meeting	10/14/2020	**Bill Lipe**	It's good to know what the yield and cost per acre-foot will be for projects. It will help us prioritize.	Comment received.	Meeting comment - noted.
111					Special Meeting	10/14/2020	**Jason Smith**	Many projects are with MCWRA assets. What discussions have we had about that? What roadblocks are there moving forward with those projects?	DW: We are only implementing this program in coordination with a lot of other groups, including MCWRA. There are already discussions going on about reservoir reoperation. What we are offering is a way to reoperate the reservoir where everyone's needs can be met. An investment can be made by installing the ASR wells, then there is a reasonable way to reoperate the reservoir where everyone's needs can be met.	Meeting comment - noted.
112					Special Meeting	10/14/2020	**Jason Smith**	With the HCP, in general, winter releases should work in tandem with the environmental piece, right?	DW: That is a good point, and is another benefit we're seeing. Winter releases gets us closer to a natural flow. Winter releases mean more releases during the season when the fish need it to migrate. The idea is to bring us more in line with the necessary environmental flows.	Meeting comment - noted.

113					Special Meeting	10/14/2020	**Bill Lipe**	Why isn't the HCP being done first? A lot of people understand that many things are derived from the HCP. I'm trying to pick projects with the limited information on the requirements in the HCP. Will the GSA be involved in the development of the HCP?	DW: I will point out that we can look at it as, not 'we'll be controlled by the HCP,' rather we can do some upfront analysis. Les: The reason it's not going through is based on funding. The agency will be reaching out to many stakeholders. I believe our GSA will have a significant role in shaping the HCP.	Meeting comment - noted.
114					Special Meeting	10/14/2020	**Bill Lipe**	You've put out a proposed area, isn't there a Zone 2B for CSIP to cover?	DW: The cost benefit is to expand to various land. How much would it cost to expand and what is the value?	Meeting comment - noted.
115					Special Meeting	10/14/2020	**Bill Lipe**	Value engineering. That a term you use, going forward? Some of the optimization that we talking about are the unintended consequences of under-engineering.	DW: I'm not opposed to value-engineering, you get 90% there, that's not good enough. We have to get to sustainability.	Meeting comment - noted.
116					Special Meeting	10/14/2020	**Bill Lipe**	You mentioned SRDF to pull water and inject it. What about recycled water to inject in the winter?	DW: There is a plan to do that. The CEQA analysis has already been done. There is a second issue, for a small local plant. You bring up a concern we haven't worked through. If there is water available from Monterey OneWater in the winter, and water from SRDF, how do we manage both streams in a way that meets all reg requirements? We still need to look into that further.	Meeting comment - noted.
117					Special Meeting	10/14/2020	**Bill Lipe**	We're happy to see you looking at winter releases. Replicating the natural flow makes a lot of sense. I'm hoping the science backs it up. I see you combining with ASR and SRDF, and reoperating existing assets that have already been paid for. I'm sure there will be a study to prove the concept. Is there an expectation that other people in the valley will contribute to infrastructure that will be built on the coast?	DW: I don't think we're talking about paying for specific infrastructure, rather talking about paying for benefits. The Upper Valley see some benefits from reoperation. Key benefit is that reoperation without ASR wells becomes more difficult reoperation. The one we propose is easier reoperation and part of the entire program that the UV sees some benefit from.	Meeting comment - noted.
118					Special Meeting	10/14/2020	**Bill Lipe**	I also see you have Chualar there for 11043 takeout. What is the official takeout point for 11043. I hear it's above the confluence just south of Soledad.	DW: My understanding is there are two permitted diversion points. Les: Yes, I believe there are two points. One is above the confluence and another somewhere else. 11043, MCWRA is reapplying for utilizing that water. The ultimate takeout points could change.	Meeting comment - noted.
119					Special Meeting	10/14/2020	**Bill Lipe**	If you can clarify about Chualar and 11043, maybe we can get update on where county is at. You said yesterday, this water right has been eroded over time because they have never done anything with the permit. I think the state is getting restless but folks are going to need to ask.	Les: The state has made noises about revoking the whole thing. The Agency has approached them about keeping permit alive. The state has said that there may be less water than original permit. Les: Shared screen with a map with the original two diversion points. One diversion point above the confluence and one north of Chualar.	Meeting comment - noted.
120					Special Meeting	10/14/2020	**Grant Cremers**	As far as taking water at rubber dam for injection, would it be easier or cheaper to treat water to DW standards to send to Salinas? To stop continuous city pumping?	DW: Been brought up by Roger Moitoso. I wll look at it as an option for direct delivery, and take pumpers offline. I think we'll stitch in to concepts.	Meeting comment - noted.
121					Special Meeting	10/14/2020	**Grant Cremers**	We've obviously had some large fires, there may be some year of increased runoff. If the river channel is already more wet, will it increase the potential to capture more water? If we do winter releases, but there's enhanced runoff, do we have potential to catch more water?	DW: There are temporary permits for very high flows. You have that option. Can't do it without permit. This is different than releases from reservoirs. When you divert that, it's a second diversion. You don't have to jump through as many hoops to change rediversion.	Meeting comment - noted.
122					Special Meeting	10/14/2020	**Grant Cremers**	If everything is fine, do we have to wait for an optimum rainfall season to do the transition? How does the transition work?	DW: Excellent question, and we don't know the answer yet. I have not thought about transition period.	Meeting comment - noted.
123					Special Meeting	10/14/2020	**Tom Merrifield**	Sounds like ASR wells will be positioned close to SWI. My limited experience with ASR wells is they are prone to biofouling which increases O&M costs. If you have two water sources being mixed, there could be more corrosion and encrustation. Those costs need to be considered in evaluation.	DW: You are right on all those points and we will have to consider that.	Meeting comment - noted.
124					Special Meeting	10/14/2020	**Justine Massey**	With community water center, we want to weigh in with suggestions on projects and management actions. Sounds really exciting that	Emily Gardner: Please feel free to reach out to me, Justine.	Meeting comment -

125					Meeting	12/7/2020	**Nancy Isakson**	Re: Items not on agenda: (1) I really want to encourage staff to be able to release and distribute information as early as possible prior to meetings. (2) I submitted a letter, have one correction: the map in Figure 1 under projects memo, mentions Zone 2B. I encourage you to revise it to include Zone 2C.	Comment received.	Meeting comment - noted.
126					Meeting	12/7/2020	**Nancy Isakson**	Re: Schedule and workshop updates: Will there be some kind of note on how the letters and comments will be addressed? How will you address the comments submitted via letter?	Emily Gardner: We decided to try to not paraphrase people's letters. Still working on how to connect letters to action. Abby Ostovar: Previously we had a list of letters and a summarized response. We will do that again.	Meeting comment - noted.
127					Meeting	12/7/2020	**Bill Lipe**	I know in 2016, GW levels were a little lower. I think the idea was we didn't want to get to 2016. I thought we picked 2015 so we never got there again. I'm not sure where the +5 feet came from. I'd be okay setting things at the 2015 level. I'm open to hear what other folks have to say.	Abby Ostovar: You are correct. The committee decided on 2015.	Meeting comment - noted.
128					Meeting	12/7/2020	**Roger Moitoso**	As we're going through this, 2015 - are these individual wells? Are we talking about a monitoring system? In San Ardo, there were wells that weren't really affected. As we talk about these levels, are we talking about areas? How does this tie back to your individual well?	Abby Ostovar: In Chapter 7, there are representative monitoring wells that we measure at. DW: The UV is a unique subbasin, especially with respect to the added area for the UV. If we pick 2015, we look at the monitoring network wells, and set it there. For the added areas, and we look at 2015 levels, if it doesn't work we can adjust it in the future. However, as we get more data, we may say this doesn't work because it registers a different signature.	Meeting comment - noted.
129					Meeting	12/7/2020	**Bill Lipe**	It looks like the UV has been historically stable, especially after the reservoirs. Curious what that MO is.	Abby Ostovar: The MO is what you want to strive for. That's sustainability to strive for. We set these based on what seemed attainable. In the ISP they said 2005 or 2012.	Meeting comment - noted.
130					Meeting	12/7/2020	**Steve McIntyre**	The MO seems appropriate. I'm concerned about the MT, even at +5 feet from 2015. Of the 8 wells we had on one ranch, 6 went dry. They're by the river. For all the other subbasins where we're farming, we didn't see those impacts. We saw drops, but they didn't go dry. I have concerns about 2015.	Abby Ostovar: I made the correction, the choice is between 2015 and 2016, and there was a 5-foot different between the two.	Meeting comment - noted.
131					Meeting	12/7/2020	**Bill Lipe**	To Mr. McIntyre's comments: 2015 was definitely red alert for some folks, and 2016 was when some impact was realized. I don't know how much discussion is around 2015. I'm certainly willing to hear from other committee members on using 2015 as the MT.	Comment received.	Meeting comment - noted.
132					Meeting	12/7/2020	**Grant Cremers**	My thoughts are even in 1992 there were wells that were suffering. I think the line should be somewhere between 1992 and 2015. I think 2016 was a wipe out where we couldn't operate wells.	Comment received.	Meeting comment - noted.
133					Meeting	12/7/2020	**Bill Lipe**	You don't want to get to 2016 levels and realize there's a problem. I want to understand the impact of increasing the groundwater level SMC. What's the impact? Do we want to set it artificially high or low?	DW: If we set the MT high, and we don't meet it, we will be seen as not meeting sustainability, which opens the door for DWR to step in. Setting it should also accommodate for normal, small droughts. If you set the MT too low, you're not working toward reasonable sustainability. So, with really high MTs, if you don't meet that, you are by definition, managing unsustainably.	Meeting comment - noted.
134					Meeting	12/7/2020	**Jason Smith**	2015 would be meeting in the middle. 1992 was more of a natural drought. 2015 is what we don't want to go to and could be attainable through management.		Meeting comment - noted.
135					Meeting	12/7/2020	**Marc Bloom**	What I'm hearing is, this level we're discussing now is a compliance level. What's the trigger level? Where are we at with trigger levels so we don't get to the compliance level?	DW: In SGMA there are no required trigger levels. The levels here are compliance levels. We can add those in, but if we add trigger levels in, we should add 'this is a trigger level and we will do something' not just 'now we are worried.'	Meeting comment - noted.
136					Meeting	12/7/2020	**Marc Bloom**	If we don't have any actions prior to the compliance level, how are we not going to get there? Whether we set it at 2015 or 2016, if we don't have anything before that, it seems like we will get there.	Comment received.	Meeting comment - noted.

137					Meeting	12/7/2020	**Bill Lipe**	Whether you attach it to humans or nature, we know there are ebbs and flows in what comes down the river. We know the UV is highly dependent on flows. 2015 represents a level you don't want to get to again. If we don't want to get there, we're going to be monitoring it, everyone will be monitoring. I don't think it will be a lack of information. I think it will be more like making sure we don't go more than two years without flows. I'm okay with the MO here, and Option 1 (2015). I'm open to hearing from somebody else.	DW: I think Mr. Lipe made some great statements. There is an annual report, and we will know in advance whether we're approaching the MT.	Meeting comment - noted.
138					Meeting	12/7/2020	**Grant Cremers**	Will we know we're approaching or when we miss the exit?	DW: You need to manage to your MO, and your MT will take a couple of years to get there, so you have a warning.	Meeting comment - noted.
139					Meeting	12/7/2020	**Grant Cremers**	Advance warning for what? What do we do if it's not a trigger for something?	DW: Under reasonable future conditions, which includes droughts, what will happen in the UV? If we say we're going to violate our MT regularly, then we have a series of projects and actions to implement. Maybe you release more water in the summer or cut back pumpling, we'll have those in the plan. There is a part of what DWR has written, should you go into a long extended drought, and your plan is built that in normal years your WLs will come up, you're not responsible for that long drought. This plan is managing to reasonable future conditions to make sure we are managing toward our MO. Abby Ostovar: We're going to talk about projects. We aren't going to talk about pumping controls yet. One option is to have a WL trigger that would implement pumping controls. We'll talk about it at the next meeting.	Meeting comment - noted.
140					Meeting	12/7/2020	**Roger Moitoso**	Getting back to 2015, that was a manmade drought. You had 70,000 AF that came into the reservoirs that was not released and 120,000 AF in 2016. In the Forebay, the Arroyo Seco ran. 2014 was the low year and 2015 and 2016 there was recharge. Under normal conditions, the UV is in balance. I don't say that lightly. Look at the last 60 years. Until the Salinas Valley Project, our dry year was 1990, you caught it all and you drove it as far as you could. In 2015 and 2016, those GWL, SGMA wants to manage the natural sustainability and salvage the water. Benefit Zone of 2C. When you talk about natural sustainability, and you use 2015 as the benchmark. I would say, I'm really comfortable with that, but that would mean you have to manage true salvage water. Water all the way to the lagoon and to the ocean and then catch and hold water. If I caught it right, we're managing the native sustainability. Reservoir releases and additional recharge are above and beyond.	Comment received.	Meeting comment - noted.
141					Meeting	12/7/2020	**Steve McIntyre**	Thinking about what Derrik mentioned, that you should have a buffer of two years, and thinking about how this basin works. I would think 2015 would be the appropriate MT. The other aspect of that, I don't think you need a trigger because when you reach 2015 the problem takes care of itself. I think the MO will be realized with the reoperation of the reservoirs. I think the 2015 level would be a good MT.	Comment received.	Meeting comment - noted.
142					Meeting	12/7/2020	**Jason Smith**	Groundwater Level SMC: Measurable Objective set at 2012, and the Minimum Threshold set at 2015.	Motion was passed by Committee and will be incorporated into GSP.	**The MO and MT will be incorporated into Groundwater Level SMC.**
143					Meeting	12/7/2020	**Bill Lipe**	What is the water level in 2005 and 2012? If there are no real discernable differences, I'm okay with the motion as is.	Abby Ostovar: It looks the same because this is the aggregate of all the years. It may be that 2005 and 2012 are slightly different when we look at the specific monitoring wells.	Meeting comment - noted.

144					Meeting	12/7/2020	**Tom Virsik**	Re: Chapter 8: Similar to Ms. Isakson's comments on the map with the zones 2A, 2B, and 2C, I think the language is awkward and not clear about those zones. Another piece, at 8.6.2.1, on page 31 of packet, page labeled 8-17, language at the top about pumping of intentionally recharged water that is not part of the natural recharge, is not considered when compared with MTs. My confusion is that I'm not aware of any intentionally recharged water that is not part of the natural recharge. My understanding is that all water in the reservoirs is part of the natural recharge. Also, at 8.6.2.4, page 8-18 toward the bottom under Ag land uses and users, it says agricultural lands currently not irrigated may be impacted by... using water and others would use less. The recommendation of the presenter at the workshop was to take into account the lands not yet irrigated. Will need a footnote somewhere if the committee selects allocations, and wants to consider lands which are not using water to which they are legally entitled. 8.9.2 on page 48, 8-34, at the bottom, I understand this part needs a lot of Chapter 6 and other things that have not come yet. I am interested in that section saying no minimum thresholds are established for times when flows in a river is due to conservation releases. It sounds reasonable to me, but it did catch my eye, and if there's additional explanation, I will be watching for that.	Comment received.	Meeting comment - noted.
145					Meeting	12/7/2020	**Grant Cremers**	Table 8-1, in the undesirable result column for chronic lowering of GWL. Is "2 years" just a number that was placed there?	DW: It is based on the idea that we don't want one well that may regularly operate below the MT, which means one grower bears the brunt of all the problems. It could be 3 or 4 years.	Meeting comment - noted.
146					Meeting	12/7/2020	**Bill Stevens**	Page 8-36, The USACE has not reinitiated consultation. WRA is not managing flows under the BO, it is under their water right. It is not a "safe harbor practice" because that has a legal regulatory definition. The 2007 BO doesn't have legal standing.	Comment received.	Meeting comment - noted.
147					Meeting	12/7/2020	**Grant Cremers**	Re: Injection well project: The 13,000 AF, is that a permitted number?	Abby Ostovar: We're talking about what the permits are with MCWRA. We need to have more discussions with them.	Meeting comment - noted.
148					Meeting	12/7/2020	**Grant Cremers**	Hybrid where water goes to City of Salinas and some goes to injection wells? I think you need less injection wells if you can send half the water to the city.	Abby Ostovar: I'll take a look at that	Meeting comment - noted.
149					Meeting	12/7/2020	**Grant Cremers**	For the Arundo program, is that really a $35 million program?	Donna Meyers: I think the original cost estimate was a little large. However, it has cost about $12 million to date. I think we'll be at $12-16 million by the time the program is up.	Meeting comment - noted.
150					Meeting	12/7/2020	**Bill Lipe**	For the summary slide, I think for the UV, the winter releases are very critical and benefit the whole valley. Can be done sooner rather than	Abby Ostovar: We are starting to coordinate with MCWRA. We're understanding why they operate the way they do, and how to make	Meeting comment -
151					Meeting	12/7/2020	**Jason Smith**	The importance of our work with MCWRA. It is integral to everything we do. I see this disconnect and some messaging opportunities. Some people, as you go north, believe they get no benefit. I think there are messaging opportunities to understand how this winter release thing helps everybody. In reality, the water will never get there if our basin isn't full. Listening to some people talking about why it won't work, if that attitude continues, then now it won't work. I think we have an opportunity to educate everybody. As Bill said, everybody is going to benefit from this. And may be cost effective to do it. I encourage everybody to learn and educate. Reiterating what we've said before.	Comment received.	Meeting comment - noted.

152					Meeting	12/7/2020	**Grant Cremers**	Some of these ideas are basin-wide benefits. And relatively simple and cheap compared to others. We have to have the model ready to share.	Donna Meyers: We have set up weekly meetings with MCWRA staff on a variety of different topics. Now that the projects are being vetted, we're engaged with them on a weekly basis now. Will report back on those coordination efforts.	Meeting comment - noted.
153					Meeting	12/7/2020	**Roger Moitoso**	As far as the marketing and how we label things, when you talk about winter releases, I gather there are two guys up north that can't get out of their own way. Those are winter releases, those are natural flows if the labeling gets in the way. The water that would go to the underground, that's what SGMA has to manage. How we market. We're not looking to create winter flows that naturally wouldn't happen. When you get a rain event, you have to let the natural flow out. We saw that live time 2017. That river had been bone dry for 36 months. We got a big rain, and water reached Bradley, then was out to the ocean. If you were trying to send 500 cfs after 36 months, it would never get there. These are natural flows. If it's how you market it, great. Let's make sure we manage these natural flows. Make sure those natural, native, enviro fish flows can run. In the old days, it was catch and release. We have an HCP to put together.	Comment received.	Meeting comment - noted.
154					Meeting	12/7/2020	**Bill Lipe**	Great points by everybody. I speak for myself. A few of us had been advocating these releases in the winter time as a benefit for everyone. To the best we can, reestablish the natural flow patters. It's a great ideal to strive for. Our MO, in my opinion.	Comment received.	Meeting comment - noted.
155					Meeting	12/7/2020	**Tom Virsik**	Re: pumping controls and whatever nature they come to pass. My client has a lot of land not yet developed, and has whatever entitlement it has to use water. That will be a concern moving forward, that lands do not lose the ability to use water. That is going to be a common concern in the Upper Valley.	Comment received.	Meeting comment - noted.
156					Meeting	12/7/2020	**Ann Myhre**	I just want to thank Jason for bringing this issue up. While we are all aware of the benefits of restoring the natural flow, some people say we're being greedy. I think we need to explain to people in the north county how it will benefit them. I think we need to reach the public how this will be a sucess. I'm always wanting for the whole valley to be a success without harming other folks.	Comment received.	Meeting comment - noted.
157					Meeting	2/1/2021	**Bill Lipe**	Re: Allocations Discussion: What percentage of the reservoir releases are considered natural flow? Agency has rights to salvage water. You say it's an overestimate at 149,000 AFY, why wouldn't a great portion of the reservoirs releases be part of the natural flow? It would have been natural before it was behind the dam.	Abby Ostovar: Through the water budget and SVOM we will have an estimate of what the common native supply is. We're having discussions with WRA about water rights as well.	Meeting comment - noted.
158					Meeting	2/1/2021	**Bill Lipe**	I get it, it's not an easy question to answer. Even with the 149,000, we're at 144,000, does that impact what is considered sustainable? Is there cause for alarm?	Abby Ostovar: Having a backup option(s), considering all dormant land that could come into production is a good idea.	Meeting comment - noted.
159					Meeting	2/1/2021	**Roger Moitoso**	Let's cut to the chase. Ours is the native sustainable yield. We have an enhancement zone on top of this, 2C. If sustainable yield is 149,000 and we're at 144,000, we're good. You have to look at these plans every five years anyway. To come up with some number now doesn't make sense. We are sustainable and this plan should be focused on monitoring. We've been working on sustainability for 60 years. If this was before the reservoirs, it'd be a different conversation, but we have the reservoirs. Whether 144,000 is a real number or not, if everything we're doing is within the sustainable yield, there's no number to attach to it.	Abby Ostovar: You're right, we do need to monitor. We don't have extraction data for two thirds of the subbasin. The 149,000 does include reservoir releases which isn't native common yield, so it's the best estimate that we have at that time, but it isn't the actual number.	Meeting comment - noted.

160					Meeting	2/1/2021	**Bill Lipe**	I thought I saw a number of 229,000 as sustainable yield somewhere. Could you figure out how that number got changed? I think that number was different.	Abby Ostovar: I know those are not exact numbers. There is still a good amount of pumping in the Upper Valley. Allocations are something that may be needed in the future, especially with respect to dormant land. I wanted to give past estimates of sustainable yield and we will give you updated numbers with the SVOM.	Meeting comment - noted.
161					Meeting	2/1/2021	**Tom Merrifield**	If we start implementing pumping allocations and at that point, are the water rights looked to determine which percentages go to which user at that point in time? Is that how the water rights come in to play?	Abby Ostovar: No allocation structure can determine or change a water right. There are different ways you can go about the allocation structure. DW: The funny thing about GW, water rights are never quantified until you go to court. We can base our allocation in a way that is consistant with water rights, but that number only gets set once you're in court.	Meeting comment - noted.
162					Meeting	2/1/2021	**Bill Lipe**	How does beneficial use get included in water rights?	DW: I am not an attorney. In the state constitution, you can only use water for a beneficial use. What a beneficial use is, still has to be decided on a case by case basis. Les: It's better to say reasonable, instead of beneficial. Some beneficial uses may not be reasonable under certain circumstances.	Meeting comment - noted.
163					Meeting	2/1/2021	**Bill Lipe**	Who determines what is reasonable?	Les Girard: It's case law that determines what is reasonable. I think what we're trying to do here, within each subbasin, get consensus on what actions can be taken to keep the subbasin sustainable. The GSA can't alter someone's water right, but the water right is dependent by what is reasonable under the circumstances. I think that's what people need to focus the future on. What is going to be a reasonable use of water under circumstances in the future.	Meeting comment - noted.
164					Meeting	2/1/2021	**Roger Moitoso**	The Upper Valley with the enhancements we've already paid for is 149,000. It's an estimate, but it's a number based on the B&C report from 2015 and what we report to the WRA. We are in balance. Now we have to figure out how to split when we're in balance? We're all good neighbors, we're adding to the economy, we're 4,000 AF to the good. We're trying to create an answer to a problem that doesn't exist. What's the point? We need to monitor it, but we're in good shape.	Comment received.	Meeting comment - noted.
165					Meeting	2/1/2021	**Grant Cremers**	I share the sentiment, and the conversations that we've had are based on how we can improve. You talk about dormant use, yeah, everything could change. I guess any ground could go to golf courses. If you look at the situation we're in now, and those charts Derrik puts up, we're in a great spot and it'll only get better. The sentiment in the Upper Valley is that everyone wants the whole basin to succeed, not just the Upper Valley. We're in good shape, and we're going to be in good shape. We're not there, and we don't have to go to the drastic actions of allocations. If you associate funding with pumping, then it's water we've already paid for with the enhancements.	Comment received.	Meeting comment - noted.
166					Meeting	2/1/2021	**Roger Moitoso**	If there's a project that needs to be funded, there's a 218 vote. But if you want a fistfight in the southern end of the county, put a pumping fee on the water. I'll call my attorney.	Comment received.	Meeting comment - noted.
167					Meeting	2/1/2021	**Grant Cremers**	The GSA can set a framework to be successful and enhance water resources, that would be better than the regulatory route because that would lead to adjudication.	Comment received.	Meeting comment - noted.
168					Meeting	2/1/2021	**Roger Moitoso**	Showing numbers that we're in balance. What's to regulate if you're in good shape? Why implement pumping limits if we're already in sustainable yield?	Comment received.	Meeting comment - noted.
169					Meeting	2/1/2021	**Grant Cremers**	The term extended drought, is that determined by historical data? Or is that open to interpretation?	Abby Ostovar: It's open to interpretation. At what point do you say the Upper Valley is in extended drought?	Meeting comment - noted.

170					Meeting	2/1/2021	**Jason Smith**	Let's just say, in 2013, 2014, 2015, there was enough water and it wasn't released. This is my question. To be an extended drought is that we don't get any natural flow, the Arroyo Seco didn't run, and the dams weren't high enough to release water. Right now we show we're in sustainable yield, but we're in charge of putting together a "what if" scenario. In 2015, some wells went dry. Let's use that scenario.	Abby Ostovar: At what point does it trigger concern? Without any allocation or pumping structure, part of why we brought this forward, is that some people may want to pump all they can and another person tries to conserve.	Meeting comment - noted.
171					Meeting	2/1/2021	**Bill Lipe**	They're just operating, they're not banking on not having water. That's not how operations operate. They're focused on the markets and how much spinach to plant. An inordinate amount of natural flow for the upper valley is blocked, and has been for 60 years. I bring it up for an instance. In the last six days, we've had 86,000 AF flow into the dams. How much of that is natural flow? It's not being released now, but maybe later. I think that's the critical part of this whole question as to whether we need allocations or not. What comes out of those reservoirs is a big deal, and the timely release, like when it is actually happening. It needs to be reinforced, 80% of our natural flow is blocked and managed, and a lot of money has been put into it.	Comment received.	Meeting comment - noted.
172					Meeting	2/1/2021	**Bill Lipe**	Someone may say just get it to the King City Bridge. I think we all get that it's more than that. You've got to get water to Chualar at least every couple of years, and it has to come from those reservoirs. We've seen what the Arroyo Seco can do. I've heard the term before how reservoir flows are not natural, but certainly some portion of that flow is natural. What's salvage water versus what's truly natural, maybe they don't even know. It needs to be understood. We need to put it in context.	Abby Ostovar: It is a very important point. If it could be easily solved or answered, it would be. This won't be answered immediately.	Meeting comment - noted.
173					Meeting	2/1/2021	**Bill Lipe**	There was no water that passed Spreckels for like 39 months. That should be a warning flag. Chualar and Spreckels, if there's no water flowing past those points, for a couple of years, then we have some issues.	Abby Ostovar: I think I should frame this as, independent of reservoir releases, how should the GSA manage the GW in an extended drought.	Meeting comment - noted.
174					Meeting	2/1/2021	**Grant Cremers**	We're the residents/stakeholders, the ones paying the bills. The totality of their (MCWRA, GSA, etc.) work is what we are benefiting from. What's the best way to get the reservoirs managed, get the natural GW managed?	Donna Meyer: To your point, we're looking at those questions and coordination. We're looking at completing the GSPs, and grappling with the questions you've raised today. We're thinking and working on that with our partners at WRA. The basin has always worked as a whole. The state broke you up, and now we're looking at it in a new way with six basins. We have on our minds that the GSP will make it through the approval process. The time frame we need you to think about is not the last drought, not today, but the next 50 years. Climate change, wildfires, we have to have that broader perspective. We're not forcing you to do one thing or another, it's our due diligence to complete a plan that will make it through the process.	Meeting comment - noted.
175					Meeting	2/1/2021	**Jason Smith**	This has always been an issue. I think a lot of people feel like, this isn't exactly what's going to happen, but it's a what-if scenario. People are afraid that if we put it out there, then it's locked in, in the plan. How is the plan binding? Say we said, ok, in a drought in five years, we're going to go to 'X' allocation. If we put it into a plan, and god forbid we get to that, and that's somehow what we're implementing. How are we going to put in something that we've never experienced?	Donna Meyer: I completely acknowledge that.	Meeting comment - noted.
176					Meeting	2/1/2021	**Tom Merrifield**	I don't know what the targeted safety factor is. In an extended drought situation, if we had a number, we could look at the different options. It sounds like we have a number of options here. I don't know from a quantity standpoint over 50 year period, what we would want to target. That would dictate what options we would entertain or not entertain.	Comment received.	Meeting comment - noted.

177					Meeting	2/1/2021	**Grant Cremers**	I agree. We got the cart before the horse. We haven't had number talks, what is the sustainable yield?. It's hard to have these conversations if you don't have the numbers there. We can't figure out the benefit of Arundo control, or river maintenance, or maybe the benefit of an enhanced watershed post wildfire. We can't calculate those benefits, but we are talking about planning for an extended drought.	Donna Meyer: We're working to identify those benefits, and we'll come back with those numbers.	Meeting comment - noted.
178					Meeting	2/1/2021	**Grant Cremers**	I was hoping the ideas and information would come out and the overlap of the agencies would become clear and we could all work in the direction we need to go. I'm hoping there is a water model that verifies a benefit from winter releases. Capture it in a bigger vessel, the GW basin and use the reservoirs differently. Change is hard. I was hoping through the GSA and GSPs, we could show everyone that this is the best way to go forward with our water.	Donna Meyer: We're doing that work. I'm in communication with WRA all the time. We're getting caught up with the modelling and getting some of that data. You bring it up at an opportune time. That's exactly why we've decided to do a strategic plan. We have to spend time on those questions now as we're creating these plans instead of backing in once we're done.	Meeting comment - noted.
179					Meeting	2/1/2021	**Nancy Isakson**	Talking about drought, many of you know WRA is actually in the process of developing a drought plan. The GSA is part of that technical advisory committee. Since the operation of the reservoirs is part of a drought plan, couldn't you just point to that you're working with WRA and the development of a drought plan and include some mile markers when you review every five years? Bottom line, GSA doesn't control the reservoirs or their operations, which are key to any drought plan.	Comment received.	Meeting comment - noted.
180					Meeting	2/1/2021	**Bill Lipe**	We'll have to work with the county, they're the ones who permit the wells. We as the GSA need to understand what is being developed. Are we going to be the tip of the spear in determining who can use their land and how?	Comment received.	Meeting comment - noted.
181					Meeting	2/1/2021	**Roger Moitoso**	Are we trying to create a problem that doesn't exist? A lot of that land doesn't have much of an aquifer beneath it. If we have to come up with a plan for 100,000 acres that may or may not be developed, we're going way into left field. We are creating a need that doesn't exisit. We have to monitor.	Abby Ostovar: We have to put into place what we need to manage into the future. We need to create a monitoring plan. If we do hit a hard spot, an extended drought or a new user comes in, we at least have the tools in place to deal with that and take course correction at that point.	Meeting comment - noted.
182					Meeting	2/1/2021	**Bill Lipe**	Is everybody going to have to meter their wells with meters calibrated with independent 3rd parties?	Comment received.	Meeting comment - noted.
183					Meeting	2/1/2021	**Roger Moitoso**	Again, when your own numbers were 4,000 AF to the good, and we're coming up with a hypothetical reason for adjudication, then you're going to get an adjudication. We can do that!	Comment received.	Meeting comment - noted.
184					Meeting	2/1/2021	**Bill Lipe**	We're trying to get a defensible plan that will pass DWR. It seems backwards, we're the local authority spending our own money. It should be DWR that comes to the table and listen to us. The whole basin is alright. There are some problem areas. I didn't mean to bring up metering wells. When you take into the reservoirs, they are dependent on things that are outside of our control. But if you want to tell someone what they can and cannot do on their own land, yeah, they will involve the courts.	Comment received.	Meeting comment - noted.
185					Meeting	2/1/2021	**Roger Moitoso**	The whole thing right now is that we need science. We're in pretty good shape because we built reservoirs, treatment plants, long before SGMA. Yes, we need a plan, and the plan is "monitor" and if anything we're doing is not causing one of the 6 deadly sins, we're good. Did '15, '16 get worse because the reservoirs were operated, not our question. Please don't alter the native natural flow. Manage the surplus water. If the way they operate the reservoirs doesn't alter the natural flow, then with enhances it. The GSP should set up a really good monitoring system. If 10,000 acres of walnuts come in, and we're not hitting the 6 deadly sins, then keep going.	Comment received.	Meeting comment - noted.

186					Meeting	2/1/2021	**Jason Smith**	Do we have examples of the 180/400 or other GSAs that are dealing with this question? I get what we're saying, we don't have a problem, don't want to make this a problem. You're trying to make a plan that says, "what if we do have a problem?". We need to monitor and revisit every five years to see if anything has changed. Isn't that enough?	Abby Ostovar: Relooking every five years is one approach. Another way is to put in a trigger. DW: I think Mr. Smith's question gets to the heart of why this is such a difficult situation. No, there are no examples of basins not in overdraft that have done this. For the very first time, the state is asking basins that are already in balance, how they will manage their basin. There is no case law, either. What we look at, the GSP has to have projects that get to sustainability, and respond to changing conditions. DWR has to say, they're responding to changing conditions. This is just our advice. This is your GSP.	Meeting comment - noted.
187					Meeting	2/1/2021	**Roger Moitoso**	Isn't it 2015?	Abby Ostovar: I'm not sure what to do if we hit an undesirable result. What is the plan there that we can show DWR.	Meeting comment - noted.
188					Meeting	2/1/2021	**Bill Lipe**	Fair to say Upper Valley is the most relevant example? Versus an archaic system that DWR came up with? We've got data. We're the example.	DW: We are asking the question, "what does it mean to manage our GW when we don't have an observable problem right now?" But we do want to be wise and say, "but should an observable problem come up, what action will we take"?	Meeting comment - noted.
189					Meeting	2/1/2021	**Marc Bloom**	Yes, we're a subbasin, and yes we've done a great job. But isn't the plan for the whole basin? We can answer those questions for the Upper Valley, but the GSP being submitted is for the whole basin?	Abby Ostovar: There will be a separate GSPs for each subbasin, but they have to mesh together for the whole basin.	Meeting comment - noted.
190					Meeting	2/1/2021	**Marc Bloom**	Because the water flows through us, we're the gatekeepers. I'm wondering what they're going to be doing that's going to affect our subbasin because it flow through us to them.	Bill Lipe: Then we get into how much water that flows is native flow or salvage water. It's a very complex question to answer.	Meeting comment - noted.
191					Meeting	2/1/2021	**Marc Bloom**	It is beyond what is natural, but how much of it do we have a right to? As the water provider for King City, we're stating we don't support allocations or limitations at this point. If we get down to allocations, it going to come down to case law which means it's going to the courts. We have to accept that.	Comment received.	Meeting comment - noted.
192					Meeting	2/1/2021	**Grant Cremers**	I've talked to a lot of people in the UV and other subbasins, and I get the idea that everyone wants to maximize the amount of water going through the valley.	Comment received.	Meeting comment - noted.
193					Meeting	2/1/2021	**Marc Bloom**	We also support projects more than allocations: CSIP, Arundo removal, etc to maximize and add water to the basin.	Comment received.	Meeting comment - noted.
194					Meeting	2/1/2021	**Ann Myhre**	I think all of us realize and want water to pass through our subbasin and flow up the valley to everyone else. This subbasin has been very forgiving. My family has been through droughts, and we have the ability to recover. Sometimes now in the summer, we see less water than was before the dams. When we get into dry periods, we start pumping at 50ft lower. But last week, water levels returned to normal. We're going to revisit this every five years. If we have a five-year drought, we might be concerned. But if we have a two-year drought, we probably don't have to be too worried.	Comment received.	Meeting comment - noted.
195					Meeting	2/1/2021	**Grant Cremers**	I feel like we should make a motion. I get the feeling that we don't want to have allocations. We support monitoring and maintenance.	Les Girard: It would be appropriate. I would remind the committee that any vote to actually implement allocations would take a supermajority plus vote of the BOD, to emphasize how difficult it would actually be.	Meeting comment - noted.
196					Meeting	2/1/2021	**Grant Cremers**	I'll make a motion that the Upper Valley Subbasin is in support of monitoring the SMC criteria, river maintenance, and enhancement of infrastructure, and releases from the reservoir, and not in support of pumping allocations or water marketing.	Comment received.	Meeting comment - noted.

197					Meeting	2/1/2021	**Tom Virsik**	I have a client in the Upper Valley that has quite a bit of land that would be characterized as dormant. If the GSA precludes that land in sharing in the water, that would be a problem. I agree with a lot of the conversation that has been occurring. In my opinion, the tension between the GSA and MCWRA, given what SGMA is, can only be resolved one way. The GSA moves forward with what is appropriate, and if MCWRA doesn't like it, then they have to undo it. Partnership is important, but shoving only goes one way. I agree with Abby's recommendation, to pick this up when we have real numbers. It's very difficult to understand what's going on without numbers. Once you have the water budgets, you have allocation. You have a number that's a water budget. You have allocation. You don't give it that name, but to the outside world, that's what it is. I suggest, don't stay in fear, be proactive if at all possible. A small aside, I think when Bryce [WestWater] used the term 'allowance' he didn't mean allocation. That has to do with water marketing, which is not what we're discussing today. The general discussion today was to a high standard, so thank you.	Comment received.	Meeting comment - noted.
198					Meeting	2/1/2021	**Nancy Isakson**	This level of conversation has been really helpful. I know there is an issue with the GSA and MCWRA. You guys, the landowners, are managed by both. It seems that working together to manage your resources to benefit everybody is the best way. We've spent many years fighting MCWRA and we're in a good place. I bring this up for the drought planning. MCWRA is such an integral part of how the reservoirs are operated, and how you'll manage the basin. One aside, you mentioned the B&C report, as I recall, the baseline was not as the basin was in that day and time. I'm not sure all the other projects that were included. Having your model will be key to the water budget and sustainability.	Comment received.	Meeting comment - noted.
199					Meeting	2/1/2021	**Tom Virsik**	At least from engineers I know, reservoirs can be managed in a way that you know which flows are for fish, other flows, etc. That the MCWRA hasn't done that, is a reality and means they might need to be forced to do it at this point.	Comment received.	Meeting comment - noted.
200					Meeting	2/1/2021	**Jason Smith**	While I don't disagree with the motion, I'm not sure we really need to do that right now. Maybe we can table until the next discussion. As we talk about the need for the science and numbers. We need to get our head around how this will be a document that will pass. I don't think there's a need at this moment to send this motion through. It doesn't hurt us to wait and just see where this conversation goes	Comment received.	Meeting comment - noted.
201					Meeting	2/1/2021	**Grant Cremers**	I would rescind part of my motion, and say we don't support allocation or water markets, until we see the model and the numbers.	Comment received.	Meeting comment - noted.
202					Meeting	2/1/2021	**Bill Lipe**	I think it's pretty clear that nobody in the Upper Valley supports allocations. I don't know if we need to go on record as saying that. Perhaps we could just abide by Abby's wish to wait. I know we're on a pressing schedule.	Comment received.	Meeting comment - noted.
203					Meeting	2/1/2021	**Grant Cremers**	Amended Motion: The Upper Valley Subbasin is in support of monitoring the six management criteria, river maintenance and enhancement of infrastructure and theory for water releases from the reservoir. The Upper Valley Subbasin is not in support of pumping allocations or water marketing and we don't want to make decisions on pumping allocations or water marketing until we see the water budget and the model.	Motion was passed by the committee.	Motion will be incoporated in GSP.
204					Meeting	2/1/2021	**Roger Moitoso**	I do agree. But just so we understand, we continue to kick allocation down the road, it just keeps coming. This motion sets in place that this committee doesn't support this, don't bring it back.	Comment received.	Meeting comment - noted.

205					Meeting	4/5/2021	**Nancy Isakson**	I want to thank staff for sending the powerpoint presentation ahead of the meeting so we can take notes during the meeting. I am really disappointed that all of this information was essentially sent out a day before the meeting, especially over a holiday weekend. It doesn't allow us a lot of time to review and prepare with constructive comments. I would appreciate if you could send the package and materials with more time. Everyone on this panel should have had at least a week to review the materials for a productive and constructive conversation.	Comment received.	Meeting comment - noted.
206					Meeting	4/5/2021	**Bill Lipe**	Why does the second graph only go through 2011?	DW: That was the last measurement taken. You'll notice this one doesn't even start until 1980. This one ends at 2011, and that's just all the data we have for that well.	Meeting comment - noted.
207					Meeting	4/5/2021	**Bill Lipe**	If we're within our sustainable management criteria, and our dashboard says we're green, aren't we, by definition, within our sustainable yield? It's about the monitoring we have in place to measure the criteria, and to enhance that monitoring, to make those more meaningful and grounded decisions in the data.	DW: Thank you for reminding me of that. You're absolutely right. As long as we're avoiding the undesirable results, that is the definition of it. DWR said sustainable yield is not their biggest concern and that they are more concerned about sustainable management criteria that the basin will manage to.	Meeting comment - noted.
208					Meeting	4/5/2021	**Bill Lipe**	I want to say, we're confined to two models. I was curious if there was talk about developing a model for the agency itself, for more objectivity and more pertinent to what we're doing. I would hope that we wouldn't rely on someone else's model, and we could have more control over it. I know it would be an added expense, but I think it could be done economically.	DW: At this point we are moving forward with the models we have so WRA, the Bureau of Reclamation and the GSA are all using the same model. Once they're released, anyone can work with them. It will be a future discussion about which model supports us the best.	Meeting comment - noted.
209					Meeting	4/5/2021	**Roger Moitoso**	As you look at that, aren't you telling us that the one project for the GSP is a good monitoring system? We need to monitor so we don't create one of the 6 deadly sins, and we'll get more in balance even with climate change. There's no point talking about land fallowing, or management actions, they just don't fit here. There's no need to do them here.	DW: We do need to remember that just pumping within our sustainable yield is not the definition of sustainability. I do have concerns about wells away from the river that continue to decline. We may have to take a closer look. Also, looking at the whole valley, we need to have project and management actions to prevent what we saw in the 2012-2015 drought. I also want to agree with you that we don't want to implement a project that is a cookie cutter project. We only want to implement projects for the specified basin.	Meeting comment - noted.
210					Meeting	4/5/2021	**Roger Moitoso**	I appreciate your answer. You look at 2016, we can argue it, but it was argued in court. Those reservoirs were managed like that at that time. 1990 was just as low as 2016. After that the blue line skyrocketed until the reservoirs were mismanaged. You can pick 2016, but look back at 1990, and it was just as low but bounced back even higher. We don't want to implement project for problems that don't exist.	Abby Ostovar: DWR said to include all potential tools to have in the basin for the 50 years. You don't have to pursue them to have them in the GSP, and if they're not there, they're ineligible for funding. There are also 5 of 18 wells, or 27% wells are not doing well right now. Even though the subbasin as a whole looks good, there are areas that are having challenges.	Meeting comment - noted.
211					Meeting	4/5/2021	**Roger Moitoso**	When we talk sustainability in a subbasin, that subbasin has to be broken down. Everybody talks about a bathtub, but it's an aquifer and they're different. You can't look at one well in 60,000 acres and say everyone has to cut down. There are areas that are having problems and areas that are not. If we take 2-3 wells that have problems and make everyone cut down, we're going to have some problems.	Comment received.	Meeting comment - noted.
212					Meeting	4/5/2021	**Grant Cremers**	I understand how you arrived at that 1980 to 2016 number. It is a little tough window to look at because it has the two largest droughts in the last 70 years. The trend is still probably valid and legitimate, but it has some pull regardless. Once you put a number out there, that's when landowners and attorneys start doing the math. I do believe for our area, monitoring is probably our biggest focus. Yes stewardship, but monitoring is our biggest project. If you look at these numbers and look through other reports that have yield numbers for the Upper Valley, are these numbers going to be vastly different or will they be similar?	DW: I'd have to look into it. I guess they're similar to 2015 numbers. The 2015 B&C report estimate higher pumping amounts and within sustainable yield. We're saying, the model estimated slightly lower pumping amounts, consistent with GEMS data. No matter which number we estimate, they are both within a "sustainable yield". These are high and low sustainable yield numbers. But, which estimate of pumping was the more accurate? It doesn't matter until we go into overdraft.	Meeting comment - noted.

213					Meeting	4/5/2021	**Grant Cremers**	What that [sustainable yield] number is still doesn't really matter. If you got into an overdraft situation, if you got into it by pumping 115,000 AF or a higher number, the real thing is you hit some measurement and the it is the point that says you're in overdraft.	DW: And then you have to have a project or management action to address that overdraft at that point.	Meeting comment - noted.
214					Meeting	4/5/2021	**Nancy Isakson**	On Abby's statement about everything and the kitchen sink for 50 years so you have it as a tool, my understanding is that every 5 years you can add things that you didn't realize that you needed. Today, the board members may choose to not include some things and just focus on a monitoring program. In 5 years, they may say, we need to include this that and another. And vice versa. Also, I noticed that in other GSPs, you used a different historical period and a different "current" period than you used in the 180/400. You talk about how they can't impact each other. It's important to note the difference. For instance, the 180/400 uses the 1995-2014 historical period and 2015-2017 for a current period. You chose 2016 for the current period for Upper Valley, for current practices and pumping. I have to tell you, we disagree. The best representation of current you have shows an overdraft of 33,000 AF. You don't recognize that the preceding two years were drought, and the reservoirs were mismanaged. I think there's a real issue using 2016. Even though you say the Upper Valley is sustainable, I think the numbers do matter and we have a big concern regarding that. I've started on a letter, and the SVWC will go through this in great detail. There's no way without recognizing the whole of the conditions at that time period.	Comment received.	Meeting comment - noted. 2016 is preceded by multiple dry years, however, current water budgets are merely reported and are not used for managing the GSP.
215					Meeting	4/5/2021	**Tom Virsik**	I was also surprised to see 2016 as the current year. I'm not saying it's the right or wrong year, but your beginning and ending point matters. Re: The wells that are showing exceedances presently: Potentially, that's a management area; some corner of the Upper Valley needs to be its own area with its own metrics. There is granularity possible if there needs to be.	Comment received.	Meeting comment - noted. 2016 is preceded by multiple dry years, however, current water budgets are merely reported and are not used for managing the GSP.
216					Meeting	4/5/2021	**Bill Lipe**	It would be interesting to look more closely. You don't have to get too far before you see exacerbations in water levels. I know because we cut off in 2015/16, then you know we had a lot of flow in the river 2017, 2018, 2019, and even last year. I saw water levels as low as 60 feet below the ground, then recover.	Comment received.	Meeting comment - noted.
217					Meeting	4/5/2021	**Justine Massey**	I'm really concerned about the climate change numbers being put into these water budget numbers. Derrik, you used one of the 3 potential outcomes, and it has the least drastic results, the version that shows wet years. What we're seeing in the state are the 2 other estimates provided from DWR, which show increased drought. And if there is precipitation, there's more all at once. Wouldn't the committee like to see if the climate changes in ways that are not favorable to you to make sure you don't get caught left-footed?	Comment received.	Meeting comment - noted.

218					Meeting	4/5/2021	**Marieke Desmond**	I'm just curious what kinds of simulations, given how much of the flows are connected to the river, are being modeled and include reservoir releases? Will those simulations be released to the public? Given how much of the basin is dependent on the flow?	DW: The future models have current reservoir release rules. Everything I've shown so far use MCWRA reservoir rerelease schedule currently. There are discussions about projects or MAs that could change the release schedules/rules. We are trying to get to a point where we simulate them before the GSP comes out. I'm a little nervous to simulate only some of them because we can't compare the projects equitably. We are working towards that, and will hopefully have those impacts before the final GSP. This is an issue, we'd like to release all the information on all of them. But we don't want people to jump to conclusions without all of the information. I'm not sure we can get all the data out immediately. It does allude to another point, we are operating now under the existing rules. When the HCP gets finalized, I have no doubt the rules on the reservoir will change. That remains to be seen.	Meeting comment - noted.
219					Meeting	4/5/2021	**Nancy Isakson**	Marieke brought up a good question. It does remind us that it would be good to understand and identify that amount that you consider natural flow, and make the distinction between reservoir operations and what is released. Since you are basing everything on current rules, and they might be changed, then it would be helpful to know what is natural flow. That may be a helpful tool to go forward to monitor going forward.	DW: We are taking a first cut at that in the GSP. It's not exactly the way you describe. It is difficult to say what is the "natural flow" since most of the flow is caught by the reservoirs. We're trying to distinguish when flows are conservation releases, and which flows are not. That's really most of the data we have now. In general, these flows and recharges were due to conservation release, in general, and these are not. That's really as much information we have and really as far as we can go at this point.	Meeting comment - noted.
220					Meeting	4/5/2021	**James Sang**	I have a question about reservoir releases. Is this a current of water that we can rely on forever, even during the dry years? Or will releases be cutoff?	DW: Mr. Sang, that is a key question that is out there right now, and why we're discussing reservoir reoperation as a management action. The point you're hitting is a pivotal point on how we maintain sustainability in the future. It's true in the 2012-2015 period, there were no releases from the reservoirs and people felt there should have been. There is discussion about making sure there are releases in the future.	Meeting comment - noted.
221					Meeting	4/5/2021	**Bill Lipe**	I think it would be extremely helpful to know how the State and DWR define what is impounded water and what is not. DWR has a definition, and it's been a really difficult question to answer. If we could have some clarity on what is catch and what needs to be released in a timely manner, that would be helpful. Are we cherry picking climate change data to show a more favorable outcome for our area? Or will it really show a warmer and wetter future?	DW: We are not cherry picking the data. We are showing the future climate that DWR has picked as the most likely future scenarios. They offer a few different models, and in this area it turns out to be warmer and wetter.	Meeting comment - noted.
222					Meeting	4/5/2021	**Bill Lipe**	We are not the San Joaquin valley, or the northern plains, or Sierra Nevadas, or the desert of LA. We are the central coast. There are not many places like this. We get a ton of water. It could rain 1/2 inch in King City, and 15 inches a few miles away. It shows how wonderful and why it is the way it is. While folks in LA or Sacramento are worried about drought, people around here will tell you, look, 7/10 years are below normal precipitation, and then we'll get a few big years and we have to manage that. I heard it at the Forebay meeting, and it's a good point to bring up. We're taking the beast avail science for future climate scenario. We can't plan for every future unknown. I appreciate the public comments. Regarding reservoir releases, do we really have any jurisdiction or say? What if the agency says no?	Donna Meyer: Yeah you're right Bill, we don't own the infrastructure or operational permits. The reservoir reoperation would have to come in alignment with MCWRA. We have a standing meeting, and so we do try to stay in as much communication as possible for selecting projects where we don't have the authority, but need good communication about how they fit into our sustainability goals. It would have to be a partnership.	Meeting comment - noted.
223					Meeting	4/5/2021	**Bill Lipe**	I've heard it raised in other meetings, about the situations, what we need to comply, or maintain in order to not go into undesirable results. What happens if agency says no. It puts us in a position where the agency may have an agency disagreement. It's a potential issue for us.	Donna Meyer: We don't have an answer. We're looking at different scenarios.	Meeting comment - noted.

224					Meeting	4/5/2021	**Grant Cremers**	Ultimately it's we the citizens of the GSA and we the citizens of the MCRA Agency. When we the GSA have information or knowledge, we have to share with them to make sure they make the best decisions.	Comment received.	Meeting comment - noted.
225					Meeting	4/5/2021	**Justine Massey**	I would love some more detail on how DWR has expressed which model is most likely. Derrik is that something we can follow up with offline? I'm not aware of one model outweighing the rest of them.	DW: They refer to it as the central tendency, and we can follow up offline.	Meeting comment - noted.
226					Meeting	4/5/2021	**Jason Smith**	Re: Projects: In general I would say it's pretty good and represents what we talked about. One of the key ones I think we should hone in on, if we're talking about setting up a protocol, and advisory committee when things go wrong. We need the resources for the monitoring. If we can improve the GEMS, that's great. I like that part of it so if/when we get to the point where we need to make real decisions, we have improved data than today.	Abby Ostovar: In the implementation chapter, we'll have a whole section on data and monitoring networks. Some of these are a bit more like projects than monitoring, but there is overlap. GEMS expansion isn't the only one we'll be working on for the implementation chapter	Meeting comment - noted.
227					Meeting	4/5/2021	**Bill Lipe**	Some of these projects are outside of our domain for jurisdiction or authority. Landowners will pay for some of these projects through other agencies. If our SMCs are in good shape, and we think we're generally sustainable. Shouldn't we just confine ourselves to good management actions and some implementation with GEMS, knowing we can check in in 5yr. Some of these landowners will pay for these projects in other programs, why have defined projects and bigger items we have no control over?	Comment received.	Meeting comment - noted.
228					Meeting	4/5/2021	**Grant Cremers**	I think for the 6 management criteria, we need the correct modeling, and we don't need overlap of data collection. I don't know if SGMA seems to be the area for projects. It seems the area for knowledge, recommendations, vision, and recommendations to the other agencies. MCWRA owns the bulk of infrastructure. I see the GSA as data collection and data dissemination to other agencies to manage the projects.	Abby Ostovar: Just because it's on the list doesn't mean it's the GSA to implement it. Part of the reason we included the reservoir operations. MCWRA does do some Groundwater management, but they are not committed to SMC as we are as an agency. Onus on us to have a plan, including projects & management actions to meet sustainability for 50 years. We don't have to undertake it, but we have to plan and manage and ultimately responsible.	Meeting comment - noted.
229					Meeting	4/5/2021	**Grant Cremers**	GSA is there to assess the impacts. If I see the list, the Interlake tunnel and spillway will get a lot of scrutiny. A lot of the rest of this, they're good projects as far as the spirit. Winter release with ASR, I think there are good possibilities. I think all of these will evolve over time. Certainly 4-5yr from now, situation could be different, technology could be different. Vague ideas of projects right now are ok.	Donna Meyer: We want to make sure we can access available funding. Even though these aren't our projects, per se, we have to include them so we could potentially support them. It shows we're talking to each other and not pretending these projects aren't out there. It shows a coordinated understanding of the basin's needs. Hopefully it gives more context.	Meeting comment - noted.
230					Meeting	4/5/2021	**Bill Lipe**	It does not actually operate together dynamically. I guess in some ways it does, but each subbasin operates differently and are disconnected. We're looking at it holistically, but I think Derrik even presented earlier, what the flow is. Once it gets past Gonzales, south, it's unconfined aquifers. We know what happens when it gets to the coast, that's where there are problems. Some of these things aren't connected and it's been used in the past to spread the cost among everybody to fix problems that may or may not be their issues.	DW: To clarify, why that one particular is viewed as valley wide. That project, in order to work, required reservoir reoperation. It doesn't have to do with whether the aquifers are connected or not, but has a requirement for reservoirs operations. So there's a beneficial impact on the Upper Valley. That's how projects related to reservoir releases and flow end up being valley-wide projects because every subbasin along the river will see some impact. That is not related to whether or not the aquifers are connected.	Meeting comment - noted.
231					Meeting	4/5/2021	**Roger Moitoso**	It's not to belittle, but you look at this and it's spaghetti at the wall, see what sticks what doesn't. Let's not. We're sustainable, let's expand monitoring. We've managed for the last 100 years. I'm not calling anybody for permission to irrigate. Let's keep this where we work together. Otherwise, it's send things to the water attorney and see how we respond. Good monitoring, with what the responsibilities are for the GSAs, monitoring is the biggest one and setting parameters for the 6 deadly sins. Let's do that for the next 5 years. Let's not go hypothetical solutions to hypothetical problems that don't exist. Let's deal with reality. If we miss by a little bit, we can back up and see where we need to do more.	Comment received.	Meeting comment - noted.

232					Meeting	4/5/2021	**James Sang**	I'm kind of disappointed by these ideas because they are expensive and I don't know if they'll work. I want to recommend an idea each individual well owner can use. To recharge the area in each farmer's well through rainfall capture. The way they would do this is pick 1-4 acres around their well pump, and dig some soil and built up 6 feet deep. You won't have to worry about evaporation. Each acre of rainfall of 15 inches can capture 400,000 gallons of water. I think you can adjust the amount of acreage based on the soil. Each well owner can do this on his own. I think it would be pretty cheap, and it would be to their benefit when the rainwater falls to make the well full. You don't have to rely on any other agency. This is something I would like the county to put into the rules for someone to dig wells and for people with exhausted wells. This has not been discussed. No one has thought to use rainfall to recharge their own individual well.	Comment received.	Meeting comment - noted.
233					Meeting	4/5/2021	**Nancy Isakson**	For managed aquifer recharge and overland flow, you talk about similar to Pajaro, in exchange for extraction credits. It seems like it would need a water allocation, and this group said no to water allocations. The other thing you talk about, prioritization of projects, projects that result in reservoir reoperation. I think it's important for the committee to know there is a prioritization of projects in the materials.	Abby Ostovar: By prioritize, it's prioritized to be put in the GSP, not one project over another. Perhaps we need to distinguish that word.	Meeting comment - noted.
234					Meeting	4/5/2021	**Nancy Isakson**	The coalition comments on the winter release program, these materials on the winter release scenario, SVWC is coordinating with the MCWRA on this. To achieve the same end results as yours is, perhaps yours is a phase two, in order to complete this project. We propose flow that augments recharge. I thought you had mentioned there will be language about alternatives and coordinating with MCWRA. I do think that's an important addition here. On well registration, I thought there was a requirement for wells to be registered already. On well registration and GEMS, there should be one central location and everybody should be able to coordinate. It'd be cost saving.	Abby Ostovar: We don't want to duplicate. Existing systems don't give us an accurate view on what's out there. The idea is to build off what's out there and give us a better idea. Part of the idea of the valley wide project, reservoir reoperation. There are other projects out there that would impact recharge, we don't have all the tools to select or implement. We don't have all the information about those projects.	Meeting comment - noted.
235					Meeting	4/5/2021	**Tom Virsik**	I'm enthusiastically agreeing with Grant Cremers that SGMA is about knowledge and discussion not about builing projects. I also agree with Mr. Moitoso about what the Upper Valley does/doesn't need. This is exactly the time and place to list everything that is useful, potentially useful, and not useful. Something like winter release with ASR, there's backstory with SVWC, in the GSP acknowledge there is ASR and say it will be discussed by those subbasins. Then say you like the winter release part. Give an entire plan for the MCWRA to follow, and not take on other subbasins' plans. Acknowledge, list, reflect, but don't advocate for other areas. Let them do it. Don't assume you will be able to change this in one year or 5 years. Don't assume whoever takes your positions will have the same views. Do as much as you can, don't hide, don't ignore but explain. Embrace SGMA, thoroughly done, and get as much as you can in every possible way. And then, everything after that will be an improvement. In the future, somebody may say "oh they didn't include it, they must not mind" and move forward. Put it all in.	Comment received.	Meeting comment - noted.

236					Email	4/12/2021	**James Sang**	I wanted to present some potential agenda items.	Comment received.	Point #1 was considered throughout the Salinas Valley and it is incorporated in projects for other Subbasins.
								1. Can rainfall harvesting through swales refill wells and increase groundwater and water aquifers?		
								Reference a: You Tube video (Harvesting Water Naturally with Swales by Urban Farmer Curtis Stone)		Point #2 has been incorporated into the overland flow MAR project which was modeled on the Pajaro Valley project noted.
								Reference b: You Tube video (Recharging A Well Part II -John Kaisner The Natural Farmer)		
								Reference c: You Tube video (Swales on Contour can Drought -proof Gardens, Farms and Pastures with Water Harvested Passively by Edible Forest Gardens)		
								Reference d: You Tube Video (Deep Soil Ripping for Water Conservation by Megan Clayton)		
								Reference e: "Deep Soil Ripping as an Effective and Affordable Water Capture Tool written by Amanda C. Krause, Megan K. Clayton, ...et al" Please google search article.		
								2. Can you make a presentation on what UC Santa Cruz is doing to recharge their wells? This is what Robin Lee wanted.		
								Reference a. You Tube video (Enhancing Groundwater Recharge in the Pajaro Valley by California Department of Food and Agriculture)		
								I believe that swales and subsoil plowing can recharge a farmers well, groundwater and aquifers. This is a cheap and easy way to help every farmer and landowner have a plentiful supply of water. This idea will solve California's goals of recharging water aquifers and holding back salt water intrusion into our coastal lands.		
								Can you show this to all interested parties?		

237	6				Email	4/23/2021	**MCWRA**	Operations of the San Antonio and Nacimiento Reservoirs applies to the Salinas Valley Operational Model, unless the intent is to describe that historical hydrologic data in the SVIHM would reflect MCWRA reservoir operations.	Comment received.	The SVIHM uses historical hydrologic data which reflects how MCWRA operated the Reservoirs in the past.
								Water Year 2016 was preceded by multiple dry or dry normal years. Has the impact of that on the chosen “current WY” budget been explored? Or should that at least be mentioned here for context?		Noted. 2016 is preceded by multiple dry years, however, current water budgets are merely reported and are not used for managing the GSP.
								GEMS reported extractions in the Upper Valley Subarea are on the order of 122,000- 138,000 AF/year (2015-2019 report years). I realize the budget is based on SVIHM modeled values, but it might be worth mentioning the difference in reported vs modeled values (maybe where modeled groundwater pumping is further discussed), especially if calculating long-term sustainability/pumping off of these values and basing SMCs of GEMS reported data.		Noted. The water budget and groundwater storage SMC text has been revised to address these issues.
								The SRDF diversion rate (18cfs) used for the projected water budjet is much lower than the 36 cfs that MCWRA targets for availability at the SRDF, and which can be diverted during maximum demands. Rates lower than 20 cfs present operational issues with getting water to the impoundment.		The SRDF diversion rate used in the SVOM (18cfs) is lower than what MCWRA targets (36 cfs), this is something that will be fixed in the future.
238	8				Email	4/23/2021	**MCWRA**	Section 8.6.2 sets the current estimate of the long-term sustainable yield at 98,000 acre-feet per year, and later states that “current pumping in the Upper Valley Aquifer Subbasin is within sustainable yield […]”. However, GEMS reported extractions in the Upper Valley Subarea have ranged from 122,000- 138,000 AF/ year between the 2015 and 2019 reporting years, which is much larger than the 98,000 AF figure determined from the model/water budget analysis. It might be worth mentioning the difference since, based on 8.6.2.6, GEMS data will be used to measure groundwater withdrawn.	Comment received.	Water budget and the groundwater storage SMC text have been revised.

239					Meeting	4/14/2021	**Bill Lipe**	Part of the challenge with some of these is, other people are doing them. Like the stream channel work, and operations of the reservoirs. I think GEMS expansion, or I know monitoring is really important. Monitoring is something we should focus on. Regardless of who owns what, agency, jurisdiction, or authority, I look at the Upper Valley and talk with a lot of people, met a lot of land owners. The stream channel improvements are big. The detail in the packet is really good, it fits the streambed. You can look at the gages and do the math. When we get big flows, we get a lot of recharge. If we can focus on the 95 miles of river, we'd do well. Looking at Arundo, it's like 30,000 AFY. If we could eradicate that, it would help a lot. And operations of the reservoirs. If you use winter releases and drought reoperation, they're almost comingled. Now there is a drought technical advisory committee that will look into things when we have a few dry years. Those are the two things, outside of implementation actions: Stream channel improvements for better recharge and flow management to avoid floods, and reoperate the reservoirs in the wintertime. I don't know why the Interlake tunnel is in there, I don't think we should bank on it, I don't know if voters will ever approve it. Everything looks pretty good for sustainability. But the area down south works pretty well when there's a timely release of water. For the first 40 years of the reservoirs, they caught all the water and released it all. It's about how to operate with costs and questions. I think timely release of water makes us sustainable all by itself. I think stream channel improvements help recharge.	Comment received.	Meeting comment - noted.
240					Meeting	4/14/2021	**Marc Bloom**	Something I don't understand; Bill Lipe mentioned how a lot of these projects or actions are being undertaken by somebody else. If we put them in our plan, and they don't come through, are we on the hook? I think all these projects have a place, but it seems like we're relying on other people and I don't know what that means for the big picture.	Abby Ostovar: This doesn't commit you as the SVBGSA, this is a list of potential projects that could be pursued in the future. How do we reflect this as the broader world of projects for the valley? We care about meeting the sustainability management criteria. We put in the plan that it is an adaptive management plan. If conditions change, if other projects go forward, we will adapt this and adapt which projects are implemented accordingly. We want to acknowledge there are these other projects with partners that impact groundwater conditions and affect us meeting sustainability goals, hopefully in a positive way. Emily Gardner: I think you summarized it well. For example, with the multi-benefit stream channel project, there are other agencies leading the project, but there may be an opportunity for the GSA or grant opportunity to support that work. We can augment that work to the benefit of the program as a whole. Abby Ostovar: There are a number of potential grants out there, but the requirements may include being mentioned in the GSP.	Meeting comment - noted.

241					Meeting	4/14/2021	**Jason Smith**	This points to the fact that we are putting together a plan for sustainability, but there a lot of things we don't have control over that we need to continue to partner with and enhance where we can. This isn't just about the Upper Valley. The better managed the Upper Valley is, the better all of the other subbasins will be. Especially as we are pushing for a TAC, we need to make sure we have good data where we know we are missing it. I would say in the diversity that we have throughout each subbasin, why wouldn't a TAC be a part of every GSP. We got super lucky that we had one real rainstorm this year. Up until then, that [MCWRA] Technical Advisory Committee would have started a drought deal. I think these technical advisory committees are a great idea. As landowners and growers, we know more than anyone how important water is. We don't want to waste it or put a bunch of restrictions on ourselves if something may happen. If we start hitting triggers, we get together and start making decisions. That's an awesome management plan, to bring people together to make decisions when the need arises.	Comment received.	Meeting comment - noted.
242					Meeting	4/14/2021	**Grant Cremers**	I'd be in favor of some kind of technical advisory committee for our subbasin, maybe related to an annual report. So that technical advisory committee should sit down and have a discussion about the annual report for the year to come, whether it's in good condition or not, based on rainfall. I would not be opposed to a technical advisory committee for our group.	Emily Gardner: We are going to be looking at the subbasin committees and their roles going forward. We're going to take to the board some ideas about the role involving reviewing annual reports and thinking through implementation of projects and management actions. The added technical advisory committee is taking this next step of asking really technical folks to look at groundwater trends and develop guidelines and policies for themselves if they see groundwater declining.	Meeting comment - noted.
243					Meeting	4/14/2021	**Grant Cremers**	In my mind, the way I see a GSP is that it's a recommendation on how to manage the assets and resources in the subbasin. There are many agencies that own different things in the basin. The GSP brings it all together. The GSA assesses and monitors results. I don't see it as owning projects. I see it as assessing projects and how they impact the groundwater in the subbasin. There's a relationship between groundwater and surface water, and agriculture and domestic wells. The GSA is there as the consultant and the GSP is there as a recommendation.	Comment received.	Meeting comment - noted.
244					Meeting	4/14/2021	**Bill Lipe**	I appreciate Mr. Bloom bringing up the "what-if" question. I think we're trying to figure out where we fit in the mix. I think a lot of this is relationships management in the basin, especially the MCWRA since they have their hands in a lot of things. I think about how the reservoirs could be reoperated to the benefit of the entire basin. This is about benefitting everybody. I've looked at old pics of the Salinas River, and from the 20s and 30s, it hasn't changed as much. When you look at the washes along the way, they've gotten narrower, but mostly still the same. Stream channel improvements will greatly help keep those little pockets of water really full, which will help with conveyance and wildlife. I think stream channel and reoperating the reservoirs is what the Upper Valley is focused on. I would merge this with drought. I know we wanted some language to put in there about	Emily Gardner: I think the difference is that in the Forebay, the Technical Advisory Committee is talking about pumping restrictions. Emily Gardner: The subbasin committees going forward, if needed, will select and pursue different projects and management actions in the GSP. Versus the Forebay TAC, if things aren't looking good, the TAC is in place to implement pumping restrictions. Abby Ostovar: Maybe there is some sort of technical advisory committee here, but not exactly like the Forebay one. We had a few folks dig in and develop the concept. Maybe we could do the same thing here.	Meeting comment - noted.
245					Meeting	4/14/2021	**Bill Lipe**	If all of our signals are green, then dormant land is free to get developed, unless there is some sort of warning signal, then wait, and maybe it's a trigger to put together a group and make a plan.	Comment received.	Meeting comment - noted.
246					Meeting	4/14/2021	**Jason Smith**	To not recreate the wheel, take what we have with the Forebay and figure out what we like and don't like. It will be similar.	Comment received.	Meeting comment - noted.

247					Meeting	4/14/2021	**Tom Merrifield**	Will we be submitting annual reports to DWR with regards to the SMCs each year? With that, we may not be to a point where we need to take action. How would this integrate with annual reports?	Abby Ostovar: April 1 we will submit a report on the prior water year. As far as sustainable management criteria go, you have 20 years to reach sustainability. For the five year updates, we need to be making progress on sustainable management criteria. Now the way the Forebay technical advisory committee is set up, is they will convene in January and see the data that will be going into the Annual Report. Then they will have time to discuss potential actions for the following irrigation season. Also meeting in April after the winter.	Meeting comment - noted.
248					Meeting	4/14/2021	**Tom Merrifield**	Seems the sooner we start realizing an issue, the better off you will be and the more options there will be.	Comment received.	Meeting comment - noted.
249					Meeting	4/14/2021	**Grant Cremers**	The annual report is very factually based. If you have a technical advisory committee, they can look at it and interpret it and provide guidance to the subbasin. The TAC can recommend a reduction in pumping by 10%. It would not be a rule or law, but it would be a recommendation. I would hope that a technical advisory committee means giving guidance.	Comment received.	Meeting comment - noted.
250					Meeting	4/14/2021	**Marc Bloom**	We don't have to go down the same road as a TAC for allocations. The subbasin committee can look at the annual report and then determine if we need to have a TAC each year. Some years we won't need to do anything.	Comment received.	Meeting comment - noted.
251					Meeting	4/14/2021	**Jason Smith**	I think what's really important is that we aren't saying "we're sustainable and we're fine, so leave us alone". We're saying we're sustainable but that we'll check back every year and review this and make sure we are headed in the right direction. It would help with our own management and perception of us taking it seriously. We need to take it seriously and make it the best for everybody in the basin.	Comment received.	Meeting comment - noted.
252					Meeting	4/14/2021	**Bill Lipe**	Considering we were inches away from being a low-priority basin, take that into context for what it is. It isn't about not taking things seriously. Everyone is serious. I want to restate that under that valley-wide project, winter releases and reoperation is in focus with the Upper Valley. What happens with ASR, we can mention it as an idea, ASR doesn't mean much for the Upper Valley. Interlake tunnel, yes WRA is pursuing it, we don't know how it will benefit anyone. Water has to run past the Upper Valley like it always does. I don't see at this stage whether there's enough definition, or if people will vote to fund it. You can reference it. I don't see it as part of an integral plan for sustainability in the Upper Valley.	Abby Ostovar: We did put them in here to acknowledge they're being talked about. We acknowledge there needs to be more conversation and analysis. Differentiation between drought and winter release, D-Technical Advisory Committee only meets when it's triggered, but winter release is a different management plan.	Meeting comment - noted.
253					Meeting	4/14/2021	**Marc Bloom**	Any way we can put a technical advisory committee as a management action to use if necessary? Instead of thoroughly defining it?	Abby Ostovar: We do need to have some meat on the bones. But it doesn't have to be implemented immediately. DWR has specific sections that need to be included.	Meeting comment - noted.
254					Meeting	4/14/2021	**Ann Myhre**	Thank you all for serving on this GSA board. I would like to say to M&A and GSA staff for listening to what we're saying. On the technical advisory committee, I'd prefer to see it as a management action. I don't think it would be necessary to have an active committee every year as long as there's a GSA advisory committee. I understand Jason's concerns about perception with respect to Upper Valley attitude. If we're in a little difficulty, we won't be the Feds and allocate 5% or 0%. We won't do anything that extreme to make a call like that during growing season. There will be time to form a TAC when you see trouble coming down the road. Thank you to all of you to put together a responsive document.	Comment received.	Meeting comment - noted.

255					Meeting	4/14/2021	**Tom Virsik**	Really substantive discussion. I agree with Ms. Myhre. I have two specific granular questions: two of the potential projects, the river channel clearing and Interlake tunnel among others. In the detailed material, there are estimates of AF annual benefit. I wonder if these benefits are for the entire valley or the subbasin. My suggestion is to break down the benefit by subbasin. Or say affirmatively that there is insufficient information that any projected benefit will be for the Upper Valley. These projects estimate fairly large benefit. At some point, Chair Cramers may want to revisit his comments on the role of the GSP and GSA, and summarize it as an explainer for people. That the GSP is essentially to guide all these other people. I add as well, that it is to enforce, but at minimum more to guide. In addition to explaining how things can benefit different parts of the basin, or if some projects have no benefit or do harm, it would be good to say so in the GSP. An obvious point, if there is a technical advisory committee in the Upper Valley, it should include or inform the MCWRA. This is an obvious audience and participant. Good work all.	Comment received.	Meeting comment - noted.
256					Meeting	4/14/2021	**James Sang**	It seems like this basin is depending on winter releases. My question about that is what happens when we get to a really dry time? Is that project going to be helpful at any time in the next three year if we get dry? On the Arundo project, it seems like it will take 10 years to fulfill. How helpful will that be to refill the aquifer while they're working on getting rid of the weeds? I'm not sure I understand the multi-benefit stream channel improvements. Is that the tributaries from the Gabilan, making the channels wider and hoping for more infiltration?	Comment received.	Meeting comment - noted.
257					Meeting	4/14/2021	**Bill Lipe**	I will say on the stream maintenance stuff, it's kind of a holistic approach. You're not widening the channel, you're taking the streambed you have and attempting to eradicate vegetation that doesn't need to be there. Arundo doesn't need to be there. You're also looking at tilling the ground. It is mentioned in the packet. Whoever write that did a great job detailing it. You rip it, and you deepen the channel thoughtfully, you reduce the velocity of the water, and you increase the ability of water to saturate all the way through. The channels provide better fish passage. I encourage you to read the document in the packet. It was a very good description of what goes on there. It's been all private property owners so far. Maybe we can bring more folks in and do the full 95 miles. I would just say about the reservoirs going dry, if you look historically, it's happened in the last 60 years they've been built. Looking at what we have, reoperating in a new way, releasing in the winter time has not been emphasized so far, and we need to look at it to see if there is water to be gained. We need to reoperate it in a way that we get the same benefits or more. You get more saturation, you get more run days for fish. I wanted to address these points so Mr. Sang hears these points, and other members of the public hear it.	Abby Ostovar: The stream maintenance section was put together by your GSA manager.	Meeting comment - noted.
258					Meeting	4/14/2021	**Grant Cremers**	The idea is get that stream channel operating so that it efficiently moves water all the way down.	Comment received.	Meeting comment - noted.
259					Meeting	4/14/2021	**Bill Lipe**	I saw the number went down again, 2,000 AF. It might segue into the next item. I think the Forebay went with groundwater levels, which equated to some big number. I know DWR will look at the number we give them. I just get concerned when I see this shrinking number, but all our other sustainability indicators are okay. What will happen if someone comes online and develop land and that will put us over that number?	Abby Ostovar: This is set on average hydrogeologic conditions. If you have a drought one year, DWR realizes there will be droughts. This is managing for the long term. It is one number for entire subbasin, and groundwater levels are measured across the subbasin. The number is going to fluctuate slightly. If we discover something incorrect in the model, we will try to adjust it and get the best number that we can.	Meeting comment - noted.

260					Meeting	4/14/2021	**Tom Merrifield**	In regards to the water quality sustainable management criteria, I guess if we see exceedances somewhere, there will be an investigation done to see if it's due to our actions or someone else's? Is there a process in place?	Abby Ostovar: Yes, and it's similar to subsidence. First we look at if there are exceedances, then we figure out if it's due to GSA actions. There will be a monitoring system in place with particular projects.	Meeting comment - noted.
261					Meeting	4/14/2021	**Tom Merrifield**	I'm familiar with the role regional boards play, and those investigations get exhaustive. You're determining who is causing the impact. Or are we saying we're not causing it and that's okay.	Abby Ostovar: We just need to make sure we're not harming groundwater quality, and set the monitoring system to verify that. Emily Gardner: It won't be our role to figure out why.	Meeting comment - noted.
262					Meeting	4/14/2021	**Grant Cremers**	So, AG 4.0 is getting close to being finalized. The groundwater monitoring we do for that, is that the same water quality monitoring we can do for the GSA?	Abby Ostovar: We don't have an independent monitoring system. We use what's reported to the state through the ILRP. All we do is download the data and do an analysis. Emily Gardner: If we proceed with any project that will have groundwater quality implications, we'll do that. It's very project specific.	Meeting comment - noted.
263					Meeting	4/14/2021	**Bing Seid**	I have an issue with how you worded an undesirable result. Here you should say it's an exceedance of minimum thresholds instead of "no exceedances". "No exceedances" would be the desirable result.	Emily Gardner: I think we can solve this problem by saying "avoiding undesirable results." Abby Ostovar: You're exactly right in your sentiment. And the wording	Meeting comment - noted.
264					Meeting	4/14/2021	**Bill Lipe**	Reality is that there are some systems that are impaired with high nitrates and other things. Those are known, and regional quality board keeps a list. We know these things are out there, and try to make sure nothing new happens on our watch. Reality is, there is impaired water in this valley. Our idea is we're going to do everything possible so it doesn't get worse from anything we do.	Comment received.	Meeting comment - noted.
265					Meeting	4/14/2021	**Tom Merrifield**	With regards to the first one or two, I guess the question about the hydrographs fluctuations, maybe some of those wells were constructed in a way to account for those fluctuations. Before specifying a buffer, should we make sure it's not below the depth of the well. Well construction being a factor. The other comment about the two wells with the downward trend spanning a decade plus, thinking about other SMCs, if there is dependance between the two. Did you take a look at the storage?	DW: We did not look at the storage in those locations. The storage is for the whole basin. If there are local storage issues, it might not show up for the whole basin. It would follow the same patterns as the groundwater elevations. I want to point out, (1) should we reset the minimum thresholds, and (2) these wells popped up as alerts but I'm not sure if this is the correct place to talk about it. We want to be upfront with everybody with what we're seeing.	Meeting comment - noted.
266					Meeting	4/14/2021	**Marc Bloom**	I do support the 12-16 for the threshold, however the 5 feet, I thought there was something in here where we had a buffer, 15%? As far as the 12-16, I do support that. Can we drop the outliers?	DW: The 15% is where you are allowed two wells before you get an undesirable result.	Meeting comment - noted.
267					Meeting	4/14/2021	**Bill Lipe**	More monitoring would help us, right?	DW: That is actually true. The more you monitor, the more your monitoring network represents the valley. Therefore, outliers don't really represent the valley. Abby Ostovar: These are the representative monitoring wells, the 18 wells. That number would need to be expanded. We do have more wells, but we have selected these representative ones.	Meeting comment - noted.
268					Meeting	4/14/2021	**Bill Lipe**	Do we know how staff goes about picking representative monitoring wells?	DW: We want them to be well distributed. We don't want them to tell different stories next to each other. We took an estimate of what is a nice distribution across the valley, we could add more and fill in with existing wells.	Meeting comment - noted.
269					Meeting	4/14/2021	**Bill Lipe**	This valley is made up of several pockets of water. Things may behave differently. On one side of the highway versus another could be very different. Is it appropriate to do a constant buffer? Could you have a greater buffer for different wells in different areas?	DW: A constant buffer will be the easiest. If we have different buffers for different wells, we'd have to explain why. We don't want to look like we're cherry picking.	Meeting comment - noted.
270					Meeting	4/14/2021	**Bill Lipe**	I would be in support of what Mr. Bloom said, as an elegant way to get accurate representation and not set off false alarms. Putting the buffer in enhances that. I would support guidance on the 2012-2016 with a five-foot buffer below that.	Comment received.	Meeting comment - noted.

271					Meeting	4/14/2021	**Grant Cremers**	We want to have a lot of wells that we look at and we want them representative? Now that we're looking, are these selected wells actually representative? Do we want to focus on wells that will tell us where the problem is? Do we need to find the canary in the coal mine versus all the canaries in the forest?	DW: We don't want to pick and choose monitoring wells that show we're not in sustainability. We want to tell an honest story with our data.	Meeting comment - noted.
272					Meeting	4/14/2021	**Grant Cremers**	I think on average, we're sustainable. But if we look at some wells, we are not and some we are.	DW: Let's clarify the word sustainable. Is the basin pumping within the sustainable yield? DWR has set it up such that you have to meet all six criteria to be sustainable. I do think we need good representation of all the issues in the subbasin. We will still identify areas where water levels are continuing to drop. And even though the basin is sustainable overall, we do need to take some action for these spots. It's important to know where they are.	Meeting comment - noted.
273					Meeting	4/14/2021	**Grant Cremers**	My question is more about having a small area that fluctuates a lot and the rest of the basin is sustainable?	DW: I'm expecting to see that.	Meeting comment - noted.
274					Meeting	4/14/2021	**Grant Cremers**	If I go to county GEMs information, those numbers are much higher, like 140,000 AF.	DW: What we're presenting there are historical averages 1980 to 2016. Pumping has increased substantially in the last few years. One of the things about basins that are pumping under their sustainable yield, you can only identify the sustainable yield when you get over it. In the report, we say it's at least this big. That's a problem with the concept of sustainable yield.	Meeting comment - noted.
275					Meeting	4/14/2021	**Grant Cremers**	There's dormant land, and it was actually 101,000 and we're at 91,000, will dormant lands be able to come online?	DW: The sustainable yield is defined by having no undesirable results. If we pump 101,000 and we're not hitting any of our undesirable results, we're sustainable. The real proof is not that number. The proof is having an undesirable result. The sustainable yield will go up. We will reset the sustainable yield. On the other hand, if we see undesirable results as a rseult of increased pumping, we can set it lower.	Meeting comment - noted.
276					Meeting	4/14/2021	**Bill Lipe**	I was going to bring up cadastral? The actual code for the well looks like the TRS system. This map is fine, I'd like to see exactly where it's at.	Abby Ostovar: You can also use the handy dandy web map!	Meeting comment - noted.
277					Meeting	4/14/2021	**James Sang**	I believe that I don't want to have any farmer be subjected to not getting any water. I think we should set the minimum threshold as low as possible. You have projects that will fill the aquifer. I want to see those projects halfway fulfilled and see if they will be a benefit, not subject any farmer to a lack of water. I suggest 10 feet below what it is now.	Comment received.	Meeting comment - noted.
278					Meeting	4/14/2021	**Tom Virsik**	When this material came out, I sent it to my clients, a vintner, thinks one of the wells that's dropping is in the Hames Valley. He had a concern about what is going on in that part of the valley. Whether sustainable management criteria are met, the information coming through has real world effects on everybody. I'm pointing out that moving forward about those two wells is important, if that is localized and what's going on, so people can make choices. If this basin needs to be managed differently in a particular area, maybe it would be suitable for a management area. Hopefully not. Also reality of people who need to make decisions.	Comment received.	Meeting comment - noted.
279					Meeting	4/14/2021	**Steve McIntyre**	To Mr. Virsik's point, I was unaware Hames Valley is in the GEMS program. I would qualify that Hames as different from the Upper Valley. We are not required to report our water usage out there. The wells are, the hydrology is completely different. Our wells are 1,000 feet, with very little connectivity to the Upper Valley. I'd like to know Derrik Williams' opinion of that area.	DW: You're probably correct. These wells are in what DWR now considers the Upper Valley. That's an issue, the Upper Valley is expanded. After the boundary notification, it has expanded what we consider there. We're going to have to work with that, and acknowledge that not all parts are exactly the same.	Meeting comment - noted.
280					Meeting	4/14/2021	**Steve McIntyre**	Did we confirm it's a part of GEMS or not?	Emily Gardner: I don't believe so. Abby Ostovar: Here is the web map and it shows Zone 2C where GEMs is collected.	Meeting comment - noted.

281					Meeting	4/14/2021	**Bill Lipe**	The old bulletin 118, it ended in near San Ardo. It begs the question, is it really representative of the Upper Valley? Looking at the map.	Comment received.	Meeting comment - noted.
282					Meeting	4/14/2021	**Steve McIntyre**	I farmed through the drought, I would have bet that in Hames Valley we would have been one of the first locations affected. But it was King City that was much more affected. I think we may need to acknowledge that that monitoring well may be an outlier.	Comment received.	Meeting comment - noted.
283					Meeting	4/14/2021	**Jason Smith**	I would jump in with Steve, we had some wells in Hames Valley that didn't see an impact from the drought. It would be good to confirm.	Comment received.	Meeting comment - noted.
284					Meeting	4/14/2021	**Bill Lipe**	I'll make a motion that we accept guidance provided to us of updating our draft GSP to include looking at lowest groundwater levels in representative wells between 2012 and 2016, and that we add a five-foot buffer to those lowest water levels.	Comment received.	Meeting comment - noted.
285					Meeting	6/7/2021	**James Sang**	I want to present another idea on how we can hydrate the soils in this area. First install swales around each well to fill up the well with rainwater. Second, to swale the land at the time when farmers do not use their land, and when it's rainiest. It's rainiest in January. So when farmers stop using their land between October and February, that they leave their land open and subsoil down to 24-36 inches. Then they can reuse their land in the springtime. A strategy like this can do a lot to hydrate the soils and refill the water aquifer, and to encourage the farmer to do something like that, the Agency should provide some kind of credit.	Comment received.	Meeting comment - noted.
286					Meeting	6/7/2021	**Nancy Isakson**	I want to share with everyone that we've asked our hydrogeologist Dwight Smith to sit on in this meeting, particularly because you're having the first update on your GEMS information. Thought it would be helpful for Dwight to listen and participate, and he's there on behalf of the Water Coalition.	Comment received.	Meeting comment - noted.
287					Meeting	6/7/2021	**Bill Lipe**	We know the model is not consistent between subareas and subbasins. What about all the wells in Hames Valley and in the southern part that is not covered at all?	DW: Pumping from those areas is not reported per the GEMS program. That's what we're talking about: expanding the GEMS program.	Meeting comment - noted.
288					Meeting	6/7/2021	**Bill Lipe**	Is the southern area being factored into the sustainable yield?	DW: No, we don't have good estimates or data. Also, the model doesn't even cover that [southern] area. We are not assessing how much pumping is occurring in this southeastern corner.	Meeting comment - noted.
289					Meeting	6/7/2021	**Grant Cremers**	Is now an opportunity to align those subarea and subbasin boundaries?	DW: DWR is only allowing boundary modifications on a certain schedule, it will come up every 5 years	Meeting comment - noted.
290					Meeting	6/7/2021	**Grant Cremers**	The subarea is a county issue, right?	DW: It is a County issue, and I can't speak to that.	Meeting comment - noted.
291					Meeting	6/7/2021	**Grant Cremers**	Will this discrepancy be an issue into the future?	DW: It's not a problem with how we manage the groundwater. It will just be a discrepancy between the annual MCWRA reports and the GSP annual reports. The only problem is you won't be able to exactly match those numbers.	Meeting comment - noted.
292					Meeting	6/7/2021	**Bill Lipe**	Are those subareas based on actual parcel lines? I know Bulletin 118 is just lines. That subarea line in the north follows a very specific line.	Les Girard: The subarea boundaries don't always conform to lot lines. Some areas, the boundary crosses lots. That's my recollection.	Meeting comment - noted.
293					Meeting	6/7/2021	**Tom Merrifield**	If I recall, the model actually calculates agricultural pumping based on some different parameter that may not be tied to the reports? If so, could that pumping be incorporated now?	DW: We will get to that in a few minutes. Yes, there is some pumping in the model that is not tied to GEMS data. GEMS data is used to make sure the model is reasonable. But areas in the south, and southeast where we have no information, the model could provide an estimate there.	Meeting comment - noted.
294					Meeting	6/7/2021	**Bill Lipe**	Whatever might be perceived as over irrigation might be necessary the hotter it gets, you have to use more water to achieve that. Whatever over amount that is applied, mostly goes back into the groundwater table. It doesn't run off into the ocean or hit a clay layer.	DW: That is accounted for in the model. Any over irrigation goes back into the ground in the model.	Meeting comment - noted.

295					Meeting	6/7/2021	**Bill Lipe**	Was there any explanations about why they didn't use the extraction data? A lot of work went into people reporting. You keep saying GEMS database, is that ours (GSAs) or the States or the WRA?	DW: It's the MCWRA database, and is all the reported pumping in 2, 2A, and 2B.	Meeting comment - noted.
296					Meeting	6/7/2021	**Bill Lipe**	The problem with GEMS and the subarea reporting, their own databases are in conflict. You've done a lot of work stitching it all together.	DW: Part of it is because the database continues to change over time. The report doesn't. Once it's published, that's it.	Meeting comment - noted.
297					Meeting	6/7/2021	**Bill Lipe**	Why not use extraction data that has been so laboriously put together by landowners and the WRA?	DW: For one, they do use the GEMS data for calibration, but not on a field by field basis but more on a valley-wide area. The methodology is part of a much larger package of modeling tools. It is built into that package of modeling tools to have management advantages. It's the farm process package, and tries to manage all the water processes on a farm; the rainfall, the diversions, etc. and then it tries to supplement with pumped water. It takes into account climate change, if rainfalls goes up/down; it automatically accounts for all those things.	Meeting comment - noted.
298					Meeting	6/7/2021	**Bill Lipe**	For our purposes, if you had to build a tool, would you have built this or built something simpler? Based on your experience and knowledge? Do we need something this complicated to get where we need to go?	DW: I'm not going to second guess another hydrologist's opinions as they built this. On the range of simple to complex, this is the complex side.	Meeting comment - noted.
299					Meeting	6/7/2021	**Bill Lipe**	I don't mind it being complex, what I'm observing is the inability of members of the public and experts to vet the conclusion that are being made from the model. We're completely closed off from a federal agency and a tool that will prognosticate what we do for the next 50 years. I don't think you are going to get a lot of buy in. I think a lot of folks feel that way. This is strictly my opinion.	DW: I will note that.	Meeting comment - noted.
300					Meeting	6/7/2021	**Jason Smith**	So the GEMS data doesn't include the added on pieces we brought into the Subbasin. Part of that includes the Hames valley, which includes grapes and row crops. The reason it's not in the GEMS is because it's been deemed outside of the subarea. How will that affect our sustainable yield and all of that?	DW: It's a tricky one. If in all areas that are not being monitored, and if we see more pumping and WLs are not declining, then the sustainable yield would go up because pumping is not impacting groundwater levels. However, if we see more pumping and it shows declining water levels, then the pumping would be seen as negatively impacting certain areas of the subbasin.	Meeting comment - noted.
301					Meeting	6/7/2021	**Steve McIntyre**	I have asked this question before, part of the underreporting could be the vast amount of grapes that are using water from February to May that gets returned to the aquifer. (Frost control). Has that been talked about in the U.S. Geological Survey model?	DW: Yes, but I don't know the status of that. I know they reached out to growers early in the process. It is difficult in the system to account for frost control, because it's not considered crop demand.	Meeting comment - noted.
302					Meeting	6/7/2021	**Dwight Smith**	USGS modeling versus reports. It ended up between 20 to 30 percent low in all four subareas; in particular 33 percent was the Upper Valley. I see a systemic problem. For your Chapter 6, Water Budgets, how are you planning to put forth a water budget if the modeled pumping is so inaccurate? How are you planning to rework those water budgets? Are you going to reissue drafts of Chapter 6?	DW: We will reissue versions of Chapter 6 soon. How we'll address it in the Upper Valley. The Salinas Valley Integrated Hydrologic Model (SVIHM) and all the historical data suggest the Upper Valley is not in overdraft, and water levels have been relatively constant over time. So there has been no loss of storage over time. So, the SVIHM and GEMS data are showing no loss of storage. We are just going to use the GEMS data to estimate sustainable yields and simply report out on the model results.	Meeting comment - noted.
303					Meeting	6/7/2021	**Nancy Isakson**	We really appreciate you addressing the errors and inconsistencies. We think it's important. Looking forward, having a good foundation is good to start with. If you ever exceed the minimum threshold, if you need a cutback in pumping, you need an accurate starting point. If you're already off by 20 or 30 percent, it doesn't make sense. When you mention GEMS and the reports, and inconsistencies, and how the data is updated after the report is issued. Do you have an idea of what that percentage difference is? You hear from MCWRA that 95 percent of people report. What is the basis of changes after the report? I'm wondering what that difference is in comparing the changes that are made after the report is prepared?	DW: Your read is correct. We will use the higher number for the water budget. We will be giving a range of sustainable yeilds. I can't speak to your second point. When we look at GEMS data today for UV subarea, it has ~98% of what's in the reports. MCWRA knows this happens. I don't know about the 2%.	Meeting comment - noted.

304					Meeting	6/7/2021	**John Bramers**	A lot revolves around the GEMS data. Do we know how accurate that really is? There are a lot of way to report data. I think we need a very robust way to report, meters on everything, and calibrate it (not de minimis). How accurate is the GEMS, do we know?	DW: All we know is that MCWRA often says things like they get 95 percent of well owners to report. I don't know the accuracy on the reporting or anything like that.	Meeting comment - noted.
305					Meeting	6/7/2021	**Bill Lipe**	Is there an estimate on the amount of water south of San Ardo that resides within Monterey County?	DW: We have not looked at that yet.	Meeting comment - noted.
306					Meeting	6/7/2021	**Nancy Isakson**	I know Steve McIntyre has mentioned this before on the issue of meters: some have flow meters, others have electrical methods. They're required to be calibrated on a regular basis so they can prove the accuracy of those measurements.	Comment received.	Meeting comment - noted.
307					Meeting	6/7/2021	**Bill Lipe**	It's every 3 years for pump efficiency tests and to make sure the flow meters are working correctly. I think ideally we'd have an exact way to measure this stuff. This is a perfect opportunity for DWR and the State to set a standard. And if we have this surplus, then they should pay for it too, for everybody.	Steve McIntyre: I want to clarify with Ms. Isakson, there is a calibration process with the electrical method where every 3 years you have to calibrate with a pump test. In some ways, the electrical method may be more accurate than a water meter. There is no requirement to calibrate the water meters.	Meeting comment - noted.
308					Meeting	6/7/2021	**Dwight Smith**	Because the U.S. Geological Survey information is provisional, I wonder if there have been discussions in these primary differences in the water budget. Are they comfortable with your group publishing these water balance numbers in your GSP?	DW: They have included a series of caveats which we include in the GSP. The information is provisional, we state so. We will update after the model is released. We have an agreement on how we can show this data without asserting these are absolutely correct. We have an agreement, yes.	Meeting comment - noted.
309					Meeting	6/7/2021	**Grant Cremers**	How does that work with DWR? Is that at a five-year review point or whenever you have that information?	DW: DWR expects to see statements that the data will be updated. If it's a large enough difference that impacts our management approach, we will make changes as soon as we need to.	Meeting comment - noted.
310					Meeting	6/7/2021	**Grant Cremers**	Going forward here, we're going to have annual reports, pumping data, every year we're going to look at this. In five to seven years are we going to be able to look at water levels in wet/dry seasons and we'll be able to look forward and understand where we are?	DW: I think we will. I think once we get through writing these GSPs and get into implementation, we can set up a system we can inform people of what we expect to see and ask if those are informative numbers? I'd like to get there and I think we can get there.	Meeting comment - noted.
311					Meeting	6/7/2021	**Tom Merrifield**	From a hydrogeologic standpoint: the wells that will be measuring water levels, are these true monitoring wells? Will they be cut off periodically to get static levels?	DW: Most of them are not monitoring wells, most are agricultural production wells. We are not doing the monitoring. MCWRA already has that program in place to get reasonable water levels. And most come from production wells.	Meeting comment - noted.
312					Meeting	6/7/2021	**Tom Merrifield**	Do we know the distribution of wells and where they're screened, and utilize those wells to understand storageand how it would vary across the basin?	DW: I believe we have enough wells in the 2, 2A, 2B zones in the subarea. For the rest of the subbasin, MCWRA has not been monitoring in that area, and we have to ask MCWRA to expand monitoring into that area. Monitoring is more focused in the more agricultural areas. It is not evenly distributed across the basin since we added more to the basin recently.	Meeting comment - noted.
313					Meeting	6/7/2021	**Tom Merrifield**	Given that we have this one-year delay on pumping numbers, if we did something where we used groundwater levels from quasi-static wells throughout the basin reported on an annual basis, then every year looked at that pumping to look at how good those estimates were, would there be any value in that comparison?	DW: We're going to report all these data. We probably want to analyze the data in a way that aides in the management of the basin.	Meeting comment - noted.
314					Meeting	6/7/2021	**Steve McIntyre**	First of all, the proxy methodology may be most appropriate for the Upper Valley in particular because of the great volatility in groundwater levels from year to year, particularly in a drought. Our wells are fairly shallow, so when there's a drought, levels go down fairly quickly. When groundwater levels goes down far enough, your capacity goes down. I can't help but think the proxy level is a good methodology because of those unique characteristics.	Comment received.	Meeting comment - noted.

315					Meeting	6/7/2021	**Tom Virsik**	What I'm thinking about in the Upper Valley, there are two ways for the storage to go down. One is pumping, another is if the reservoir releases are reduced. Will this proxy give enough information to determine which is responsible for water levels going down? The adaptation in adaptive management may have to deal with the releases, not the pumping. If it doesn't allow for adaptation of the releases, as compared to dealing with pumping. I'm thinking of worst case scenario. To have as much and as good of data, should there need to be a lot of push back in places we don't want to go. Would this be beneficial or not? I don't know? I'm thinking about a couple steps beyond. If it turns out they don't want to release any water one year, do you know what you want to do to take action? Kind of a large issue.	Comment received.	Meeting comment - noted.
316					Meeting	6/7/2021	**Nancy Isakson**	To share the concern about the utilization of groundwater levels and how they are dependent in a large part on the reservoir operations. How will that reconciliation take place? There should be some plan, framework that correlates releases and groundwater levels. We need to have that understanding. So much of the water levels depend on the releases.	Comment received.	Meeting comment - noted.
317					Meeting	6/7/2021	**James Sang**	You're trying to determine how much water each well can take out. Do we have an idea of how deep each well is? So we can determine where the current water level is to what the deepest part of the well is? I think is we have an idea there, and say we take measurements in the wettest part of the year and the driest part of the year, and we know how the water level moves, you have a better understanding of how much water you can take out on each well and you can determine the sustainable yield of each well.	DW: I don't think we have all the data we would need to do that kind of analysis. We're trying to not do this on a well-by-well basis for the subbasin.	Meeting comment - noted.
318					Meeting	6/7/2021	**Bill Lipe**	Based on the comments made, correlation, can we determine if it's pumping related or drought related or reservoir related in a timely fashion or at all?	DW: I don't know if we can say this is the reason for the problem, as much as we can say "this is how we solve our problem". This is how we want to look at it. Where it falls apart is if we're pumping so much we can't recover. We will have to look at that, and assess that. If water levels drop and we run out of storage, what are the options? if releasing water is the solution then we go there, but if we have to cut back pumping, then we go there even if that's not a preferred option.	Meeting comment - noted.
319					Meeting	6/7/2021	**Bill Lipe**	The only major tributary the Upper Valley has is the Salinas River. There are small, minor tributaries but they all flow to the Salinas River. Between San Ardo and San Lucas, wells are 200-300 feet max and drawing from the bottom. To King City, the bowls gets deeper, and you get into the Arroyo Seco from that point north which provides benefits. I wanted to lay that out because people are asking questions. The Upper Valley is somewhat simple. When I heard the proxy estimation the Forebay is doing, I thought, I think this totally makes sense. I would like to understand if it's over pumping versus not releasing water for three years. It would be nice to know that so we can focus on what we need to do. The MCWRA has done a lot of work and they're looking at what to do with a very complex system. I would support going this direction with the proxy.	DW: I'm looking for guidance.	Meeting comment - noted.

320					Meeting	6/7/2021	**Jason Smith**	I'll add in, the proxy deal makes sense. I think the Technical Advisory Committee that's put into place for the MCWRA to deal with the dams directly is addressing the problem we're dealing with. Bottom line, if it's being addressed the proper way, but if we don't have releases for two years, we won't have to worry about pumping cutbacks because wells go dry. Because we mentioned if a basin decides to have some water trickle out, can a basin make that decision with all the other basins? If we can prove that it doesn't harm anybody. I think one of the key things is, does keeping the Upper Valley in a situation that isn't totally out of the water help other basins when we finally get water? If we're in a drought, we're in a full-blown drought. Back in 14-16, it was so dry it took so long to fill up it couldn't get anywhere. There is no easy answer, I'll go with the proxy.	Comment received.	Meeting comment - noted.
321					Meeting	6/7/2021	**Bill Lipe**	The benefit of a winter release program, based on what was presented, you can get 10-15,000 acre feet per year to the entire valley, and can help the steelhead population too. All the basins benefit. What we saw was the amt of water it took to get past Bradley was immense. It was 1,000's of acre feet. It took a couple of days to fill that bottom portion up. Once its filled, the conveyance of the river system is optimal. Everything south of the confluence with the Arroyo Seco is full. The water levels of the Upper Valley have not significantly changed at all, relatively full most of the time with pumping going on. I think this proxy way is good, groundwater level is everything. If you get below where it's no good, there's nothing left to pump. If you give it 5-6 weeks of natural flow, it all comes back. In 2016, wells that were 70-75ft below ground surface (groundwater levels), some people measure their water levels frequently. We can build a monitoring network by talking to people. You can aggregate data. I know a lot of people who measure this regularly and it stems from 14,15,16. I make the motion to go with a proxy for our water storage based on water levels.	Comment received.	Motion passes and will be incorporated into the SMC chapter.
322					Meeting	6/7/2021	**Roger Moitoso**	Just a follow-up to the motion and second. Bear in mind, the problem that we had in 2014 was that we had no water. In 2015, water was held back. Then in 16, water came in and wasn't released and that was a huge problem. There's a huge difference between releases as a trickle versus altering natural flows. In 15, it rained and the Arroyo Seco ran, and in 16 it rained more and the Arroyo Seco ran more. It was very different than in the Upper Valley. We want to avoid man-made droughts. I'm in favor of the motion.	Comment received.	Meeting comment - noted.
323					Special Meeting	6/14/2021	**Roger Moitoso**	Everything that was just presented, the river maintenance, getting arundo under control, that would make sense. The rest is cookie cutter. If everything is in balance, why do we need to fallow land? Let's not cookie cutter. As far as river maintenance, give the permits to landowners and then cost share for arundo removal.	Comment received.	Meeting comment - noted.
324					Special Meeting	6/14/2021	**Grant Cremers**	The last couple of presentations, there has been a dollar value on the ASR, $172 million. We haven't had a really thorough explanation of why that is there.	Abby Ostovar: All costs are associated with the ASR part of the project: the filtration plant and the piping and the wells. The way the project works, is it doesn't work if it doesn't meet CSIP needs with the ASR. The cost of the project is not the benefits assessment and it is not the breakdown of who pays for the project, that will occur during GSP implementation.	Meeting comment - noted.
325					Special Meeting	6/14/2021	**Grant Cremers**	I think in general, a lot of us are for figuring out how to get water efficiently down the river, but spending $172 million to get it back in the ground is probably a deal breaker.	Abby Ostovar: Other projects that may result in reservoir reoperation can be evaluated as well.	Meeting comment - noted.

326					Special Meeting	6/14/2021	**Bill Lipe**	A lot of the stream maintenance has been managed by the MCWRA and the RCD. There are grants and some legacy costs for landowners that participate. That's for people who own land on or near the river. The reservoir reoperations are not within our domain. The tunnel project is still in here, and I don't think it should be. I don't think it's appropriate. A lot of the stuff in the first part of your presentation, a lot of these things are already being done. I don't know how you assess cost share if people are already participating. People are already paying. The arundo stuff is already being done, a lot is already being done. I'm just providing some comments based on my experiences serving on boards and working for someone who owned some land near the river. I'm not sure how this fits in with us, how we quantify the benefits and how the costs get shared if other people have funds and grants, and even have authority where we do not.	Abby Ostovar: We include these projects because it is what can potentially be used over the next 50 years. It doesn't mean we have to implement it, it's to show DWR we have the tools to manage groundwater. We include all projects that may affect groundwater conditions. These are the costs of the projects, it is not said that these will be borne by Upper Valley stakeholders in particular. It's not making an assessment of who's paying what. It's to show the level of effort involved in these. We may not know who will pay, and haven't done a benefits assessment.	Meeting comment - noted.
327					Special Meeting	6/14/2021	**Bill Lipe**	Tom Virsik submitted a letter to the board, and speaks to how some things are included/not included. Some of us came into this process thinking we'll build a plan around the Upper Valley and then compare it to folks around us to see if there's harm. A lot of the language being used seems like they're valley-wide projects, and there's a certain narrative, and I understand why, but it's going against what people have experienced. We understand what's happened in the past. Some of this language doesn't seem appropriate to me. Some of these things don't seem valley-wide. Every subbasin has some issue. We have limited storage, and some water quality issues, but on the whole, and large parts of the Forebay, and others are in very good shape. We want to tie it all together and build consensus, but we have so many unresolved issues from even the recent past, and you're attempting to tie it all together, but somebody's going to have to pay for this stuff. That will be the last thing we will deal with. I guess that's the water charges framework. I think Mr. Virsik and his clients have been involved in this process for a very long time, and I think the concerns raised in the letter should be more closely looked at. I want this to be an Upper Valley plan, and then build from there. I'm aware of the language from Mr. Virsik's letter and I think this should be an Upper Valley plan. This is not a valley-wide plan, or an integrated plan, this is the Upper Valley Plan.	Comment received.	Meeting comment - noted.
328					Special Meeting	6/14/2021	**Marc Bloom**	What I think the plan, or plans, is lacking is the language that separates. It doesn't make it clear that this is such-and-such subbasin. Take any of the projects, you can take the costs of that project and all the language is saying is that it will benefit A, B, C subbasin the most. But every subbasin should have some responsibility to pay. I don't see anything that is clearly separating the subbasin. That's how I see it.	Comment received.	Meeting comment - noted.
329					Special Meeting	6/14/2021	**Harrison Tregenza**	On behalf of Tom Merrifield: As projects move forward, will the model be updated and when will those costs be included, or have they?	Abby Ostovar: I don't know the exact cost of modeling, it will depend on the type of project. I don't know that the stream maintenance, if the model fully includes the surface water interaction. There are some projects the model might not do as well with. Projects that have a benefits assessment, there will need to be a model to assess at the subbasin level. There are a lot of details that need to be worked out before we can do that.	Meeting comment - noted.
330					Special Meeting	6/14/2021	**Harrison Tregenza**	On behalf of Tom Merrifield: Which projects pose the greatest challenges from a permitting persective?	Abby Ostovar: The ones that need water rights amendments will take the most time.	Meeting comment - noted.
331					Special Meeting	6/14/2021	**Tom Merrifield (via email)**	If floodplain enhancement and recharge moves forward, are we at risk for litigation for unintended consequences?	Abby Ostovar: There is always a risk. It will be looked at when projects go into the projects design phase.	Noted.

332					Special Meeting	6/14/2021	**Bill Lipe**	What did we actually achieve bytaxing ourselves all this money and what are the benefits? It is an important thing to have at the front of this process.	Comment received.	Meeting comment - noted.
333					Special Meeting	6/14/2021	**Grant Cremers**	There needs to be a KPI (key performance indicator) with every project. We're constantly sold one thing and get another.	Comment received.	Meeting comment - noted.
334					Special Meeting	6/14/2021	**Grant Cremers**	If you're told a project will deliver 12,000 acre-feet per year and you get 7,500 acre-feet per year you need a report on that.	Comment received.	Meeting comment - noted.
335					Special Meeting	6/14/2021	**Grant Cremers**	It's one thing if a project doesn't deliver, but if we're talking multimillion-dollar projects, we need to look at spending a few million at first to look at where we can get more water first.	Abby Ostovar: This is an adaptive plan; it doesn't preclude you from coming up with new ideas at the five-year updates and proposing new project ideas along the way.	Meeting comment - noted.
336					Special Meeting	6/14/2021	**Grant Cremers**	What's the true idea of the GSA? It was my understanding that the GSA was going to look at the six SMC and develop a plan to manage or plan to sustainability. I thought it was going to be an independent agency that could look at data, collect information, look at projects, and assess existing infrastructure. Not to have projects. We have existing agencies with infrastructure. The GSA should make recommendations.	Comment received.	Meeting comment - noted.
337					Special Meeting	6/14/2021	**Jason Smith**	This agency was put together because of past issues of mistrust with the MCWRA. We have created a separate agency to do what you're saying, based on how everything is set up and who owns assets, it's the coordination of the two agencies. There's been strategic talks about how they work together, and potentially combine down the line. As Monterey County rate payers, we created this agency to bring a new level of transparency and trust. The number one thing that has happened is what we're doing today. I will comment that back to Abby, especially in the Upper Valley and Forebay, is the concern of this document that we turn in, and what we're going to be held to. I've continued to make sure that the agency is reiterating that this is a plan, and is designed to be changed as things move along. Specifically our group, I get it I get the past, but we're learning from the past, all this stuff is recorded and it's there. There's nothing in the plan that says this is what we're held to. We're trying to set up management processes that will address when we have issues. We're putting in that we're going to meet and determine what will happen when we get there. We got to turn in a plan, and that is what it is, and try to retain, as a subbasin, a process to address management issues when or if they come.	Comment received.	Meeting comment - noted.

338					Special Meeting	6/14/2021	**Bill Lipe**	Yeah we have to turn in a plan, but it has to be a plan built by us. Part of the challenge we're raising here, adaptation of the plan. Mr. Virsik's comment on page 2, that it's about knowing what is our jurisdiction and what is our authority, and what is the MCWRA or some other agency proposes something that will have great impact on our plan, and knowing what is our footing and what is our authority. SGMA is new legislation, but there's a broad array of authority and things that a GSA can do, and maybe we can fully understand what we can do. We need to know when this agency can say "you need to conform to our plan" and vice versa. I have a feeling that because of the interconnectedness, how do we fit into this realm, or really I'll say authority or jurisdiction. Because these things are going to happen. We need to know what level of power we have to make our plan stick. How are we delineating ourselves. I think this is an important point, because we're going to hit these trip wires constantly. Just because an agency has been around for 50 years, where do we say "you're jeopardizing our ability to reach sustainability." I think it's something we need to understand, and I think Mr. Virsik's letter has specific language to that point.	Comment received.	Meeting comment - noted.
339					Special Meeting	6/14/2021	**Nancy Isakson**	Chapter 9, "attaining" sustainability, projects to help you "achieve that", yet everything we know about the Upper Valley is that it's sustainable. I agree with comments made by the directors, that there isn't strong enough distinction. I commend staff for changing "valley wide" to "multi subbasin". Are those projects, like the Interlake Tunnel, needed in the Upper Valley? If it is ultimately implemented and built, it will be done by MCWRA. That's something the GSA doesn't control . You may want to look at it, but is it something you need or want in this Upper Valley plan? On behalf of LandWatch, they sent letters, with the expectation of what hasn't been done, but was stated that would be done in the 180/400 GSP. You're going through the same steps. You're saying you'll put it in, and you'll say you'll change it if it's not applicable. But to the contrary, there is an expectation that this plan is what is needed to maintain sustainability for the Upper Valley. Some people will have the expectation. LandWatch said they would have a moratorium in place until a Deep Aquifer study was done. And it hasn't been done and there is no study yet and there hasn't been a revision to that plan. Be careful how you ultimatley frame this plan.	Comment received.	Meeting comment - noted.
340					Special Meeting	6/14/2021	**Grant Cremers**	On "reaching" sustainability through projects and management actions. This is what everyone is talking about.	Abby Ostovar: You mean "maintain" sustainability. We can change that. If you fall out of sustainability, then it will be "attain" or "achieve" sustainability.	Meeting comment - noted, language in GSP was changed.

341					Special Meeting	6/14/2021	**Roger Moitoso**	You know as we listen to this, it gets back to the same thing, let's not get over our skis. What you have, the Upper Valley for all intents and purposes, is in balance. The key to this GSA, we're supposed to manage native, natural groundwater. Back in the 50s, we built a couple of reservoirs to enhance the native, natural sustainability of this subbasin. There are already projects in play. And these are 5 year plans that need to be updated. You don't want to put a bunch of stuff in the plan you can't deliver on. You have to monitor, and that's in there. The river maintenance, and if you want to raise your hand and get a permit, and get 600 acres of arundo off the land, and us fellow landowners can help them, then great. We don't need to build a whole bureaucracy around it. We'll spend twice as much and get half as much done. Let's keep it simple. Monitoring, you bet. River maintenance, get us the permits and we'll do it. We got in trouble in '14, '15, and '16 but that was out of our control . This subbasin is basically in balance. Let's not create a fix for a problem that doesn't exist, and then get called on it later down the road.	Comment received.	Meeting comment - noted.
342					Special Meeting	6/14/2021	**Grant Cremers**	I know first round we identified some data gaps. Do we have a plan in place to address those first-round data gaps?	Abby Ostovar: The plan is in Chapter 10. It really brings it all together. GEMS is a process to get to expanding it. We're working with MCWRA to address it. Chapter 10 includes everything that needs to be filled.	Meeting comment - noted.
343					Special Meeting	6/14/2021	**Grant Cremers**	Maybe the TAC can do some kind of review on the monitoring wells, if they're representative of what we're trying to achieve.	Comment received.	Meeting comment - noted.
344					Special Meeting	6/14/2021	**Nancy Isakson**	I notice in Chapter 10, the implementation, that one of the actions described to undertake, 10.3.4, the SVBGSA will begin to evaluate these different projects. But you're not the lead agency for the Interlake tunnel, you may not be the lead agency for winter ASR, and any other reservoir reoperations. To what end do you really need front-end evaluation and how much would that cost? On the funding of project and management actions, I get you're discussing different types of funding. I thought I previously heard water charges framework. I thought that was something you were NOT going to include. I'm not seeing a strong statement against it. I think it might be appropriate to include a strong statement saying you don't support the water charges framework. The 180/400 GSP was approved with a water charges framework. The Upper Valley has discussed not having a water charges framework.	Comment received.	Meeting comment - noted.
345					Special Meeting	6/14/2021	**Tom Virsik**	It might fit in to the GEMS work. As that proceeds, as there is a lot of land that needs to be monitored. Keep in mind what standards are needed, and surface water diversion requirements. Very generically, the larger extractors have way more rigor of reporting, it's not perfect, it's rational, and my clients used that system, and it's fully compatible with GEMS. One question is about the budget, the start-up budget, there is no commitment to what type of financing is expected for the budget. Suggestion is, if certain aspects of that budget, if there's some level of commitment from the GSA for some certain component, you would get comments that would challenge or comment on what is practicable or what can be done. A 218 is different from a Prop 26 process. If you miss something, you could see the reasons. These are concerns for the landowners.	Comment received.	Meeting comment - noted.

346					Special Meeting	6/14/2021	**Brad Rice**	We farm several thousand acres here in the Upper Valley. My question is, I keep seeing in these presentations, allocation of water. What I hear the majority of landowners are against any kind of allocation. So why do I keep seeing it in the presentations? It's not wanted and it's not needed in the Upper Valley and the Forebay.	Abby Ostovar: I apologize for you seeing it. I thought I removed it all for the Upper Valley. Perhaps I mentioned it in the general timeline, which is from the workshop. It is not Upper Valley specific, as a general task. I understand that allocations are not wanted in the Upper Valley.	Meeting comment - noted.
347					Special Meeting	7/14/2021	**Bill Lipe**	In response to the comment, groundwater levels are a great metric and a great way to understand where we're at. Some folks say as long as we keep the conveyance system flowing, we'll be alright. It's been going on for millions of years. Plenty of folks have been saying we should reestablish natural flow and the conveyance will work much better, and we can improve for steelhead and qualityity. I think we've avoided it perhaps, because legal counsel has wanted us to be cautious until we know more. I appreciate the additional context.	Comment received.	Meeting comment - noted.
348					Special Meeting	7/14/2021	**Roger Moitoso**	What is the timeframe you're measuring normally? That was the problem in 2015, 2016, there was nothing to measure because the native, natural flow was altered. It was gone because it wasn't allowed to run.	Abby Ostovar: We're not responsible for surface water flows. This plan is concerned with depletion related to groundwater extraction.	Meeting comment - noted.
349					Special Meeting	7/14/2021	**Roger Moitoso**	In 2015 and 2016, which we're using as the benchmark, the reason we're using it is because those 2 years were altered. And that altered our groundwater level more than the pumping. You're holding us to groundwater extractions but the county held back our recharge.	Comment received.	Meeting comment - noted.
350					Special Meeting	7/14/2021	**Grant Cremers**	Many folks have also said that native natural flow, we need to get close to mimicking that. This catching and releasing water, water that needs to flow should flow.	Comment received.	Meeting comment - noted.
351					Special Meeting	7/14/2021	**Jason Smith**	If we're being held to a groundwater level in 2015 and 2016, where it should have been higher, but if we're being held to that, then it should always be better because the dams were operated in a way we didn't want.	DW: We're saying you're not only going to be allowed to drop your water levels to 2015 when there were no releases, and even lower, by 5 feet, based on when there were no releases. With releases, we expect you to always be able to be above them. You're benefiting from those selections.	Meeting comment - noted.
352					Special Meeting	7/14/2021	**Bill Lipe**	We talked about that, using the water levels for a few different things. So, we have this metric and it's tied to our groundwater levels, and it's tied to the reservoir releases. So, if our groundwater level gets into the red flag area, and we can see it's directly tied to releases. Do we have anything to address that? Does our plan have any authority if the red flag is going off with groundwater levels? Can we say we need releases, preferably in the winter or as block releases? We'll have the measurable objectives, we have these levels we don't want to be at, what do we do? We can always look at what's being pumped. But we look back and there were net gains in the reservoirs in those 3 years. I've never seen net gain in these reservoirs, and as a result, there was some impact there. How do we make sure everyone in our region is playing, and potentially addressing a red flag for our plan?	Abby Ostovar: Unfortunately the GSA does not regulate surface water flows. We have groundwater management. This is why we're working on building a collaborative relationship with Monterey County Water Resources Agency, and we include Project and Management Actions related to reservoir releases.	Meeting comment - noted.
353					Special Meeting	7/14/2021	**Bill Lipe**	I'd say this is for groundwater south of the confluence with the Arroyo Seco. There are other stakeholders involved like addressing block flows for fish.	Comment received.	Meeting comment - noted.

354					Special Meeting	7/14/2021	**Roger Moitoso**	Just to try and understand what Abby just said, I get the fact that the GSA is groundwater only, but we're sitting here looking for projects like winter releases. If you're talking about releasing water that is legally able to be stored, excess. What we're talking about here is the native, natural flow, which affects the native, natural sustainability. That's a project we can do. There was an Environmental Impact Report that used the Arroyo Seco as the trigger, and that was the amount San Anton was running for environmental flows. Native, natural flows. We're getting into the weeds, but those words matter. The Monterey County Water Resources Agency manages, I get it. This is native, natural sustainable yield, that's what we're managing.	Comment received.	Meeting comment - noted.
355					Special Meeting	7/14/2021	**Grant Cremers**	It makes it very important that we are very clear in the GSP how the reservoirs are operated. How they impact our groundwater, so we can understand what we're agreeing to. Yes, we don't control it but it (GSP) can define the best management practices for releases.	Comment received.	Meeting comment - noted, language was added to GSP to address this.
356					Special Meeting	7/14/2021	**Roger Moitoso**	There are 2 types of water in those reservoirs, and Monterey County Water Resources Agency has just captured it all. This is an opportunity, and by law, to manage native natural yields. Say you can't alter our native, natural sustainable yield. And cut the baby in half, once you get water in the lagoon, now you're in that surplus situation.	Comment received.	Meeting comment - noted.
357					Special Meeting	7/14/2021	**Tom Virsik**	I wasn't sure if the well on Camp Roberts was switched for another well, and if that would affect the budget in implementation. Not sure where that well went. If the sustainable management criteria for interconnected surface water should be exactly the same as groundwater levels, is what's being asked. Or the sustainable management criteria should be identical except for the 5 foot buffer. I'm not sure which it is. If it's the 5-foot buffer then I'm not sure what we lose, with the other entity and how they manage the reservoirs. I'm not really clear which it is. The other policy things, in the extreme case, the GSA absolutely has authority to act on its own contrary to Monterey County Water Resources Agency, or whoever, for purposes of the reservoirs, as a lawsuit, or in an action with the State Water Resource Board. This is something SGMA allows. Given the nature of water rights with Monterey County Water Resources Agency, the areas in which there could be disputes are about public trust, water rights, surface water groundwater delineation. There are vehicles for polite and not polite ways to resolve these things. I'm not advocating for suing, I'm saying the authorities and pathways exist, if it comes to push comes to shove.	Abby Ostovar: For the monitoring well location, it's just a location adjustment related to land use. It is unlikely we can install a well on federal land. We took the monitoring well proposals to the next level with respect to data gaps, land use, parcels, and it will likely not be on Camp Roberts. We will get the data we're looking for. It's an ongoing process. There are 2 things we're asking: Is the measurable objective for interconnected surface water benchmarked to the same year as the groundwater level? And for the minimum threshold, that it does not have the 5-foot buffer. For groundwater levels, we are able to dip down, as long as groundwater levels rebound in a reasonable amount of time, you're okay. For interconnected surface water, dropping low, and dropping lower than the 2015 levels, you could significantly harm beneficial users of surface water. Les Girard: I want to respond to Mr. Virsik's comments. The ability for the GSA to litigate against the Monterey County Water Resources Agency, there are some avenues the GSA could utilize. At present, challenging the owner of a water right, while the GSA can hold water rights, we currently don't. And if you're going to sue over water rights, you should be able to demonstrate negative impact on your right.	Meeting comment - noted.
358					Special Meeting	7/14/2021	**Jason Smith**	I make a motion to support.	Abby Ostovar: This is in Version 2; we just need your permission. Emily Gardner: The motion would be setting the interconnected surface water shallow groundwater minimum threshold at 2015 and measurable objective at 2011.	Will be incorporated into the Interconnected Surface Water

359					Special Meeting	7/14/2021	**Bill Lipe**	[Re: Water Quality] That fourth bullet in the first section, depends on aquifer properties…Let me just say, the math behind that is very complex and even amongst the experts, there are varying opinions. If there's a site where there's been contamination, you can get an accurate description of what's going on. But with an unconfined aquifer, zeroing in on these is almost impossible. Even elite scientists would say that. The science that's being used, it could be a half mile, 500 feet, based on where contaminants might be found for potential impacts. It's very complex. I get sticking to doing no further harm, but this is a touchy issue. I'm interested in hearing what other folks think about this. We're just trying to forge the best path forward. All the money out there, endless printing of money, and we can't find a few pennies to address issues right here.	Emily Gardner: Just to reiterate, the intention is to try to describe that complexity more, related to specific constituents. We know it's big. These changes we've made have tried to describe that complexity. We're thinking through how the water qualityity SMC is related to groundwater levels, and that's a very current conversation we're having.	Meeting comment - noted.
360					Special Meeting	7/14/2021	**Grant Cremers**	I'm glad you're cleaning up some of the language around 2016. I think it needs to be characterized as nowhere near a normal year. The difference between the average and that year is huge. When you put a number to the sustainable yield, there's a million acres that we don't have calculated in yet.	DW: I want to reiterate that the sustainable yield number is a guideline number, but not a number we want to hold too closely. And it will change as get more information. The answer is yes, it will change as we get more information as we incorporate more acres that are not currently in the model.	Meeting comment - noted.
361					Special Meeting	7/14/2021	**Grant Cremers**	I think that's understood [the sustainable yield will change as we get more information], but it is stated? It needs to be clear.	DW: It is, but I will look back for you.	Meeting comment - noted.
362					Special Meeting	7/14/2021	**Justine Massey**	I just want to say we're really pleased to see the changes here, and happy to work with staff to make those changes happen. Particularly, we're happy to see the DAC mapping, as well as residential use. To reemphasize, even though residential use is not required to be mapped, they are a recognized beneficial user under SGMA. In terms of the later chapters, we appreciate the inclusion of the Title 22 constituents, as well as the background with nitrate. I notice the historic graphics only go to 2007. There's a format that goes to 2007, and a different graphic that goes to 2015. Noting there are significant changes over time, and it seems really important to understand. It would be good to pursue a full visualization for the full range of years. In one of the charts, it shows 57% of on farm domestic wells are above maximum contaminant levels for nitrate. I want to raise that as a concern. Just want to emphasize DWR's determination that even though GSAs aren't responsible for remediating past impacts, they are responsible for preventing further impacts even in wells that are past maximum contaminant levels. We want to continue to recommend a trend analysis for nitrate beyond what is captured currently for the GSP. Evidence of increasing nitrate levels can and should affect management decisions. Along those lines, we think it's appropriate to include the small water systems from the county. It was identified as a data gap in the 180/400 GSP. I want to highlight that Tom Berg from DWR advised the GSA in June, and encouraged everyone to review the approval of the 180/400 GSP and recommendations, and the other notifications to other GSPs that would prevent them from being approved. I would apply that same comment to the well impact analyses, which include far fewer wells in this subbasin than the 180/400. These comments are for the improvement of the GSP.	Comment received.	Meeting comment - noted.

363					Special Meeting	7/14/2021	**Bill Lipe**	My understanding of on farm domestic wells is regulated by the regional water quality board. If you have a domestic well on your ranch that has issues, like nitrate, you as the operator or landowner are required to provide water cleaning such that it is Drinking Water compliant, or replacement water. That is a standard for on-farm wells. The Salinas Valley Farmers stood up a few years ago and put out millions of dollars for replacement water, even if it was for places not affected. This is already regulated, you have to make sure water being delivered to workforce households is compliant. There's no doubt that's already being done. For Chapter 6, we have a model that is 30% off, and is affecting the water budget, and whether this is the best science available or are there other techniques available. But we're using it. But people do have questions about it, and it's not public yet. There are other ways to compute this water budget number. Is there a way to establish a baseline that isn't 2016, and isn't also a gusher? I want to know why this is a good year to set a baseline.	Abby Ostovar: The model goes to 2016. SGMA requires historical, current, future. This is a "current" year.	Meeting comment - noted.
364					Special Meeting	7/14/2021	**Justine Massey**	First, I really appreciate your engagement on groundwater quality issues. What we're talking about here is not the provision of water to users. We're talking about the levels measured in the groundwater, and the GSA is responsible for making sure those levels don't increase. I just want to make sure we're on the same page.	DW: Let me be clear, this is one of the sections of SGMA that is unclear and that we're still working through. In the 180/400 we took our best approach, and DWR said you need to do more. It will be an ongoing discussion. Abby Ostovar: As we go forward, we're going to keep working on this. It would be great to know if the committee is going to work with us on this and meet DWR's concerns.	Meeting comment - noted.
365					Special Meeting	7/14/2021	**Bill Lipe**	We went to great pains with interconnected surface water, how we really don't want to weigh in whether we have authority on someone else's project that impacts groundwater. If we're taking pains to do that, why are projects in here that don't have anything to do with the Upper Valley. We've said before we don't like having these projects in there. Stream maintenance is going on and we can incorporate that. But some of these other projects may not even be relevant to the particular subbasin and may not come into existence because the voters don't approve it. We're including benefits and costs that are based on nothing. We don't know what labor costs are going to be to build that tunnel. Whatever costs are in there, you'll have to increase that by 30%. I get we have to look at this in an integrative way, but I don't know why we have to have these projects in there. In the case of the tunnel, we have no control over this project at all, so why it is in there?	Comment received.	Meeting comment - noted.
366					Special Meeting	7/14/2021	**Jason Smith**	I will take that back to Bill or staff, explain to me what the harm is in those being in there? I get it, but most of these projects we're creating are wish lists and we don't know what the costs are going to be. Where does it hurt in the plan to have them in there?	Comment received.	Meeting comment - noted.
367					Special Meeting	7/14/2021	**Bill Lipe**	When we're not around, people will look in these documents. The ASR project has absolutely nothing to do with the Upper Valley. Leave that for somebody else's GSP and who else will pay for them. Language matters. We've said we don't think these projects belong here. Actually putting them in our plan, I know the Board has a view on this, but this is the Upper Valley GSP.	Comment received.	Meeting comment - noted.
368					Special Meeting	7/14/2021	**Roger Moitoso**	Abby went to great lengths to point out that we don't control releases from the reservoirs. All of these projects, didn't I read that the Upper Valley is already in sustainability? All we need is a monitoring network that proves we are sustainable. That's all the Upper Valley needs.	Comment received.	Meeting comment - noted.

369					Special Meeting	7/14/2021	**Bill Lipe**	But we have no influence on that. That's a Monterey County Water Resources Agency and Monterey County issue.	Donna Meyers: We can't ignore that the project has an impact on groundwater.	Meeting comment - noted.
370					Special Meeting	7/14/2021	**Bill Lipe**	It's based on vapor. It's total ether.	Comment received.	Meeting comment - noted.
371					Special Meeting	7/14/2021	**Grant Cremers**	Evolution of this whole process, we talked about projects and funding sources. We didn't ID what our need was. We don't have an inclusive vision of the whole basin. Premature to talk about this. We haven't ID'd a water need.	Comment received.	Meeting comment - noted.
372					Special Meeting	7/14/2021	**Gary Petersen**	We did not set up the timeline for these plans. We put together a process to comply and keep the state out of our pockets. That's what we set out to do. In order to do that, there are certain requirements we have to meet. There are data gaps everywhere. We can't fully fill those data gaps in the time we've been given. The goal is to put together acceptable plan, and then fill the data gaps to determine projects we might need. If we do not meet that obligation, the state will come in. Yes we want sustainability, and yes we're trying to understand the whole basin. There is a huge amount of work that remains to be understood. We're trying to deliver a plan that keeps us in a safe enough place to do the work.	Comment received.	Meeting comment - noted.
373					Special Meeting	7/14/2021	**Grant Cremers**	There is a big support for filling the data gaps.	Comment received.	Meeting comment - noted.
374					Special Meeting	7/14/2021	**Roger Moitoso**	We're starting to get worked up and that's good. We're going to take a vote and the vote will be no. We don't need projects in the Upper Valley because we're sustainable. If you need to update the GSP in 5 years and we need a project, put it in then.	DW: My feeling is if we submit a GSP with no projects, we have not met the requirements of SGMA and we run the risk of having an incomplete GSP and DWR steps in. Including projects and management actions does not obligate us to complete us. We have 2 audiences, you and DWR. We're saying, should we have issues in the future, we're telling DWR we have the tools to address those. Mr. Moitoso brings up a good point. If there's a vote, I do want to point out from the consultants' viewpoint, that if we submit a GSP with no projects, you will do that against our advice and with the threat of DWR stepping in.	Meeting comment - noted.
375					Special Meeting	7/14/2021	**Roger Moitoso**	Projects for the Upper Valley and not seawater intrusion. Our project needs to be the enhancement of the bottom gates. Everything else is a wild-ass guess.	Comment received.	Meeting comment - noted.
376					Special Meeting	7/14/2021	**Jason Smith**	The opinion of this committee isn't just Bill, Roger, and Grant. I will say this simply, and looking at the whole scope. I don't disagree that you guys have points on your concerns. If our forefathers, 50, 60 years ago, had this whole subbasin divided up into sustainable and unsustainable, we might have no dams, and we wouldn't have the vast amount of agriculture in the Upper Valley. I am not willing to shoot down projects, to go ahead and risk the chance DWR would shoot us down, and have the state step in. I don't want to answer to my neighbors, and tell them we thought the state was wrong. I'm not saying these projects and words don't have meaning. Everything we have in projects is still going to end up in votes and analysis.	Les Girard: For a temporary solution so the committee move on. The committee members have made their comments. I will sit down with Derrik and Donna, and maybe even DWR, and craft language that can meet DWR standards that will also satisfy the needs of the committee. Maybe there is a middle ground that will meet the concerns that have been raised. I want to sit down with the regulators.	Meeting comment - noted.
377					Special Meeting	7/14/2021	**Tom Virsik**	As possibly a partial approach, the Forebay committee directed the projects and management actions be swapped with specific language to address that. Anyway, that's an approach that was taken from a similar perspective.	Emily Gardner: I will summarize the main points that we've discussed and the Advisory committee will get those points. Per Les' suggestion, we will keep working on this and get you revised language.	Meeting comment - noted.
378					Meeting	8/2/2021	**Jason Smith**	I think this new version captures most of what we talked about in the last meeting.	Comment received.	Meeting comment - noted.

379					Meeting	8/2/2021	**Bill Lipe**	I think you did a good job taking our comments about wanting to maintain sustainability through management actions.	Comment received.	Meeting comment - noted.
380					Meeting	8/2/2021	**Grant Cremers**	I still have concern about all the information about the Interlake Tunnel. I think some of it is still to be publicly vetted. It is still undecided on whether those are the true numbers and we don't need all of the detail. And I also think the language is not standard among GSPs. For example, in the Forebay they have "management actions and projects" as opposed to "projects and management actions" and I think that applies to the Upper Valley, too. I would like to see language about native, natural flow. The ASR project, we need to add some language about direct diversion. I also think we still need to be more clear about reservoir reoperation.	Comment received.	Meeting comment - noted.
381					Meeting	8/2/2021	**Bill Lipe**	It would be good to know what current reservoir operations are considered in the model.	Comment received.	Meeting comment - noted.
382					Meeting	8/2/2021	**Grant Cremers**	I also think it would be good to firm this up, what does current reservoir operations mean, maybe we can add it in an appendix.	DW: The agency programmed their operating rules into the model, but we will check that.	Meeting comment - noted.
383					Meeting	8/2/2021	**Roger Moitoso**	I think you're right, Derrik, MCWRA put in the rules for the current reservoir operations manual. But that doesn't capture how operations are under the Salinas Valley Water Project (SVWP). When Monterey County did their General Plan, because of the SVWP, they said that we were sustainable until 2030. Because of the new reservoir operations and deferred maintenance this has changed, but once the maintenance is done then there is no excuse to not operate as per the SVWP parameters. The only way to be fair is to operate under SVWP and then see what other work needs to be done.	Comment received.	Meeting comment - noted.
384					Meeting	8/2/2021	**Roger Moitoso**	Everything that was done in this version was good, but one thing to note is that a lot of us have land in multiple subbasins. The Upper Valley, Forebay and Arroyo Seco areas will all likely push to remove Interlake Tunnel and ASR from their project lists.	Comment received.	Meeting comment - noted.
385					Meeting	8/2/2021	**Jason Smith**	The dam level is at the current level and current reservoir operations are the way they are because maintenance needs to be done so once the maintenance is done then we will go back to where it was supposed to be with the SVWP levels? That is the question we are asking staff to clarify.	Grant Cremers: Correct.	Meeting comment - noted.
386					Meeting	8/2/2021	**Jason Smith**	I don't disagree that the Upper Valley, Forebay, and Arroyo Seco don't need these [ILT & ASR] projects, but my question is to staff: Do we need to have the projects in the plan?	Emily Gardner: The reason ASR is in there is because it was discussed in the 180/400 GSP, and it could impact reservoir releases which in turn impacts the Upper Valley. And same reasoning applies to the Interlake Tunnel. Abby Ostovar: We restructured the GSP language on the Interlake Tunnel and ASR in a way that couples each project with reservoir reoperation. DW: When we started the GSPs, the Forebay and Upper Valley were almost at sustainability, but they had just gone through a drought and there weren't reservoir releases which caused a problem. These two projects are part of the suite of projects that can address what needs to be done to help maintain sustainability when there are multiple years of drought. The ASR project is just one way, one option to deal with the problem.	Meeting comment - noted.
387					Meeting	8/2/2021	**Jason Smith**	There is a process to all this and including this in the GSP can't be a detriment, in my opinion.	Comment received.	Meeting comment - noted.

388					Meeting	8/2/2021	**Bill Lipe**	And you mention the Habitat Conservation Plan, but I think it will change operations and I think it's important to emphasize that.	Comment received.	Meeting comment - noted.
389					Meeting	8/2/2021	**Bill Lipe**	I think it's time to let this go to the Board. I think the project yield, sustainable yield and water budget numbers are up in the air but all the numbers need to be tightened. We asked you to focus on management actions and monitoring and you are doing that. I would support moving this forward with whatever edits you can push in there before the Friday deadline.	Comment received.	Meeting comment - noted.
390					Meeting	8/2/2021	**Roger Moitoso**	Going back to Jason and Derrik's comments on drought and projects, what would really help with drought is going back to the SVWP operations. Deferred maintenance should be the project that is prioritized to get the SVWP back and running. We cannot build a plan on the current temporary reservoir operations.	Comment received.	Meeting comment - noted.
391					Meeting	8/2/2021	**Jason Smith**	No matter where anyone is in the Basin, some people get thrown under the bus, but it's the stuff that Roger just talked about that are important real numbers. Sometimes people in the north get tired of hearing it but it is real and we are not operating at the SVWP. I don't think anyone in the north wants to pay for a project that will only get them 10,000 acre-feet. We need to get the answers for the tunnel like Grant said but all that is still up in the air. But I agree that we are at a place where we can move on.	Comment received.	Meeting comment - noted.
392					Meeting	8/2/2021	**Tom Virsik**	At 10.3 (page 10-9), the second full paragraph, as presently phrased the sentence makes it seem like any of these phrases will trigger the project occurring in the Upper Valley. At 10.5.1 (page 10-12), the phrasing is susceptible to being interpreted as one fee for all subbasins, even though implementation of a project might only help a few subbasins. The financing, however, seems to be subbasin specific. But I do think the language could be strengthened, saying something like that highlights that costs are for the subbasin only not the whole basin.	Comment received.	Meeting comment - noted.
393					Meeting	8/2/2021	**James Sang**	I think this subbasin is in balance for the majority of the time, so if we have another drought will the releases from the reservoir solve this problem or will we have the same problem as we did with the previous drought? And will winter releases solve the issues caused by drought, since some of the wells are very dependent on releases because they are not very deep?	Comment received.	Meeting comment - noted.
394					Meeting	8/2/2021	**Steve McIntyre**	The 29,000 acre-feet question should be solved through the settlement process, the agency is anxious to figure this out. Once we have this information we might want to revise the GSP, but for now I think it is appropriate to move forward.	Comment received.	Meeting comment - noted.
395					Meeting	8/2/2021	**Ann Myhre**	I agree that down the road we might want to revise the plan, but for now I am very happy with where the plan is.	Comment received.	Meeting comment - noted.
396					Meeting	8/2/2021	**Justine Massey**	I think there is a lot of potential with the dry well notification system and the trigger system is a really positive addition to the plan. In the water partnership section, Safer is mentioned as the State's solution to drinking water issues. Safer was designed to support wells that are not overseen by other agencies. Hopefully there will be other ways to collaborate with the State and we support the GSA coordinating with different agencies.	Comment received.	Meeting comment - noted.
397					Meeting	8/2/2021	**Jason Smith**	How would DWR interpret this plan if we say that this involves multiple subbasins in regards to SGMA language of doing our neighbor no harm?	DW: Right now I don't think the plan harms any of these other subbasins. I think it looks good, in DWR eyes that we are working in an integrated fashion with our neighbors. To work cooperatively, that will go a long way	Meeting comment - noted.

398					Meeting	8/2/2021	**Jason Smith**	Motion: We are ready, with the edits that we discussed today, to submit this as our draft plan.	Comment received.	**Motion passes unanimously. Updated draft will be submitted to the BOD.**
399					Meeting	10/4/2021	**Tom Virsik**	I notice the Eastside Subbasin meeting later this week, I notice they may want to conform their GSP to the Upper Valley GSP. There are also "caveat language" around the model and projects. I'm looking at that caveat language for the Upper Valley GSP, and I think it should be the same. I may write a formal letter making that suggestion depending on the outcome of these other subbasin committee meetings. Also, discussion about the model from the discussion today, I may recommend language, but I don't know the outcome of that yet.	Comment received	Meeting comment - noted.
400					Meeting	10/4/2021	**Tom Merrifield**	I just received an email a few days ago and it indicated there was new AEM data that was flown in the Salinas Valley, and it will be available early next year. I'm just curious, is that something that we're going to utilize at all?	DW: Yes, we are aware it has been flown and we're looking forward to receiving the results.	Meeting comment - noted.
401					Meeting	10/4/2021	**Roger Moitoso**	A question on the minutes, I thought they captured the conversation well on the reservation operations. The conversation on the Salinas Valley Water Project. It was captured, but how do we move forward? How does that get addressed?	Grant Cremers: I think we're going to talk about that on Item 4D	Meeting comment - noted.
402					Meeting	10/4/2021	**Roger Moitoso**	We're looking to answer the question. At the time this project was built, I was on the board. We ran down those numbers and there is native natural sustainable yield in this valley. The reservoirs added 180,000 acre-feet to this valley. They enhanced the sustainable yield. We added CSIP. When we did all of that, we were told we were still ~30,000 acre-feet short. We opted to make the spillway bigger at Nacimiento, not just because of dam safety. What was 120,000 acre-feet flood pool, you could fill any time you wanted. It said we captured another 29,000 acre-feet. 218 vote, Monterey County's general plan. Because of that 29,000 acre-feet, we have sustainable water until 2030. Now we're 30,000 acre-feet short. The numbers aren't adding up here.	Comment received	Meeting comment - noted.
403					Meeting	10/4/2021	**Brent Buche**	When we talk about the 480,000 acre-feet for the valley, that sounds like something Derrik and Abby have been working on. When we talk the 29,000 acre-feet, that was the average over the hydrologic period, that the reoperation would result in. There is deferred maintenance at both reservoirs. We will modify our operations as necessary, but that [modification] is not occurring now. When we bring in water, we use that as our base for filling the reservoir. We all know the late spring storms are the big ones. Hopefully we'll experience that this year. The way Abby has put it here, the temporary raise of the spillway, we can raise it and hold it there, as long as we're maintaining the control of the water in the reservoir, and not impacting the integrity of the reservoir. I'll just reiterate that we use the Obermeyer to raise it as fast as we can. Unless there's a storm event, and there's water that's flowing into the reservoir, I'm going to run it back out if it gets up to 800 feet. We've had that conversation before, it's a dicey situation. We saw what happened with Oroville, and they couldn't release water fast enough. That last storm, we were on the ragged edge of keeping that water. I think we've done a good job during storm events, and not causing inundation downstream.	Comment received	Meeting comment - noted.

404					Meeting	10/4/2021	**Roger Moitoso**	It's not December and January that I'm worried about. There's a rule curve, you capture the water between February 15 to March 15, that's where it got dicey, and where we missed it in 2019. That's where the water is captured. Yeah, in December you want to catch it to the 780 feet. From February 15 to March 15, late spring storms, where we couldn't catch them before, that's where the 29,000 is at. The current reservoir operations manual, it doesn't utilize that rule curve. We were told it was deferred maintenance. Oroville brought a whole new perspective to this thing. Let's put that rule curve back to the February 15 to March 15. If that's not in the modeling that Derrik is doing, that's not what we're paying for.	Comment received	Meeting comment - noted.
405					Meeting	10/4/2021	**Tom Merrifield**	I just struggle with what actually is the deferred maintenance that is the crux of this issue?	Bill Lipe: The concern is that we're setting our baselines; we know the sustainable yield may change and evolve. Are we basing these numbers on the full reservoir operations or are we on some fixed, limited 787 feet, and not higher, and maybe short changing the sustainable yield not just in the Upper Valley but the whole valley. I just wanted to raise the concerns. That's kind of the questions we've been asking Derrik and Abby.	Meeting comment - noted.
406					Meeting	10/4/2021	**Tom Merrifield**	For all of these items that are part of the operation manual, are some of these computerized or are they manual, or combination? How are they implemented in the real world? I understand you have the operation manual in great detail. Is it implemented by people making decisions periodically or is some of this computerized?	Brent Buche: It is the staff that reviews all of these items. That is all happening by staff getting together. We meet during the inflow and release period; meet daily or every other day. That is what our job is, to release to meet recharge needs in the valley.	Meeting comment - noted.
407					Meeting	10/4/2021	**Bill Lipe**	If all the deferred maintenance was done, and they've documented and trying to put numbers to it. I invite the public to go to their website to take a look at what needs to be fixed. If all that deferred maintenance was done, how would the Nacimiento Reservoir operations change?	Brent Buche: So, at the low level outlet, where there are 6 valves that make the releases, 4 are fully operational right now and we can make the full release. We need to repair the other 2 valves. Having 6 valves operational is key. When water is hitting that plunge bucket. When it was designed, it had a concrete weir, and you couldn't get higher than 777 feet. There is no flexibility when you work with the Division of Safety of Dams (DSOD). Now with the Obermeyer, we can have flexibility. The issue now is from the Oroville, DSOD requires different stability requirements for the spillway. I have a crew in the spillway now. We're continually doing repairs so we can maintain the full operation of Nacimiento. If I get to the 800 foot mark, it requires us to lower that Obermeyer. We know there is damage in the flip bucket, and there was damage in the plunge pool in 2017. Because the reservoirs are so low, we don't anticipate these issues this year. But we will monitor that this winter as the reservoirs are filling. At San Antonio, I am below minimum pool. We're releasing water for fish habitat. In order for me to have concerns at Nacimiento, we have >80 feet before I get concerned.	Meeting comment - noted.
408					Meeting	10/4/2021	**Bill Lipe**	On the analysis of the Interlake tunnel, for comfort in the numbers, who were the stakeholder consultants on that?	Amy Woodrow: Dwight Smith with the Salinas Valley Water Coalition. I believe Bob Abrams attended a meeting as well.	Meeting comment - noted.
409					Meeting	10/4/2021	**Bill Lipe**	The word "lake" for those entities, is not desirable for grants. Can we change this from "Interlake tunnel" to "inter-reservoir tunnel"?	Brent Buche: Thank you for bringing that up.	Meeting comment - noted.
410					Meeting	10/4/2021	**Roger Moitoso**	I think I'm still hearing the same answer. The inter-reservoir tunnel is above and beyond that 29,000. There isn't that much water. The only way to get that is to use the 29,000 we captured. The Interlake tunnel was in the Environmental Information Report (EIR) to fix the spillway. Those numbers were run. The reason we chose to make the spillway even bigger, that was smart money at the time. You're going to try to run it to 800 feet when you can, but that rule curve was changed.	Brent Buche: The rule curve is a regulatory document. The current one restricts us to 801 feet, the one before was 787 feet.	Meeting comment - noted.

411					Meeting	10/4/2021	**Roger Moitoso**	But your 801 feet is back to when you're filling it. That whole Obermeyer gate, that was the alternative to building the tunnel to get you your catch back. There was a day-by-day spill curve. That's how we balanced the basin. If that's not happening now, you don't have the water, our general plan is out the window.	Comment received	Meeting comment - noted.
412					Meeting	10/4/2021	**Brent Buche**	My understanding of the 29,000 is the one referred to in the Salinas Valley Water Project (SVWP) summary, and refers to 29,000 additional stored water specific to the combined reservoirs facility.	Roger Moitoso: That is correct. It's both reservoirs.	Meeting comment - noted.
413					Meeting	10/4/2021	**Brent Buche**	It's as Amy pointed out. The model follows the description in the Nacimiento policy. I do believe it's that February 15 to March 15, the very specific timeframe to go above the 787.75 feet.	Comment received	Meeting comment - noted.
414					Meeting	10/4/2021	**Grant Cremers**	We've read hundreds of pages in these GSPs, and we need to have some trust. But in this respect, we have a lot of people who have worked on this for years and have expertise. Derrik, so you feel we are missing any water when they're putting these numbers into the model? For the basin? Originally, there was concern that if we weren't getting to 800 feet, are we missing water?	DW: From what I understand we are not missing water *in the model* .	Meeting comment - noted.
415					Meeting	10/4/2021	**Brent Buche**	If we fill the reservoir to that 800 feet, and then at 801 feet we have to lower the Obermeyer, there will be catastrophic devastation downstream. I understand from the landowners that we want to optimize filling the reservoir, and that is our honest desire as well.	Comment received	Meeting comment - noted.
416					Meeting	10/4/2021	**Grant Cremers**	There are some decisions to be made there.	Comment received	Meeting comment - noted.
417					Meeting	10/4/2021	**Grant Cremers**	In hindsight, with different release capabilities, what is the number?	Brent Buche: One of the alternatives for the Interlake tunnel is to have different outlet, an additional outlet. There is work on a tunnel going around and into the stream directly.	Meeting comment - noted.
418					Meeting	10/4/2021	**Roger Moitoso**	Derrik, in your model you have a sustainable yield for each of the subbasins. What's that total number?	DW: I have not totaled it up yet so I don't have that number. I want to emphasize that the sustainable yield is an estimate right now.	Meeting comment - noted.
419					Meeting	10/4/2021	**Roger Moitoso**	You have a sustainable yield for the Upper Valley, and it comes out to what we pump pretty much. We're pretty sustainable. But you get to the Es, the 180/400, and that sounds like the number we came up with for the Salinas Valley Water Project. How do we have a general plan that has been tested in court? You say we're 30,000 acre-feet short. That's the number we came up with, that's real. We went to a 218 vote that was supposed to enhance the previous sustainable yield. They signed off to 2030. We were doing this back in 1998.	DW: We have made statements that the Eastside and 180/400 are pumping in excess of the sustainable yield. I stand by our numbers.	Meeting comment - noted.
420					Meeting	10/4/2021	**Roger Moitoso**	We've already been doing this, and how we came up with the 218 and 2C. You want the numbers to add up. I don't want to spend half a billion dollars if we don't need to. Let's not create a problem we don't have.	Comment received	Meeting comment - noted.
421					Meeting	10/4/2021	**Tom Merrifield**	[Water Quality SMC] With any new project, I assume it will have to go through CEQA? If it does, then that project will be assessed for impacts to water quality? Is that how these issues will be addressed on the front end?	Abby Ostovar: This will not change the CEQA process at all. My understanding is that we have a separate, parallel process to CEQA. I will have to review what CEQA requires. Les Girard: Groundwater quality will be addressed in a number of places. And a CEQA analysis will be conducted if required.	Meeting comment - noted.
422					Meeting	10/4/2021	**Tom Merrifield**	So that's our safeguard. We should get some sort of insight into the impact on groundwater quality.	Les Girard: You should through the CEQA process. That should give you some insight into the impact on groundwater quality.	Meeting comment - noted.
423					Meeting	10/4/2021	**Tom Merrifield**	And that monitoring could tell you the information, like an uptick in an analyte, or that trends are increasing, but it doesn't mean it's tied to a project. I don't know what the process will be at that point.	Abby Ostovar: It's very project specific. We'll have to analyze that. If we don't have impacts, we don't have to analyze causality.	Meeting comment - noted.

424					Meeting	10/4/2021	**Grant Cremers**	I'm a little concerned for other subbasins, if this same language goes into their GSPs. If you're going to address seawater intrusion with extraction barriers.	Comment received	Meeting comment - noted.
425					Meeting	10/4/2021	**Justine Massey**	We're still concerned about the stances in this proposed definition of the SMC. It seems to make a conclusory statement based on MTs, that MTs are based on past historical levels. Means that groundwater extraction managed to those historical levels, should not allow for exceedances. Extraction is not averaged over the basin only, but also at all those places. I understand it's trying to strike a balance, but it still strikes too close to projects & management actions. Whereas DWR has clarified that it is also based on extraction. Setting up the presumption that if there isn't a projects & management action, is still too narrow.	Abby Ostovar: This does include groundwater management, including extraction. It's not a "no action," it's how we manage groundwater.	Meeting comment - noted.
426					Meeting	10/4/2021	**Justine Massey**	What do you mean by that? Allowing extraction is managing extraction?	Abby Ostovar: This specifically relates to if there is GSA action to manage groundwater, not a no-management action. So if we have to reduce pumping, that would be a management action. Or if we have to manage groundwater extraction in one area, that would be a management action.	Meeting comment - noted.
427					Meeting	10/4/2021	**Justine Massey**	We don't have to agree today. I'm just lodging my comment for your consideration. We see this as not extending the responsibility of the GSA to improve the situation, but allowing certain levels of extraction to occur that allows for water quality impacts is the responsibility of the GSA.	Les Girard: I respectfully disagree.	Meeting comment - noted.
428					Meeting	10/4/2021	**Roger Moitoso**	What is our sustainable yield? What is the number? It seems like we're flailing in the dark without that information. We know what we're pumping because we report it. Derrik has a model, he has the sustainable yield. Let's see what that number is. There's the sustainable yield that's the native natural. Does it make sense to build a reservoir? Does it make sense to treat tertiary water? Hm, that sounds familiar. Does it make sense to enhance the reservoirs? There's a general plan that says we're good until 2030. There's a number our there.	Emily Gardner: There is a sustainable yield in the draft GSP. This might be a topic for the integrated committee to work on.	Meeting comment - noted.
429					Meeting	10/4/2021	**Roger Moitoso**	What is our sustainable yield? What is the number? It seems like we're flailing in the dark without that information. We know what we're pumping because we report it. Derrik has a model, he has the sustainable yield. Let's see what that number is. There's the sustainable yield that's the native natural. Does it make sense to build a reservoir? Does it make sense to treat tertiary water? Hm, that sounds familiar. Does it make sense to enhance the reservoirs? There's a general plan that says we're good until 2030. There's a number out there.	Emily Gardner: There is a sustainable yield in the draft GSP. This might be a topic for the integrated committee to work on.	Meeting comment - noted.
430					Meeting	10/4/2021	**Grant Cremers**	I think that comment goes back to the way this process got started in the first place.	Comment received	Meeting comment - noted.
432	3		8-Mar		Email	10/15/2021	**Tom Merrifield**	Section 3.2.1, suggested revision (remove stirkethrough text): In the San Ardo Oil Field, Chevron U.S.A. Inc. (Chevron) operates a reverse osmosis plant that treats a portion of the produced water generated during production. After oil separation, some of the produced water is sent directly to ~~disposal in~~ Class II injection wells permitted for injection by the California Geologic Energy Management Division. The remaining produced water is treated by the reverse osmosis plant and constructed wetlands prior to discharge to a groundwater recharge basin pursuant to a permit issued by the Central Coast Regional Water Quality Control Board (CCWQCB).	Comment received.	Text was revised as suggested.

433					Meeting	11/15/2021	**Grant Cremers**	On the minimum threshold and 5-foot mark, I think we in the Upper Valley understand it, but it might trip other people up. Do you have a graphic to show that? A small change can make an impact?	Abby Ostovar: We do have something in the groundwater conditions chapter. I know it is in the GSP, but not right there.	Meeting comment - noted.
434					Meeting	11/15/2021	**Grant Cremers**	So what is the water budgets slide again? Am I seeing this correctly, the historical GEMS average is 109,000 AF?	Abby Ostovar: That is for agriculture.	Meeting comment - noted.
435					Meeting	11/15/2021	**Grant Cremers**	That number looks low again; are we going back to February?	Abby Ostovar: That is GEMS and it all sums to 119,000 AF for the historical average.	Meeting comment - noted.
436					Meeting	11/15/2021	**Grant Cremers**	I'm leery of those numbers. I'll look more closely after the meeting. I also saw a letter from Derrik Williams at one point that they were rerunning the numbers, but that we were going to go with the old numbers?	Abby Ostovar: Yep.	Meeting comment - noted.
437					Meeting	11/15/2021	**Bill Lipe**	We appreciate all your help and time and dedication. Do the water budget numbers include net return, or net return flow from agricultural activity?	Abby Ostovar: The pumping does not. The only thing we adjusted from the model was the extraction. So return flows are already built into the model. Essentially, the adjusted numbers do account for that.	Meeting comment - noted.
438					Meeting	11/15/2021	**Bill Lipe**	Alright, thank you. I appreciate seeing what was going on in the Forebay, and we appreciate you paying attention in these other meetings and incorporating what was useful.	Comment received	Meeting comment - noted.
439					Meeting	11/15/2021	**Tom Merrifield**	On Section 7-2 with the monitoring wells, it sounds like we have the minimum number of wells we're committing to, and you feel it will be adequate for DWR.	Abby Ostovar: We have more than is needed by DWR standards, based on best management practices, but we felt we needed more than the minimum. We took the representative monitoring sites and we will use the others for contouring. But we didn't want to overcommit. We are still going above and beyond.	Meeting comment - noted.
440					Meeting	11/15/2021	**Tom Merrifield**	On the drought section, is that something that, something that DWR approved for other GSPs?	Abby Ostovar: Well, there have only been 2 approved GSPs. We didn't have that language in the 180/400, but that language comes directly from the regulations. It sticks very close and we cite the regulation in the text we added.	Meeting comment - noted.
441					Meeting	11/15/2021	**Tom Merrifield**	The 5-foot comment, it makes sense to me that 5 feet is a good number, but if we were asked to justify that, why not 10 feet or 4 feet, is there any way we can do that? Or was it a ballpark number?	Abby Ostovar: We looked at individual well hydrographs and their fluctuation. You do need operational room between the MT and MO. That seemed like a good average across the basin.	Meeting comment - noted.
442					Meeting	11/15/2021	**Tom Merrifield**	The slide with the interconnected surface water, there was one sentence in there that I kept struggling with. I didn't understand what you were trying to convey. *"For SGMA compliance purposes, the default assumption is that any depletions of surface water beyond the level of depletion that occurred prior to 2016, as evidenced by reduction in groundwater levels, represent depletions that are **not** significant and unreasonable."* I was struggling with that word, 'not'.	Abby Ostovar: I think you are correct. "that ARE significant and unreasonable" we will make that correction to remove the word "not" and you can approve the GSP with that excepted.	Meeting comment - noted.
443					Meeting	11/15/2021	**Tom Merrifield**	GEMS is hard data, but the adjusted part, what is that again?	Abby Ostovar: We only have GEMS from 1995 to 2016, not the whole historical period. So we compared that timeframe and got a percentage, and then applied the percentage to the whole historical period.	Meeting comment - noted.
444					Meeting	11/15/2021	**Marc Bloom**	First, thank you for all the time you are spending. Chair, you mentioned you were going back to check some numbers with what you have. If that's the case, how can we vote to approve this?	Grant Cremers: That was the discussion we just had. There's a geographical discrepancy at the northern end of the valley where the lines don't match up. Then the discussion with the historical and the GEMS timeframes.	Meeting comment - noted.
445					Meeting	11/15/2021	**Tom Virsik**	The tiniest of possible misreporting is the letter that I sent on October 14 in the Upper Valley makes it look like it came in 4 days late. That also tells you that, of everything I'm looking at, that's the issue I found.	Comment received	Meeting comment - noted.

446					Meeting	11/15/2021	**Ethan Quaranta**	I'm a fourth-year CSUMB in the water resources class. I would like to show my support broadly for the GSP, particularly the section on the multi-benefit stream channel benefits. I realize these projects can be difficult to implement. Growing up, the Napa River, I remember learning about water quality issues, as well as restoring the river has been critical to rebound. There have been returns of critical species to the area, particularly beavers. In my life, the river has been transformed to a draw to the area. A quote: "If we take care of nature, nature will take care of us."	Comment received	Meeting comment - noted.
447					Meeting	11/15/2021	**Grant Cremers**	So, public comment is finished at the SVBGSA level? But there will be another comment level again at the DWR level?	Emily Gardner: Correct.	Meeting comment - noted.
448					Meeting	11/15/2021	**Bill Lipe**	I make a motion that we follow staff's recommendation to approve this GSP along with the edits provided, to take the 'not' out.	Comment received	Meeting comment - noted.
449					Meeting	11/15/2021	**Grant Cremers**	Do we want to add language about factual inaccuracies corrected?	Bill Lipe: I'd approve that amendment.	Meeting comment - noted.
450					Meeting	11/15/2021	**Tom Merrifield**	I second that.	Harrison Tregenza: Approving the DWR drafts with the one edit for an SMC to remove the 'not' prior to Significant and Unreasonable. **Les Girard:** And correcting any factual errors discovered after approval.	GSP APPROVED UNANIMOUSLY
451					Meeting	11/15/2021	**Grant Cremers**	There was going to be a meeting with new water budget numbers, is that not on the table now?	Donna Meyers: The board approved a formal relationship with USGS, and further down the road we will have a formal modeling workshop. We will receive information about publication timelines. Ultimately, we'll have a conversation about models and our work with the USGS. This could be as far out as February/March for a workshop.	Meeting comment - noted.
452					Meeting	11/15/2021	**Grant Cremers**	So for a model workshop, if anything changes like better information to add to the GSP, will that happen at the 5-year review period?	Emily Gardner: Yes, water budgets will be officially updated at that mark. We can cover it in the meantime for annual reports.	Meeting comment - noted.
453					Meeting	11/15/2021	**Tom Merrifield**	So, we can get the Upper Valley submitted to DWR for review. Several months down the road in the review process, they have edits that require the subbasin committee to have input. Will we be convened at that point to address those issues? Or will it be addressed at the implementation committee? How does this move forward on the approval process? It sounds like in December, we will be disbanded or not. But if the DWR process requires input from the committee, how will that happen?	Les Girard: If DWR has questions or doesn't approve the plan, it will come back to the board of directors. They can then decide how to proceed from there. We don't know exactly what will happen, but the board will have options, and one option will be to reconstitute this committee. **Emily Gardner:** The implementation committee is intended to do the GSP update. In a way, there is a lot of overlap. The planning committee got the plans out the door. The implementation committee will be around to receive Annual Reports and updates. The intention for that is to be a stakeholder-driven process. The application to serve on that committee is a 2-year commitment at a time.	Meeting comment - noted.

Upper Valley Subbasin Groundwater Sustainability Plan Development

Comment Letters Received

1. Nancy Isakson, Salinas Vally Water Coalition. 061020
2. Grant Cremers. 061120
3. Heather Lukacs, Community Water Center. 071020
4. Beverly Bean. 072620
5. Tom Merrifield, Chevron. 082320
6. Thomas Virsik. 092420
7. Nancy Isakson, Salinas Valley Water Coalition. 120720
8. Salinas Valley Water Coalition Board & Nancy Isakson. 011221
9. Grant Cremers. 012921
10. Salinas Valley Water Coalition Board & Nancy Isakson. 012921
11. George Fontes, Salinas Basin Water Alliance. 031021
12. Brent Buche, Monterey County Water Resources Agency. 031221
13. Nancy Isakson, Salinas Valley Water Coalition. 041421
14. Nancy Isakson, Salinas Valley Water Coalition. 041921
15. George Fontes, Salinas Basin Water Alliance. 042121
16. Heather Lukacs, Community Water Center & Horacio Amezquita, San Jerardo Cooperative, Inc. 042321
17. Community Water Center. 042821
18. Amanda Ingham, National Marine Fisheries Service. 050721 (letter posted on Upper Valley GSP webpage)
19. Norm Groot, Salinas Basin Agricultural Water Association. 051221
20. Fred Nolan. 051321
21. Thomas Virsik. 061121
22. Salinas Valley Water Coalition Board & Nancy Isakson. 061621
23. Heather Lukacs, Community Water Center & Horacio Amezquita, San Jerardo Cooperative, Inc. 061721
24. 125 letters in support of comprehensive river management
25. Grant Cremers. 070921
26. Nancy Isakson, Salinas Valley Water Coalition. 071421
27. James Sang. 072021
28. Grant Cremers. 080321

29. Grant Cremers. 080321 (2)

30. Nancy Isakson, Salinas Valley Water Coalition. 081221

31. Stephanie Hastings, Salinas Basin Water Alliance. 081221

32. Rick Rogers, National Marine Fisheries Service. 092821

33. Norm Groot. Monterey County Farm Bureau. 101821

34. Nancy Isakson, Salinas Valley Water Coalition Board. 101421

35. John Farrow, LandWatch. 101421

36. Audubon California, Clean Water Action, et al. 101421

37. Douglas Deitch, Monterey Bay Conservation. 101421

38. Stephanie Hastings and Christopher Guillen, Salinas Basin Water Alliance. 101521

39. Heather Lukacs, Community Water Center & Horacio Amezquita, San Jerardo Cooperative. 101521

40. California Coastkeeper Alliance & Sean Bothwell, Monterey Waterkeeper. 101521

41. Elizabeth Krafft, Monterey County Water Resources Agency. 101821

42. Thomas Virsik. 101821

Salinas Valley Water Coalition
33 El Camino Real • Greenfield, CA 93927
(831) 674-3783 • FAX (831) 674-3835

TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Atten: Ms. Emily Gardner, Deputy General Manager

June 10, 2020

Re: SVBGSA Upper Valley Aquifer Subbasin GSP, Draft Chapters 1, 3 and 4

Dear Ms. Gardner;

We appreciate this opportunity to comment on draft Chapters 1, 3 and4 of the Salinas Valley Basin Groundwater Sustainability Agency's ("SVBGSA") Groundwater Sustainability Plan ("GSP") for the Upper Valley Aquifer Sub-basin ("UV Sub-basin"). We ask that you share/distribute our comments to the UV Sub-basin GSP Committee prior to the next scheduled committee meeting so that the Committee is afforded an opportunity to review and consider the comments ahead of the meeting.

We offer the following comments for your consideration:

1. **Section 3.2 Land Use:**

Pg 3-4, Table 3-1 provides a land use summary that appears to subsequently be used to identify irrigated lands and their associated amounts of water use. The GSP states that the agriculture lands shown on the table include grazing lands.

Recommendation: Grazing lands should either be removed from the table or have a separate water use value because the majority of the grazing lands in the UV Sub-basin are not irrigated.

2. **Section 3.2.1 Water Source Types:**

The GSP states: "…approximately 31.5% of the water used in the Subbasin is surface water, as reported to the State Water Resources Control Board (SWRCB)… Approximately one third of the reported surface water diversions are also reported to MCWRA as groundwater extraction. Figure 3-4 does not show land that is dependent on surface water, but rather infers areas that use surface water through diversion permits."

We do not believe these statements are factually correct. We have previously raised this issue during your preparation of the 180/400 Aquifer GSP and are unpleasantly surprised to see the inaccurate statements repeated again. We believe that the majority, if not all, of the water used in the UV Sub-basin is in fact percolating groundwater. There has been no determination by the State Water Resources Control Board (SWRCB) as to whether

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

any well along the Salinas River is pumping water from underflow/subterranean stream flowing through a known and definite channel (as had been determined for the Carmel River). Unless and until there is such a determination, there is a legal presumption that all wells along the Salinas River are pumping percolating groundwater.

It is our understanding that the majority, if not all, of those who file Statements of Water Diversion and Use with the SWRCB, have done so in the event there is a determination that the water pumped is underflow, a subterranean stream, or any other water that is characterized as surface water subject to the SWRCB's jurisdiction in order to take the position that they were exercising their riparian water rights associated with their respective lands. It is also our understanding that the majority, if not all, of the individuals who file these Statements with the SWRCB also file 'duplicate' water use/extraction reports with the Monterey County Water Resources Agency (MCWRA); the Statements and water use/extractions in the filings with the MCWRA are not additive. Simply stated, there appears to be double-counting of water consumption in the UV Sub-basin.

Recommendation: This error needs to be corrected as it significantly distorts and misrepresents the actual amount of surface water diverted in the Upper Valley Sub-basin. There should be a reconciliation of the Statements filed with the SWRCB and the annual extraction reports filed with the MCWRA, which we believe will confirm that the majority, if not all, of the 'diversion' amounts set forth in the Statements are duplicative of those amounts provided in the extraction reports filed with the MCWRA. It should be noted that the Statements filed with the SWRCB require reporting based on a calendar year, while the extraction reports filed with the MCWRA are based on a water year.

Further, please consider this a public records request pursuant to the California Public Records Act (Government Code §6250 et seq) to provide the SVWC all of your supporting documentation and underlying data (i.e., public records) associated with the determination made by your GSP Consultants that "31.5% of the water used in the subbasin is surface water."

3. **Section 3.4.1 Incorporating Existing Monitoring Programs into the GSP and Limits to Operational Flexibility**

The UV GSP states that the groundwater elevation monitoring programs are operated by an "existing member" of the SVBGSA.

Recommendation: The UV GSP should identify the member of the SVBGSA which is operating the programs.

4. **Section 3.4.3 Groundwater Extraction Monitoring**

The Section 3.4.3 of the UV GSP states that "extraction is self-reported by well owners".

Recommendation: Because there continues to be a lack of public understanding of extraction reporting, we suggest that you expand your discussion on this matter to include a statement explaining the percentage of well owners who report their annual

extractions to the MCWRA and distinguish the separate reporting requirements between agricultural wells versus other wells.

5. **Section 3.6 Existing Groundwater Regulatory Programs**

A. **Section 3.6.1**

The first paragraph of this section includes the following statement: "…some of the existing management plans and ordinances will limit operational flexibility. These limits to operational flexibility have already been incorporated into the projects and programs included in this GSP."

This is a surprising statement since only the chapters 1, 3 and 4 of the UV GSP have been prepared and publicly disseminated, and these chapters do not include any discussions of projects and/or programs. It is difficult to fully understand how the operational flexibility of this UV GSP is limited.

Recommendation: This paragraph should be revised to state, at the very least, that there 'may' be limitations to operational flexibility because of existing management plans and ordinances in place; and that this will be discussed and analyzed further when considering various programs and projects for the UV GSP.

B. **Section 3.6.1**

As an example of limitations on operational flexibility, the second paragraph of this section provides the following: "…the groundwater export prohibition included in the Monterey County Water Resources Agency Act prevents export of water out of the *Subbasin*." ***[emphasis added]***

The statement is simply wrong. **Section 3.6.2 Groundwater Export Prohibition** also incorrectly repeats the prohibition.

The fact is the prohibition on exporting groundwater applies to the Salinas River Groundwater Basin as a whole – not just the Upper Valley Sub-Basin. The Monterey County Water Resources Agency Act ("Agency Act") includes the following provisions:

> Sec. 8. Objects and purposes of act. The objects and purposes of this act are to provide for the control of the flood and storm waters of the Agency and the flood and storm waters of streams that have their sources outside the Agency, but which streams and flood waters flow into the Agency, and to conserve those waters for beneficial and useful purposes by spreading, storing, retaining, and causing those waters to percolate into the soil within the Agency, or to save and conserve in any manner all or any of those waters and to protect from those flood or storm waters the public highways, life, and property in the Agency, and the watercourses and watersheds of streams flowing into the Agency, and to increase, and prevent the waste or diminution of the water supply in the Agency, including the control of groundwater extractions as required to prevent or deter the loss of usable groundwater through intrusion of seawater and the replacement of groundwater so

controlled through the development and distribution of a substitute surface supply and ***to prohibit groundwater exportation from the Salinas River Groundwater Basin,*** and to obtain, retain, and reclaim drainage, storm, flood, and other waters for beneficial use within the Agency; and to provide, in the discretion of the Agency in connection with and as an incident to any works, dam, or reservoir heretofore or hereafter constructed either within or without the Agency, for the construction, maintenance, and operation of a minimum or permanent pool and facilities for swimming, boating, fishing, and recreation in or upon waters stored in any stream, reservoir, or minimum or permanent pool, and for the acquisition in any manner provided in this act and for the use by the Agency, in addition or adjacent to lands that may be used or acquired for flood control or water conservation..

(u) ***Prevent the export of groundwater from the Salinas River Groundwater Basin,*** except that use of water from the basin on any part of Fort Ord shall not be deemed an export. Nothing in this act prevents the development and use of the Seaside Groundwater Basin for use on any lands within or outside that basin.

Sec. 21. Legislative findings; ***Salinas River groundwater basin*** extraction and recharge. The Legislature finds and determines that the Agency is developing a project which will establish a substantial balance between extraction and recharge within the Salinas River Groundwater Basin. For the purpose of preserving that balance, no groundwater from ***that basin*** may be exported for any use outside the basin, except that use of water from the basin on any part of Fort Ord shall not be deemed such an export. If any export of water from the basin is attempted, the Agency may obtain from the superior court, and the court shall grant, injunctive relief prohibiting that exportation of groundwater. ***['that basin' refers to the Salinas River groundwater basin.] [emphasis added]***

Recommendation: Sections 3.6.1 and 3.6.2 must be revised to accurately reflect the express language of the Agency Act. That is, the prohibition on exportation of groundwater pertains to the entire Salinas River Groundwater Basin. This is an important distinction as there may be properties/ranches that overlap two sub-basins that utilize one irrigation system to irrigate the ranches. There may also be cases where a well on a property over one sub-basin is used to irrigate an adjacent property located over another sub-basin. The UV Sub-basin GSP should include the above express language from the Agency Act.

That said, it is important to point out one subbasin cannot cause injury to another subbasin in the Salinas Valley Groundwater Basin pursuant to SGMA. Accordingly, any large project that proposes to export groundwater out of the UV Sub-basin could cause the currently sustainable UV Sub-basin to be unsustainable. In such instances, the prohibition on exportation would apply pursuant to SGMA, but not the Agency Act.

C. **Section 3.8.3 Well Permitting**

This section references Monterey County General Plan policies for water supply guidelines applicable to "new lots", and says these guidelines are represented in Table 3-3.

However, Table 3-3 fails to state that these guidelines are only applicable to water supply on 'new lots', i.e., the policies _only apply to the creation of new residential or commercial lots_**.**

Recommendation: Please correct the language in Section 3.8.3 and Table 3-3 to accurately reflect the limited applicability of Monterey County General Plan policies, specifically Policy PS 1.1 and Table PS-1.

The misrepresentation is further exacerbated by the UV Sub-Basin GSP's Table 3-4. Table 3-4 is taken from the Monterey County General Plan's Table PS-2, which is included in the General Plan to provide a response to, and to clarify, footnote 5 in Table PS-1; in other words, the UV Sub-basin GSP Table 3-4 is only applicable to existing residential and/or commercial lots.

Recommendation: These guidelines do not apply to irrigation wells used for agricultural purposes and Section 3.8.3 and Tables 3-3 and 3-4 must be clarified and corrected to accurately reflect the limited applicability of the referenced Monterey County General Plan policies.

6. **Section 3.8.4 Effect of Land Use Plan Implementation on Water Demand**

This section seems to focus on the lawsuit filed against and subsequent settlement with Monterey County on its General Plan. The SVWC was one of the petitioners/plaintiffs in this lawsuit and a party to the settlement. Unfortunately, the UV Sub-basin GSP misstates and misrepresents the elements of the settlement, specifically:

A. The UV GSP states, "The settlement agreement requires the County of Monterey to develop a study of a _portion of the Basin's_ water supplies .."[emphasis added]

Although this may be technically correct, i.e., the settlement agreement requires the County of Monterey to develop a study of a portion of the Basin's water supplies, specifically those portions within Zone 2C of Monterey County Water Resources Agency zone of benefit, Zone 2C largely overlaps the boundaries of the Salinas Valley Groundwater Basin.

Recommendation: Please clarify that the study is intended to encompass all of Zone 2C which largely overlaps the boundaries of the Salinas Valley Groundwater Basin.

B. This section also includes the following statement:

"The settlement agreement furthermore _required the USGS_ to develop the Salinas Valley Integrated Hydrologic Model (SVIHM) that will be used during implementation of this GSP." [emphasis added]

This is simply not true. The settlement requires Monterey County to complete an investigation of the Basin, i.e., Zone 2C, as detailed in the amendment to Monterey County's General Plan Policy PS-3.1. It was the County of Monterey which chose to retain the USGS to develop a model that would allow them to complete their investigation and evaluate its conditions against certain criteria set forth in PS-3.1.

Recommendation: Policy PS-3.1 of Monterey County's General Plan is enclosed as Attachment A to this letter, and we recommend that the actual policy language be included within your UV Sub-basin GSP should you decide to discuss it.

C. Section 3.8.4 also includes the following statement: "The outcomes from this study (the basin investigation as required in Policy PS-3.1) may affect the GSP implementation. However, the GSP assumes <u>pumping will be limited to the sustainable yield</u> through the measures laid out in Chapter 9. The study and GSP implementation are two parallel efforts, and the results of the County's study will be reviewed when finalized and considered during GSP Implementation."

It is inappropriate to state the GSP "assumes pumping will be limited…through measures laid out in Chapter 9" when only the chapters 1, 3 and 4 of the UV Sub-basin GSP has been drafted, and all indications to-date show that the UV Sub-basin is sustainable, which is consistent with the statement previously expressed by the your consultant.

Recommendation: It is inappropriate to include such statements when the hydrological investigation and modeling for the UV Sub-basin have not been completed, and the sustainability of the UV Sub-basin has not been determined – unless, of course, this GSA is pre-determining the outcome. These types of statements should be omitted and replaced with something that simply states, 'the outcomes from various studies, such as the one required with Monterey County's General Plan Policy PS-3.1, and their potential impacts to the GSP will be considered when finalized."

7. **Section 3.8.5 Effects of GSP Implementation on Water Supply Assumptions:**

This section includes the following statement:

"The water charges framework, one of the main implementation measures described in Chapter 9, will promote voluntary pumping controls through a tiered pumping fee structure. Changes in the cost of groundwater may affect whether surface water or groundwater is used."

Recommendation: The above statement again indicates a pre-determined outcome. It is inappropriate to discuss an implementation measure when only chapters 1, 3 and 4 of the UV Sub-basin GSP has been drafted and hydrologic investigation and associated modeling have not been completed. It is certainly premature to assume a need for tiered pumping fees to promote voluntary pumping controls when it is likely the Upper Valley Sub-basin is sustainable as asserted by your GSP consultant. This type of statement should be omitted and replaced with one that simply states, 'various implementation actions will be considered in Chapter 9.'

Thank you for your consideration of the foregoing comments.

Sincerely,

N. Isakson

Nancy Isakson, President
Salinas Valley Water Coalition

Attachment 1
Monterey County General Plan
Excerpt of Policy PS-3.1

PS-3.1 Except as specifically set forth below, new development for which a discretionary permit is required, and that will use or require the use of water, shall be prohibited without proof, based on specific findings and supported by evidence, that there is a long-term, sustainable water supply, both in quality and quantity to serve the development.

This requirement shall not apply to:

a. the first single family dwelling and non-habitable accessory uses on an existing lot of record; or

b. specified development (a list to be developed by ordinance) designed to provide: a) public infrastructure or b) private infrastructure that provides critical or necessary services to the public, and that will have a minor or insubstantial net use of water (e.g. water facilities, wastewater treatment facilities, road construction projects, recycling or solid waste transfer facilities); or

c. development within Zone 2C of the Salinas Valley groundwater basin, provided the County prepares or causes to be prepared a study for the Board of Supervisors regarding Zone 2C, to be completed no earlier than October 31, 2017 and no later than March 31, 2018 that does the following:

1) evaluates existing data for seawater intrusion and groundwater levels collected by Monterey County Water Resources Agency as of the date the study is commenced;
2) evaluates the total water demand for all existing uses and future uses designated in the General Plan EIR for the year 2030;
3) assesses and provides conclusions regarding the degree to which the total water demand for all uses designated in the General Plan for the year 2030 are likely to be reached or exceeded;
4) evaluates on an annual basis during the study period groundwater elevations and the seawater intrusion boundary;
5) based on historical data and the data produced by the study, evaluates and provides conclusions regarding future trends and any expected movement of groundwater elevations and the seawater intrusion boundary;
6) should the study conclude that i) total water demand for all uses designated in the General Plan for the year 2030 is likely to be exceeded; or ii) groundwater elevations are likely to decline by the year 2030 and iii) the seawater intrusion boundary is likely to advance inland by the year 2030, the study shall make recommendations on measures the County could take to address any or all of those conditions; and
7) addresses such other matters as the Board of Supervisors determines are appropriate.

Within two months following the completion of the study, the Board of Supervisors shall hold an open and noticed public hearing on the results of the study. If the study reaches the conclusions for Zone 2C identified in subsection 6) i or 6) ii and 6) iii, the Board of Supervisors shall adopt one or more measures identified in the study, or other appropriate measures, to address the identified conditions. This exception for Zone 2C shall be a rebuttable presumption that a Long Term Sustainable Water Supply exists within Zone 2C, and the presumption shall remain in effect until and unless the study reaches the conclusion for Zone 2C identified in subsection 6) i or 6) ii and 6) iii. Development in Zone 2C shall be subject to all other policies of the General Plan and applicable Area Plan.

Following completion of the study described herein, and the adoption of measures as may be recommended in the study, if any, the County shall prepare a report to the Board of Supervisors every five (5) years for Zone 2C that examines the degree to which a) total water demand for all uses predicted in the General Plan EIR for year 2030 will be reached; or b) groundwater elevations, the seawater intrusion boundary have changed since the prior reporting period; and c) other sources of water supply are available.

(Amended by Board Resolution 13-028)

June 11, 2020

Dear Ms. Emily Gardner,

As Alternate Director for the Upper Valley Sub-basin I want to share some comments that I am hearing regarding the first bit of material released for the Upper Valley GSP. We have an interested core of stakeholders and I assure you that there will be robust conversation from the Upper Valley.

In reviewing the materials for our first meeting, the references to additional chapters has raised the question as to if those chapters are already written. If there are other chapters that are written, we would like to see those now and work though this process with as much information as possible.

Another item that I have received comments on is the surface and ground water use references. These items look to be misleading as written, we look forward to hearing more on this and sharing our firsthand knowledge.

I look forward to the opportunity to talk tomorrow.

Sincerely,

Grant Cremers

Alternate Director Upper-Valley Basin

Gmail

Emily Gardner <gardnere@svbgsa.org>

Recommendations for Langley and other subbasin GSPs related to drinking water users

6 messages

Heather Lukacs Fri, Jul 10, 2020 at 2:06 PM
To: gardnere@svbgsa.org
Cc: Donna Meyers <meyersd@svbgsa.org>, Gary Petersen <peterseng@svbgsa.org>, Horacio Amezqutia
Thomas R Adcock Justine Massey

Hi Emily, Gary, and Donna,

I appreciate the process allowing for comment on the early drafts of the subbasin GSPs.

Tom, I have included you so that you can see Figure 3-5 that I referenced during my comments at today's meeting - in order to help make sure Alco and Pajaro Sunny Mesa CSD boundaries are accurately represented (see attached), and also because you indicated interest in helping support outreach to water systems.

We at CWC are happy to support in identifying, ground-truthing, and outreach to drinking water users in the Langley Subbasin and other subbasins in the Salinas Valley.

The first step we recommend is to generate a list of the following to support outreach and also to include in Chapter 3 of the draft subbasin GSPs:

- Public water systems - which serve over 15 connections
- State and local small water systems - which serve between 2-14 connections

We at CWC currently have lists for both types of systems from Monterey County Environmental Health (along with contact information for each water system). This information was also used by the GSP consultants in the 180/400 GSP so they should also have these lists with location and water quality information for all water systems in the subbasins.

Next, we recommend creating maps of the location, water quality, and other information of all drinking water supply wells - which came up during today's meeting. For the 180/400 Foot Aquifer GSP, Figure 7-9 Public Water Supply Wells was included together with Appendix 7E (see attached) which has water system names, well construction information, coordinates, and monitoring data range. (see more on this below).

Lastly, these maps and lists can then be shared with local drinking water users who can provide feedback and help groundtruth the information. This could be part of a drinking water workshop - is the information we have accurate? Given this information, is the monitoring network accurate? Are drinking water users collecting other information that could be added to this plan?

I look forward to discussing this and also more specific recommendations (see below) for Chapter 3 of the Subbasin GSPs.

Thank-you,
Heather

Recommendations for Chapter 3 of Subbasin GSPs

- **Revise the description of the plan area to include the type and location of all water systems and private domestic wells that serve drinking water users, their current groundwater quality conditions, and the number of people served.** All public water system service areas and state and local small service areas should be included in this chapter as well as a list of all these system names, water system ID numbers, and number of service connections (or population served). Private wells should also be identified as being groundwater-dependent drinking water supplies. All public water systems and state/local small water systems are important to identify and include in this chapter because all are reliant on groundwater, many are highly vulnerable to water level and water quality changes, and all will be impacted by the way groundwater is managed in the basin. Adequately characterizing the public water systems, state and local small water systems, and domestic wells in the GSP is important to set the stage to: (1) better identify areas that are vulnerable to groundwater level, groundwater quality, or seawater intrusion challenges, (2) quantify drinking water demand in the subbasin for both the current and projected water budget, (3) provide a basis for the monitoring network of drinking water supplies, and (4) ensure inclusive and representative engagement of drinking water users in the planning process.

- **Revise Chapter 3 to include a map of the service areas of all of the state and local small water systems in the 180/400 foot aquifer subbasin.** The 180/400 Foot Aquifer GSP mentions 136 small water systems in Chapter 7, page 7-20 of the 180/400-Foot Aquifer GSP (January 3, 2020) which indicates that the consultants have this data. We recommend that this data for all Salinas Valley subbasins be included in a map in Chapter 3 of each GSP, be clearly labelled, and have an associated table with key information. The Monterey County Environmental Health Bureau (EHB) maintains publically available data which includes shape files of state and local small water system service areas (e.g. polygons of all parcels served by each state or local small water system) to water system IDs. Lists of state and local small service areas and out-of-compliance water systems are available online on their state and local small water system webpage. Monterey County EHB also maintains individual files for each SSWS and LSWS in the County, which often contain well completion reports for each system. All water quality data, location data, and well completion reports are publically available upon request from the Monterey County EHB.
- **Update water system boundaries in Figure 3-5** (Langley, 6/28/2020 GSP) to reflect that Alco no longer operates wells in this area, and update Pajaro Sunny Mesa CSD water system boundaries.
- **List domestic water use and/or rural residential water use under the Water Use Section (Section 3.2.2).** This section indicates that, "Domestic use outside of census-designated places is not considered urban use." Even if the Monterey County Water Resource Agency (MCWRA) does not report rural residential use, it is an important beneficial use and should be listed as a "water use sector." Water use estimates for state and local small water systems could be based on the number of connections served by each water system (which Monterey County has on file).
- **Revise Chapter 3 to include a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have exceeded drinking water standards and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** In the 180/400 Foot Aquifer GSP, Tables 8-6 through 8-9 for all public drinking water wells (including those listed in Appendix 7E), state and local small water system wells, and private domestic wells were included which indicate that the consultant has this data available. It is important to include all water quality data (both in map and tabular form) for all constituents that will have minimum thresholds later. Water quality is an important part of the basin setting. See map viewer from Greater Monterey County RWMG of all available water quality data for state and local small water systems in Monterey County: http://www.greatermontereyirwmp.org/documents/disadvantaged-community-plan-for-drinking-water-and-wastewater/.

--
Heather Lukacs, PhD
Pronouns: She/Her/Hers
Director of Community Solutions
Community Water Center

[redacted]
[redacted] CA 95076
[redacted]
[redacted] CA 95814
[redacted]

All CWC staff are currently working remotely. Please reach all staff via email and cell phone.

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2 attachments

July 26, 2020
Comments on Upper Valley Aquifer Subbasin GSP Volume 1

My comments on the Upper Valley Chapters in Volume 1 relate to my ongoing concern about adequate water pumping data. Page 1-1 recognizes that “limited groundwater data exist in much of the sub basin ...This GSP is based on best available data and analyses. As additional data are collected and analyses are refined, the GSP will be modified.” Is there a plan to require additional data collection? I suggest that the Plan should include specifics on the data needed and the mechanisms proposed to gather that data.

On page 3-11 there is a list of existing wells by type and number but no data about the amounts pumped. I think it is important to know how much water is being pumped by the various existing wells. I would also like to see Industrial Wells separated from Urban Wells.

On p 3-15 Section 3.4.1 “The existing monitoring programs and monitoring networks constitute a well-developed and broadly distributed system that provides representative data throughout the Subbasin. The groundwater elevation monitoring programs are operated by an existing member of the SVBGSA... ”
Please clarify which programs this comment refers to and who is the operator?

Section 3.4.2 Existing Groundwater Elevation Monitoring
The total number of monitoring wells is unclear to me:

1. MCWRA operates 4 CASGEM wells in this sub basin collecting monthly groundwater elevation data.
2. MCWRA gets monthly groundwater elevation measurements from 10 wells plus fall monitoring of 30 wells
3. Extraction data is self reported by well owners of all 3” or greater discharge pipes. Monthly?

How many total monitoring wells are there? Are the wells in item #3 included in any of the above categories (#1 and #2)?

Is all the well data voluntary and not subject to verification?

SGMA requires “implementing the GSP and managing to measurable, quantifiable objectives”.

I believe requiring adequate and verifiable pumping data in every subbasin is necessary to achieve measurable, quantifiable objectives.

Beverly G. Bean, Advisory Committee Member

Chevron

San Joaquin Valley Business Unit
Chevron North America Exploration and
Production Company
(A Chevron USA Inc. Division)
9525 Camino Media
Bakersfield, CA 93311

August 23, 2020

Ms. Donna Meyers
General Manager -- SVBGSA
c/o Regional Government Services
P.O. Box 1350
Carmel Valley, CA 93924

Subject: Comments to Salinas Valley: Upper Valley Aquifer Sub-basin Groundwater Sustainability Plan

Dear Ms. Myers:

Chevron North American Exploration and Production (Chevron) operates facilities in the San Ardo area of Monterey County. As an active member of the Salinas Valley Basin Groundwater Sustainability Agency's Advisory Committee, Chevron offers the following comments with respect to the captioned Groundwater Sustainability Plan (GSP).

a. Chevron's Reverse Osmosis (RO) Plant permeate is not mentioned in the GSP. The RO Plant treats non USDW water to the standards required for beneficial reuse. There is a WDR permit for this discharge, therefore it should be included as a new water source.

b. Per Fig 3-11, there is only 1 surface water gauge in the sub basin. We recommend projects be developed that would add additional gauges to eliminate reliance on a single gauge.

Sincerely,

Tom Merrifield

Tom Merrifield, P.G.
Advisor Hydrogeology

cc: Emily Gardner, Deputy General Manager, SVBGSA
Ann Camel, Clerk of the Board, SVBGSA
Derrik Williams, P.G., C.Hg., Montgomery & Associates

Gmail

Emily Gardner <gardnere@svbgsa.org>

SVBGSA -- preso to SVWC and southern interests

2 messages

Thomas S. Virsik [redacted] Thu, Sep 24, 2020 at 11:37 AM

To: "Derrik Hg. Wlliams P.G., C." <Derrik@hydrometricswri.com>

Cc: gardnere@svbgsa.org, Donna Meyers <meyersd@svbgsa.org>, "Leslie Girard J." <girardlj@co.monterey.ca.us>

Derrik:

I am following up with brief written comments to yesterday's robust presentation to southern stakeholders.

First, as I stated orally yesterday, whatever projects and actions the GSA chooses to select, I strongly suggest that the GSA NEVER defer to, adopt, or simply accept another entity's proposal, be it the County, the WRA, or otherwise. The GSA has substantial powers and duties under SGMA, and should never consider itself or act as a "secondary" entity, much less to unwittingly allow another entity to "veto" its choices.

For example, a GSP adopting the ASR and rediversion options presented yesterday -- instead of the Tunnel project -- could be a critical basis on which the SWRCB could issue, deny, or modify any permits for the WRA's Tunnel project, thus allowing the two projects to occur in relative harmony. Even if the GSA chose to adopt the Tunnel project as its SWI tool, it would need to detail the specific parameters thereof and operations that insured sustainability, lest the WRA obtain permitting that (even unwittingly) undercut the goal.

Second, it may be useful to use the term "special benefits" when discussing Prop 218 issues. I am acutely aware that much analysis and discussion needs to occur on who pays for what project/action and that yesterday's presentation was not intended to address those thorny issues. While even the best nomenclature will not make the process easier, precision may reduce confusion and unproductive detours. GSA counsel may have an opinion on the use of the term, of course.

--
Thomas S. Virsik
Attorney at Law
[redacted]

Derrik Williams <dwilliams@elmontgomery.com> Thu, Sep 24, 2020 at 12:36 PM

To: "Thomas S. Virsik" [redacted]

Cc: "gardnere@svbgsa.org" <gardnere@svbgsa.org>, Donna Meyers <meyersd@svbgsa.org>, "Leslie Girard J." <girardlj@co.monterey.ca.us>

Thank you Mr. Virsik. I appreciate your insights.

Derrik

Derrik Williams, P.G., C.Hg.

MONTGOMERY & ASSOCIATES

(805) 259-4095 (office) I (510) 332-7898 (mobile)

[Quoted text hidden]

Salinas Valley Water Coalition

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TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Atten: Ms. Emily Gardner, Deputy General Manager 7 December, 2020

Re: SVBGSA Upper Valley Subbasin GSP, Projects and Management Actions

Dear Ms. Gardner;

We appreciate this opportunity to comment on the proposed/discussed Projects and Management Actions set forth in the Salinas Valley Basin Groundwater Sustainability Agency's ("SVBGSA") Groundwater Sustainability Plan ("GSP") for the Upper Valley (UV) Subbasin. We ask that you share/distribute our comments to the UV Subbasin GSP Committee prior to its scheduled committee meeting on December 7th so that the Committee may be afforded an opportunity to review and consider the comments ahead of the meeting.

We apologize for sending these comments to you the morning of you meeting, but as you know, the meeting notice and agenda packet was not distributed and available for review until this last Thursday evening, providing the public a very short time to review and offer comments prior to your scheduled meeting. We understand the busy schedule and workload you are dealing with in preparing the GSP's, however, the short timeframe for review prior to scheduled meetings does not provide sufficient time for a full and adequate review by the public and most likely by your committee members as well. We encourage you to provide for at the very least one full week of review of these documents in the future.

We offer the following comments on for your consideration specifically on the Projects and Management Actions per your Agenda Item 4 d:

1. **Winter Reservoir Releases with ASR:**

 The Salinas Valley Water Coalition (SVWC) supports the consideration and pursuit of a Winter Reservoir Release Project (Winter Release). We believe it can provide significant and diverse benefits to the fishery and environmental resources as well as aquifer recharge to benefit lands within the entire Salinas Valley Groundwater Basin. The SVWC has advocated for a winter release project/program since 2014, albeit in a slightly different manner than that presented by the SVBGSA. We believe the development and consideration of a Winter Release Project/Program is a great

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

opportunity to maximize the benefits of existing approved projects by utilizing (or enhancing) existing infrastructure.

We also believe that the Winter Release Project could be implemented prior to completion and adoption of a Habitat Conservation Plan (HCP), and that it can then be enrolled in the HCP as an 'existing project/program' as the HCP is being developed.

In 2015, the SVWC challenged the Monterey County Water Resources Agency (MCWRA) on its operations of the reservoirs during the most recent drought period. In order to settle our differences, the SVWC and MCWRA executed a settlement agreement on November 15, 2019. This is a public document and we have attached the sections that are relevant to this discussion for your information.

We share this with you because one of the elements of the settlement agreement is for the SVWC and MCWRA to work together to consider and discuss: "1) the overall effects associated with implementation of the Winter Release Scenario; and 2) any anticipated benefits to environmental resources including but not limited to benefits to steelhead, of implementation of the Winter Release Scenario."

In order to evaluate whether the Winter Release Scenario warrants further consideration and implementation, the Settlement Agreement requires the MCWRA and the SVWC to separately model the Winter Release Scenario (using two different models) to jointly review the results of the separate modeling efforts in order to determine whether to move toward a pathway for its implementation if the modeling results support the perceived benefits.

The operation and implementation of the Winter Release Scenario detailed in the Settlement Agreement is different from the Winter Reservoir Release Project presented by the SVBGSA, in that we rely solely on existing infrastructure and projects; thereby limiting the capital costs for construction. To the contrary, the Winter Reservoir Release Project of the SVBGSA, requires substantial 'new and additional' infrastructure at significant costs. That said, the Coalition is not dismissing the SVBGSA's Winter Reservoir Release Project outright and believes that this more costly project may be warranted should further studies support its benefits.

The Coalition's proposal for reoperation, which incorporates the Winter Release Scenario, as set forth in the Settlement Agreement may occur immediately to provide benefits to the entire Salinas Valley Groundwater Basin well ahead of the SVBGSA's many procedural requirements prior implementing its project such as water rights permit amendment, preparation of engineer's report, vote under Proposition 218, preparation of environment impact report, etc. That is, there is no need to wait for the HCP or for the SVBGSA to satisfy its procedural requirements for the SVBGSA's project.to implement the reoperation to incorporate the Winter Release Scenario in order to receive its benefits.

Based on our model results, 'the Coalition's Winter Release Scenario provides for greater reservoir releases during the winter months to provide additional recharge and fishery migration opportunities, while continuing to operate the Salinas Valley Water Project as approved, including continuing to, and possibly increasing, the amount of water diverted at the Salinas River Diversion Facility (SRDF) during the irrigation season to provide deliveries to the CSIP growers.

While we are continuing to work with the MCWRA to refine and finalize the modeling, the Coalition's initial model results show that a Winter Release Scenario could be implemented in approximately 75%-85% of all years (and all year type), providing significant benefits for additional fish passage days, additional environmental releases and recharge to the aquifer during a period when riparian vegetation is dormant. It also allows for storage and more efficient use of captured and stored water and releases during the irrigation season for lands within the Salinas Valley Groundwater Basin; while respecting the water rights within the Basin.

It is important that we work together to manage our costs and resources and not duplicate efforts on 'similar' projects/programs, Hence, we should work together to evaluate the results of a winter release project/program in order to develop components/elements/alternatives that maximize benefits and minimize costs.

Recommendation: We request that the SVBGSA collaborate and work with the MCWRA and SVWC in regard to the development of a Winter Reservoir Release Project. We request that you direct your technical consultant and a staff member to work with the MCWRA and SVWC on evaluating the modeling results and developing the end project that would maximize benefits and minimize costs.

2. **Invasive Species Eradication: The SVWC supports the pursuit of this project.**

3. **Conservation and Agricultural BMP's:**

The SVWC supports implementation of conservation and agricultural BMP's. The MCWRA adopted and implemented a strong conservation and agricultural BMP program over 20 years ago and we believe the agricultural community has done, and continues to do, an amazing job of implementing on-farm conservation measures.

Recommendation: The SVBGSA should collaborate and work with other agencies, including the MCWRA, to support and improve the existing conservation and agricultural BMP programs. The collaboration should also include working to support and improve, as applicable, domestic water use conservation measures.

4. **Pumping Limitations:**

The SVWC conditionally supports having pumping limitations as a 'tool' in the toolbox of 'projects' for the SVBGSA – however, this support is based on the following:

1. It should be recognized that the Salinas Valley Groundwater Basin is not a 'one size fits all' basin and hence, any consideration of and need for pumping limitations should be analyzed for each individual subbasin, or portions thereof, to determine whether such a drastic measure is needed to achieve sustainability for those particular areas. Because of the massive size our subbasins, pumping limitations may only be required for certain limited areas of a subbasin.
2. Because we do not recommend a basin-wide pumping limitations, specific criteria and standards must be developed to focus in on the specific areas of a subbasin that would be subject to the pumping limitations. These specific criteria and standards should clearly define the details of 'when' and 'how' any pumping limitations are to be implemented (i.e., need to develop time, place and manner of the pumping limitations).

Recommendation: The SVBGSA should include Pumping Limitations as a potential project tool, but additional data and information must be developed first in

order to establish the applicable criteria and standards for triggering such a limitation for a particular area of a subbasin.

The SVWC appreciated the workshop the SVBGSA held on Pumping Allocations. This is a very important issue, with many different mechanisms that could be implemented to achieve the required basin sustainability. Because of this level of importance, we are working with our members to carefully develop comments and recommendations regarding pumping limitations and allocations, how, and if, they should be implemented, if so in what manner, what they are willing to support and not support. We anticipate having these comments and recommendations to you the first of January.

Thank you for your consideration of the foregoing comments.

Sincerely,

Nancy Isakson

Nancy Isakson, President
Salinas Valley Water Coalition

Salinas Valley Water Coalition

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TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Board of Directors

12 January, 2021

Re: Comprehensive River Maintenance

Dear Board of Directors;

It has been brought to our attention that there is great concern among landowners/growers regarding the lack of a comprehensive river maintenance program/plan. The Salinas Valley Water Coalition (SVWC) has supported, and continues to support Management Actions/Programs that could provide for greater and more sustainable water resources -- a comprehensive river management program could meet these goals.

A comprehensive river maintenance program for the entire length of the Salinas River that includes removals of Arundo, sediment (including sandbars), and potentially problematic native species should be part of the groundwater sustainability plans ("GSPs") for all of the subbasins within the Salinas Valley Basin. A piecemeal approach to river maintenance is ineffective and relatively costly for the benefit received due to cumbersome permitting requirements and ever-increasing vegetation and sedimentation loading in the river system.

Accordingly, we ask that your Board consider evaluating an integrated, comprehensive river maintenance program in the Subbasins' GSPs. We also ask that you work with other agencies currently working on river maintenance, including the Resource Conservation District of Monterey County and the Monterey County Water Resources Agency. Working together in a collaborative manner will serve to avoid duplicating efforts and costs and will be a great benefit to all.

Thank you for your consideration of the foregoing comments.

Sincerely,

Salinas Valley Water Coalition Board

Keith Roberts, Chair
Roger Moitoso, Vice- Chair
Rodney Braga, Director
Lawrence Hinkle, Director
Bill Lipe, Director
David Gill, Director
Steve McIntyre, Director
Brad Rice, Director
Jerry Rava, Director
Michael Griva, Past-Chair

Nancy Isakson

Nancy Isakson, President

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

Salinas Valley Groundwater Sustainability Agency

Attention Ms. Emily Gardner, Deputy General Manager January 29th, 2021

Dear Ms. Gardner,

The Upper Valley Sub-basin has taken its participation seriously throughout the GSA process. We are a committed group of stakeholders, doing extensive outreach and meetings the past two years, along with participating at most GSA meetings and workshops. We also hold monthly meetings prior to the GSA Board meetings to discuss topics and give direction to our GSA representatives, Bill Lipe and Grant Cremers, where the upcoming SVBGSA Board agenda is reviewed with an open discussion; other Salinas Valley Basin issues are also discussed.

The Upper Valley fully knows and endorses SVBGSA is a basin wide approach for achieving groundwater sustainability and that each sub-basin's GSP is a piece in the overall approach to achieve groundwater sustainability.

At the most recent SBAWA Upper Valley sub-basin meeting a few weeks ago, two topics were discussed: Water Allocations and River Maintenance.

At this pivotal moment regarding these topics and how they fit in with the GSP's, we feel it is important that you hear the feedback from the sub-basin stakeholders.

Water Allocations

It was the opinion of Upper Valley stakeholders at the meeting that there is no interest in pursuing or even starting that conversation currently on this topic. SGMA gives the GSA the authority to manage the free and natural recharged ground water, but not the water from existing water enhancement projects. Those would be CSIP, the reservoirs, and the rubber dam. It is crucial that we do not allow an agency to overstep its bounds and manage a resource that it does not have the authority to manage.

River Maintenance

Upper Valley stakeholders feel a defined program or project is lacking regarding River/Stream Maintenance. The Arundo removal and its impact have been discussed for decades with stakeholders believing Arundo removal is a high priority project; it seems that River/Stream Maintenance is a natural extension of that program. The Upper Valley stakeholders would like to see the current river maintenance with more robust features added in so that each sub-basin's GSP defines it as a project in their plans. The river is the sole/primary conveyance for distributing water throughout the Salinas Valley Groundwater Basin and it must no longer be neglected/delayed; it must be maintained with full attention to achieve the promised benefits to ALL stakeholders!

The Upper Valley will continue to participate and support reasonable progress towards the GSA and GSP process. We understand our role in a successful GSA for the Salinas Valley. With the water enhancement projects already existing, Arundo removal, regular river maintenance and implementing the winter release schedule at the reservoirs, we feel that the Basin would be in a great position to perform favorably into the future and attaining full sustainability in most of the sub-basins. Given the resources we have currently, our GSA should stay focused on monitoring the 6 Management Criteria to avoid undesirable results and help us get the most out of our current water investments.

Kindest regards,

Grant Cremers

Upper Valley Alternate Director

Salinas Valley Water Coalition

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TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Atten: Ms. Emily Gardner, Deputy General Manager 29 January, 2021

Re: SVBGSA and Upper Valley Subbasin Committee Pumping Allocation Discussion, Agenda Item 4.c.

Dear Ms. Gardner;

The Salinas Valley Water Coalition (SVWC) attended and participated in the Pumping Allocation Workshop held by the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) on November 18, 2020. In anticipation of future deliberations by the SVBGSA on this matter, the SVWC conducted a survey of its members in an effort to gain a better understanding of the membership's opinions regarding a pumping allocation program for the Salinas Valley Basin.

The following is a summary of the key findings from the survey based on survey responses received from the SVWC members who own and/or operate lands located in majority portions of the subbasins of the Salinas Valley Basin. It needs to be stated upfront ***that in 100% of the responses received, the SVWC members DO NOT support the implementation of a pumping allocation program, either in their subbasin or within the entire Salinas Valley Basin.***

1. In 100% of the responses, the SVWC members believe implementing a pumping allocation program is similar to a water right determination, and that if it were to be implemented, it should be based on ***water rights***.
2. In 80% of the responses, the SVWC members ***did NOT*** support the development and implementation of a water market, while 20% said they would support such a market, but only if a separate market is created for each subbasin.
3. In 100% of the responses, the SVWC members recognize hydrological differences between the subbasins, and all agreed that each subbasin should be treated separately and distinctly.
4. If a pumping allocation program were to be developed and implemented, 25% of those who responded said the allocation should be divided by net acreage of the

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entire subbasin, and 75% said it should be divided by irrigated acreage of the entire subbasin.

5. In 80% of the responses, the SVWC members said there should be NO pumping allocation for non-irrigated parcels, and 20% said there should be.

Our survey revealed concerns our members continue to have, and that is contrary to what has been stated by the SVBGSA – that is, the members believe the development and implementation of a pumping allocation program will essentially be an adjudication of water rights by policy implementation. This is NOT acceptable and will only serve to undermine the good work of the SVBGSA to-date. The SVWC believes that the majority of landowners/growers will not support a pumping allocation program and if one were to be developed and implemented, it will most likely trigger a basin-wide water rights adjudication, which will be very costly and lengthy for all.

Our members support the development of various programs and projects that will truly work to assist in attaining sustainability of each of the subbasins, as outlined in our December 7, 2020 letter (attached). We also support the SVBGSA in developing a monitoring program that will allow you to monitor the sustainability of the Basin. Our members ***will not*** support the development and implementation of a pumping allocation program or a water marketing program. We have previously stated we could conditionally support the development and implementation of pumping limitations as a 'tool' in the tool box of the GSA, but that these pumping limitations must be based on criteria to be developed by, and for, each subbasin.

We appreciate this opportunity to share our members' concerns and comments regarding the pumping allocation program currently under consideration by the SVBGSA. We ask that you share/distribute our comments to the Upper Valley Subbasin GSP Committee prior to its scheduled committee meeting on February 1, 2021, so that the Committee is afforded an opportunity to review and consider the comments herein prior to that meeting.

Thank you for your consideration of the foregoing comments.

Sincerely,

Salinas Valley Water Coalition Board
Keith Roberts, Chair
Roger Moitoso, Vice- Chair
Rodney Braga, Director
Lawrence Hinkle, Director
Bill Lipe, Director
David Gill, Director
Steve McIntyre, Director
Brad Rice, Director
Jerry Rava, Director
Michael Griva, Past-Chair
Nancy Isakson, President
Nancy Isakson

Salinas Basin Water Alliance

P.O. Box 247, Salinas, CA 93902

SBWA
SALINAS BASIN WATER ALLIANCE

March 10, 2021

Chair Tom Adcock
SVBGSA Advisory Committee
P.O. Box 1350
Carmel Valley, CA 93924

Dear Chair Adcock and SVBGSA Board Members,

On behalf of our directors and members, we are writing to voice several concerns about the GSA's process for approving and promoting projects and management actions for subbasins throughout the Salinas Valley.

First, we are concerned about the agency's timelines for subbasin committees to approve water allocation policies *before* disclosing or approving water budgets. We are acutely aware that the agency's mission is to ensure the sustainability of groundwater throughout the valley. How can we accomplish this if staff-recommended policies to committees are disconnected from the actual amounts of water being used annually in each subbasin? We have seen this order of operations in every one of the subbasin meetings so far and are concerned it flies in the face of the agency's extraordinary efforts to be transparent and effective.

Secondly, we are concerned about how the agency is formulating water budgets. We represent more than 37,000 acres owned and farmed throughout the valley. From our experience, the data being used from 2013 and earlier is not accurate to water usage today, self-reporting data is not a sufficient safeguard for sustainability, and thirdly, any valley-wide formula based on crops is insufficient as temperatures, soil composition, and other conditions vary. If we are to accurately measure and equitably discuss water use throughout the Salinas Valley, we must draw on water metering data to create water budgets.

We appreciate the opportunity to bring our valley-wide experience to the table and look forward to working with all the subcommittees to find sustainable solutions for everyone in the Salinas Valley.

Sincerely,

DocuSigned by:
George Fontes

George Fontes, President, Board of Directors
Salinas Basin Water Alliance

MONTEREY COUNTY

WATER RESOURCES AGENCY

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SALINAS, CA 93902
(P): 831-755-4860
(F): 831-424-7935

STREET ADDRESS
1441 SCHILLING PLACE, NORTH BUILDING
SALINAS, CA 93901

BRENT BUCHE
GENERAL MANAGER

March 12, 2021

Donna Meyers, General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Schilling Place
Salinas, CA 93901

Re: Groundwater Sustainability Plan for the Upper Valley Aquifer Subbasin

Dear Ms. Meyers:

Monterey County Water Resources Agency (MCWRA) staff has reviewed Chapters 1-5 and 7 of the draft Groundwater Sustainability Plan for the Upper Valley Aquifer Subbasin.

MCWRA has the following general comments on the draft chapters:

- Some sections are not completed or indicate future revisions and updates. MCWRA looks forward to an opportunity to comment on those when completed.
- Chapter 3, Section 3.2.2 states: "MCWRA records lump industrial use and urban use together as a single type of water use." MCWRA does keep record of industrial and urban use separate in our database. When extraction data is summarized for the Annual Groundwater Extraction Summary report, industrial and urban water use are combined.
- Chapter 3, Section 3.4.3 states: "Extraction is self-reported by well owner, however, it is not known what percentage of wells are reported this way." MCWRA does have annual statistics on the percentage of wells that report annual extractions of those that are required to report under Ordinance No. 3717 and 3718. Section 3.4.3 also states that "Reporting requirements for agricultural wells are the same as for other wells, but their annual statistics are based on the water year which begins October 1st." MCWRA's reporting year for extraction data, as defined by Ordinance, is November 1st through October 31st for agricultural wells and the January 1st-December 31st for urban wells.
- Chapter 5, Section 5.2.1 mentions "Fall groundwater elevation contour maps were used rather than Spring contour maps to retain consistency with the cumulative change in the groundwater elevation graph provided by MCWRA". It may be informative to clarify that the cumulative change chart generated by MCWRA uses data collected from mid-November to December, as opposed to the Fall contours in the GSP which are generated using data collected in October.
- Chapter 7, Section 7.3.2 discusses the need to develop "crop data and crop duty multipliers" for areas where agricultural groundwater pumping is not reported. The Salinas Valley Integrated Hydrologic Model (SVIHM) has extensive crop data coverages for the model domain that may be of use for this task.

- Chapter 7, Section 7.9: The list of fields in the SVBGSA DMS HydroSQL database includes "well owner." Is this information publicly accessible? This would appear to conflict with the Information Practices Act of 1977, which protects well owner name and address details that are typically redacted from Well Completion Reports that are accessible under CA Water Code Section 13752.

MCWRA has provided other minor and/or editorial comments on the chapters of the Draft GSP to Montgomery & Associates in Word documents that were supplied for that purpose.

MCWRA appreciates the opportunity to comment on the draft GSP chapters for the Upper Valley Aquifer Subbasin. If you have any questions regarding the enclosed comments, please contact Tamara Voss, Associate Water Resources Hydrologist via email at vosstl@co.monterey.ca.us or by phone-at 831-755-8914.

Sincerely,

E-signed 3/12/2021

Brent Buche
General Manager

Salinas Valley Water Coalition
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(831) 674-3783 • FAX (831) 674-3835

TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Atten: Ms. Emily Gardner, Deputy General Manager 14 April, 2021

Re: SVBGSA Upper Valley Subbasin GSP, Projects and Management Actions

Dear Ms. Gardner;

The Salinas Valley Water Coalition (Coalition) appreciates this opportunity to comment on the proposed Projects and Management Actions as presented to the Upper Valley Subbasin Committee (UV) at its April 5, 2021 meeting. This letter augments our December 7, 2020 comments previously submitted[1]. We ask that you share/distribute our comments to the UV Subbasin Committee so that the Committee members are afforded an opportunity to review and consider the comments herein prior to any decision making.

We offer the following comments on the Supplemental material to April Meeting on Projects and Management Actions presented to the Upper Valley Subbasin Planning Committee on April 5, 2021 for your and the Committee members' consideration:

1. **The Introduction section** states, "All projects will ultimately need to be assessed in the context of valley-wide benefits, as they will need to be approved by the Board of Directors." It is difficult to understand why all projects need to be assessed for valley-wide benefits. The Department of Water Resources (DWR) has identified individual subbasins within the Salinas Valley Groundwater Basin for separate assessments under an individual groundwater sustainability plan (GSP) due to their respective unique hydrologic characteristics. Accordingly, through DWR's listing of (sub)basins in Bulletin 118, assessments are limited to each subbasin rather than the entire Salinas Valley Groundwater Basin, other than to ensure that any project or management action in one subbasin does not adversely impact the neighboring subbasin(s). Additionally, management actions and projects must be tailored to each subbasin's needs based on its sustainable yield and sustainable characteristics. The DWR clearly recognized that the Salinas Valley Groundwater Basin is not a one-size-fits-all basin and that the sub-basins comprising thereof has their own unique hydrologic characteristics for which management actions and projects must uniquely address. Simply stated, there is no basis for considering valley-wide benefits for *all* projects.

[11] Attached

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

Recommendation: Any project proposed for an individual subbasin should assessed as to the proportional benefits conferred on parcels within that sub-basin. Any further assessment thereafter would be limited to any potential adverse impacts of the proposed project to neighboring sub-basins.

2. **Multi-benefit stream channel improvements:** The Coalition supports the following four primary tasks of this multi-benefit stream channel improvement program: vegetation maintenance, non-native vegetation removal, sediment management, and floodplain enhancement and recharge. The implementation of these tasks should be coordinated with other agencies that are currently working on similar projects to allow for efficient and cost-effective planning and implementation of the program and to avoid duplications.

3. **Managed Aquifer Recharge of Overland Flow:** The aquifer recharge management program description states that the program is structured similar to the program implemented in Pajaro Valley, whereby growers dedicate a portion of their land to recharge ponds to capture direct overland flood flows into the ponds in exchange for ***extraction credits.*** The Coalition may be supportive of a program that benefits growers who implement this type of project. However, the UV Subbasin Committee has made clear they do not support water/pumping allocations. Accordingly, extraction credits may not be proper, unless such credit is used to offset any extraction limitation.

4. **Projects that Result in Reservoir Reoperation section** states that "this GSP prioritizes the three reservoir reoperation projects based on our current assessment of each project's ability to achieve Valley-wide groundwater sustainability." It is true that the reservoirs provide important special benefits valley-wide, although the special benefits are proportionately different to lands within each sub-basin, and as such, for any reservoir reoperation project, proportional special benefits conferred on a particular parcel within each subbasin must be determined consistent with Proposition 218. Projects that result in reservoir reoperation do not provide a one-size-fits-all benefits.

5. **Winter Reservoir Releases with ASR in the 180/400 Aquifer:** As we have previously stated, the Coalition supports the consideration and pursuit of a Winter Reservoir Release Project (Winter Release). We believe it can provide significant and diverse benefits to the fishery and environmental resources as well as aquifer recharge to benefit lands within the subbasins of the Salinas Valley Groundwater Basin. The Coalition has advocated for a Winter Release Project since 2014, albeit it is different than that proposed by the SVBGSA. We believe the development and consideration of a Winter Release Project is a great opportunity to maximize the benefits of existing approved projects by utilizing (or enhancing) existing infrastructure.

   We also believe that the Winter Release Project could be implemented prior to the completion and adoption of a Habitat Conservation Plan (HCP), and that it can then be enrolled in the HCP as an 'existing project/program' as the HCP is being developed.

   In 2015, the Coalition legally challenged the Monterey County Water Resources Agency (MCWRA) on its operations of the reservoirs during the most recent drought period. In order to settle our differences, the Coalition and MCWRA executed a settlement agreement dated November 15, 2019. This is a public document, and we have attached sections thereof that are relevant to this discussion for your information.

   We share this with you because one of the elements of the settlement agreement is for the Coalition and the MCWRA to work together to consider and discuss: "1) the overall effects associated with implementation of the Winter Release Scenario; and 2) any anticipated benefits to environmental resources including but not limited to benefits to steelhead, of implementation of the Winter Release Scenario."

In order to evaluate whether the Winter Release Project warrants further consideration and implementation, the Settlement Agreement requires the MCWRA and the Coalition to separately model the Winter Release Scenario (using two different models) and to jointly review the results of the separate modeling efforts in order to determine whether to move toward a pathway for its implementation should the modeling results support the perceived benefits.

The reservoir operations of the Winter Release Scenario detailed in the Settlement Agreement is different from the Winter Reservoir Release Project with ASR in the 180/400 Aquifer Project presented by the SVBGSA in that the Coalition's Winter Release Project relies solely on existing infrastructure; thereby, limiting capital costs. To the contrary, the SVBGSA's Winter Reservoir Release Project with ASR in the 180/400 Aquifer Project requires substantial 'new and additional' infrastructure at significant costs, with differing benefits than those contemplated with the Winter Release Scenario in the settlement agreement. That said, the Coalition is not dismissing the SVBGSA's Winter Reservoir Release with ASR in the 180/400 Aquifer Project outright and believes that this more costly project may be warranted should further studies support its benefits. The SVBGSA's Winter Reservoir Release Project with ASR in the 180/400 Aquifer should be recognized as a separate and distinct project from the Winter Release Project set forth in the settlement agreement.

Another significant difference between the two projects is that the Coalition's proposal for reservoir reoperations, which incorporate the Winter Release Scenario in the Settlement Agreement, may occur immediately to provide benefits to the subbasins in the Salinas Valley Groundwater Basin well ahead of the SVBGSA's completion of its many procedural requirements (e.g., water rights permit amendment, preparation of engineer's report, vote under Proposition 218, preparation of environment impact report, etc.) prior the implementation its project. That is, there is no need to wait for the HCP or for the SVBGSA to satisfy its procedural requirements in order to implement the reoperations to incorporate the Winter Release Scenario.

The technical report documenting the Coalition model results states, 'The Coalition's Winter Release Scenario provides for greater reservoir releases during the winter months to provide additional recharge and fishery migration opportunities, while continuing to operate the Salinas Valley Water Project as approved, including continuing to, and possibly increasing, the amount of water diverted at the Salinas River Diversion Facility (SRDF) during the irrigation season to provide deliveries to the CSIP growers.'

While we are continuing to work with the MCWRA to refine and finalize the modeling, the Coalition's initial model results show that the Winter Release Scenario could be implemented in approximately 75%-85% of all years (and all year type), providing additional releases for environmental benefits and for recharge to the aquifer during a period when riparian vegetation is dormant. It also allows more efficient capture of flood waters and storage of water in the basin to limit flood and evaporation loss, respectively; while respecting the water rights within the Basin.

It is important that we work together to better manage our costs and resources and not duplicate our efforts on a similar project/programs. Hence, we should work together to evaluate the results of the Winter Release Scenario modeling performed by the

Coalition and the MCWRA to then determine the appropriateness of the SVBGSA's Winter Reservoir Release Project with ASR in the 180/400 Aquifer project.

Recommendation: We request that the SVBGSA collaborate with the MCWRA and the Coalition regarding the implementation of the Winter Release Project.

6. **Interlake Tunnel and Spillway Modification:** The Coalition will not support the MCWRA's Interlake Tunnel and Spillway Modification Project (Interlake Tunnel Project) until full hydrologic analysis of the project is made publicly available and can be fully vetted. The Coalition has taken this position from the inspection of the MCWRA's consideration of the Interlake Tunnel Project.

   Recommendation: The SVBGSA's reliance on the MCWRA's Interlake Tunnel Project as a priority project is misplaced, particularly since the SVBGSA does not have any authority or control over the project, and the SVBGSA (and the MCWRA) lacks sufficient supportive data that has fully publicly vetted to demonstrate its benefits. Unless and until such time this project is fully publicly vetted and supportable through an engineer's report and environmental documents, we do not believe it makes any sense to include it as a 'priority project'. Rather, it should be clear to the reader of the Upper Valley GSP that it cannot be a priority until the MCWRA's has an approved project demonstrating with some level of certainty of the project's benefits (including the quantifying of any 'new' water it purports to generate). Until that time, it is premature to include it as a priority project. Rather, it could be listed a project in progress by a sister agency if it is to be listed at all in the GSP.

7. **Drought Reoperation:** The Coalition supports the inclusion of the Drought Reoperation as a project, using the Drought Operations Technical Advisory Committee (D-TAC) formed by the MCWRA. The drought reoperation project will be developed utilizing the Standards and Guiding Principles developed by the D-TAC.

   Recommendation: The SVBGSA should continue to collaborate with the MCWRA and participate in their D-TAC to implement the Drought Reoperations Project.

8. **Fallowing, Fallow Bank, and Agricultural Land Retirement:** These projects and management actions may be supportable if they are voluntary. That said, we need more information as to what is envisioned for developing and implementing these types of projects and actions.

9. **GEMS Expansion:** The Coalition agrees to a strong monitoring program and supports the expansion of the GEMSA program so that is covers the entire Upper Valley Subbasin. However, we believe that the SVBGSA should work with the MCWRA to avoid duplicating efforts. The SVBGSA should work with the MCWRA and stakeholders to determine how MCWRA's groundwater extraction reporting system could be improved.

10. **Well Registration:** The Coalition supports well registration but again, encourage you to work with the MCWRA and Monterey County's Environmental Health Bureau to avoid duplicate registration, costs and effort.

Thank you for your consideration of the foregoing comments.

Sincerely,

Nancy Isakson

Nancy Isakson, President
Salinas Valley Water Coalition

Salinas Valley Water Coalition

33 El Camino Real • Greenfield, CA 93927
(831) 674-3783 • FAX (831) 674-3835

TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Atten: Ms. Emily Gardner, Deputy General Manager 19 April, 2021

Re: SVBGSA Upper Valley Subbasin GSP Chapters 6

Dear Ms. Gardner;

We appreciate this opportunity to comment on the Upper Valley (UV) Subbasin GSP draft Chapters 6, Water Budget. Please know that these are preliminary comments and that we may have additional comments upon further review of this chapter.

We ask that you share/distribute our comments to the UV Subbasin GSP Committee so that the Committee is afforded an opportunity to review and consider the comments prior to any final recommendation..

We offer the following comments for your consideration:

1. **Current Water Budget:** Chapter 6 utilizes the year 2016 for 'current conditions/water budget' as the "most recent conditions for which adequate data are available and that represent recent climatic and hydrologic conditions."

   Specifically, Section 6.1.2.2 states, "Water year 2016 is classified as dry-normal and is ***reflective of current and recent patterns in groundwater use and surface water use.***" (Emphasis added.) We disagree with this statement and question the use of 2016 data as the "best reflection of current land use and water use conditions based on best available data," as stated in Table 6-1. Water Year 2016 was preceded by two dry years in which the Nacimiento and San Antonio reservoirs were mis-operated/mismanaged by the Monterey County Water Resources Agency (MCWRA). Specifically, the MCWRA significantly reduced reservoir releases, even the minimum flow releases in contravention of the MCWRA's water rights permit and its commitment to abide by the National Marine Fisheries' Biological Opinion, resulting in harm to many Upper Valley lands. Water Year 2016 is not representative of the current basin condition for the purpose of determining the basin's water balance because the MCWRA created a condition of man-made drought which took several years to recover.

   In the 180/400-Aquifer GSP, the SVBGSA utilized data for water years 2015-2017 as representing the current conditions for the 180/400-Aquifer. In order for the two GSPs to

__Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.__

coordinate with one another, the Upper Valley GSP should also use 2015-2017 water year data[1]; otherwise, there would be an appearance of data manipulation. The SVBGSA is in the process of completing five subbasin GSPs, and it would be important for all six GSPs to use coordinated hydrologic data, assumptions and baseline conditions consistent with SGMA, even if each subbasin is developing its own individual GSP.

All of the subbasins are part of the Salinas Valley Groundwater Basin and are all in reliance of the operations of the reservoirs by the MCWRA to some extent, in particular, by the Upper Valley Subbasin. Rainfall and reservoir released water are the primary sources of water for the Subbasin. There must be a recognition that the 2016 hydrologic data is skewed due to the subbasin's recovery from MCWRA's curtailment of releases in 2015. Any man-made drought conditions created due to curtailment of releases and recovery time thereafter should not at all be considered to reflect water supply in the basin. That is, the groundwater budget must reflect, and make the distinction between groundwater, naturally occurring in the basin, plus the water released/managed by the MCWRA for the benefit of the downstream landowners who are paying assessments in order to receive the recharge special benefit. Based on the foregoing, any 'overdraft' asserted in these chapters may be distorted because of the use of 2016 data as baseline condition.

2. **Page 6-19** states that "the preliminary SVIHM estimates that the Upper Valley is in overdraft (storage depletion) by about 1,210 af/yr" averaged over the historical period. It also states that "the estimated overdraft contains significant variability and uncertainty."

   Table 6-8 shows historical average and current change in groundwater storage. While the historical average change in storage is **-1,210 af/yr, the 'current water year 2016' shows a change in storage of -33,950 af/yr.**

   We believe these numbers clearly illustrate why Water Year 2016 is not "representative" of the baseline groundwater conditions and should not be used for this analysis. Based on modeling performed on behalf of the Salinas Valley Water Coalition (Coalition), we believe the Upper Valley Subbasin is sustainable and is not in overdraft.

3. **Section 6.3.3 Historical and Current Groundwater Budget Summary** compares the groundwater inflows into the subbasin and discusses the changes in groundwater storage. It states that "the current (2016) amount of groundwater in storage is slightly less than at the beginning of the historical period." This statement fails to recognize the distortion in inflow caused by the MCWRA's invalid curtailment of releases from the reservoirs in the two preceding dry years, resulting in a man-made decline in groundwater storage. For the purpose of determining available water storage, the SVBGSA must determine and distinguish in this chapter the amount of naturally occurring groundwater plus the amount of water contributed from reservoir releases by the MCWRA on behalf of the landowners/rate payers. Naturally occurring groundwater conditions is best mimicked by the winter release scenario, which may be more appropriate to use for establishing the groundwater budget for the Upper Valley Subbasin.

4. **Section 6.3.4 Historical and Current Sustainable Yield:** This section states the "current sustainable yield is approximately 54,900 af/yr which represents a ***38%***

[1] We also note that the 180/400-foot Aquifer GSP used a historical period of analysis of 1995-2014, while the Upper Valley and other subbasins are using a historical period of analysis of 1980-2016. All of the GSP's should be utilizing the same analysis period. These inconsistencies need to be resolved.

reduction in pumping." (Emphasis added.) The section goes on to state that this is from a "dry-normal year and does not represent long-term management."

We agree that the 54,900 af/yr does not represent long-term management -- it is derived from water conditions in a dry-normal year preceded by two years of MCWRA's mismanagement of the reservoirs and significant curtailment of releases, including the required minimum releases from the reservoirs. We do not agree that 54,900 af/yr is representative of naturally occurring groundwater plus supplemental release water obligated to be provided to ratepayers. This section significantly overestimates a change in storage and underestimates the groundwater available for establishing sustainable yield. Again, based on the modeling performed on behalf of the Coalition, thee Upper Valley Subbasin is sustainable; and the water budget and management actions must reflect the same.

5. **Section 6.4.5 Projected Sustainable Yield:** This section states that depending on the success of various proposed project and management actions, there may be some years where pumping must be reduced to achieve minimum thresholds. The section further states that the actual amount of ***allowable pumping*** from the Subbasin will be adjusted in the future based on the success of projects and management actions. As the Coalition has previously stated, any type of water allocation scheme is not acceptable for this sustainable basin. Additionally, any water pumping reduction may be considered in the five year update to the GSP should future monitoring of the subbasin demonstrate that need. It is important to note that the sustainable yield may change due to the success of any project (such as the winter release project) or management actions and thus, again, water pumping reduction as a management action is premature and can wait until the five year update.

   Additionally, overlying users are senior in priority and have correlative rights to water naturally occurring in the basin, which must be considered in any proposed projects or management actions. The appropriative water right held by the MCWRA that authorize storage of water in Nacimiento and San Antonio reservoirs are junior in priority to the rights of overlying and riparian users in the Salinas Valley Groundwater Basin and Salinas River, respectively. The water held in the reservoirs by the MCWRA, under its appropriative right, is held and released for the benefit of its ratepayers. For example, the Upper Valley landowners pay Zone 2C assessments in order to receive additional recharge and drought protection special benefits, which must be considered in the sustainable yield analysis.

6. **Section 6.6 Uncertainties in Water Budget Calculations:** This section states that the level of accuracy and certainty is highly variable between water budget components. It goes on to state that because of these uncertainties, the model is the best available tool.

   The recognition of the significance of these uncertainties makes it difficult to understand why, and how, the Upper Valley would benefit from any project as proposed/discussed in the supplemental materials. Rather, it seems the Upper Valley would benefit from a monitoring program that will accurately and scientifically monitor the subbasin's inputs and outputs.

   Additionally, it is unfortunate that the model is provisional and its accuracy cannot be publicly known. The SVBGSA should share the inputs of its modeling to ensure that they reflect the MCWRA reservoir operations as legally limited as an appropriator bound by commitments to providing special benefits to landowners.

Recommendation & Request: Through this letter, we ask that all inputs and outputs of its modeling be provided to the Committee and the Coalition (as public record under the California Public Records Act). We ask that the water budget be revised for water years 2015-2017 and adjusted to take into consideration the mis-operations of the reservoirs by the MCWRA. Additionally, we ask that the SVBGSA monitor the groundwater conditions during the next five years before making any recommendation for a pumping reduction management action. During that five year period, the MCWRA must be held accountable for ensuring that its reservoir operations are consistent with its permits, including its flow prescription requirement as well as its limitation as an appropriator bound by release commitments as special benefits to landowners/ratepayers.

Thank you for your consideration of the foregoing comments.

Sincerely,

Nancy Isakson

Nancy Isakson, President
Salinas Valley Water Coalition

Salinas Basin Water Alliance

April 21, 2021

Dear Chair Cremers and Upper Valley Subbasin Committee Members,

As landowners, growers, and agricultural businesses throughout the Salinas Valley, we are writing to support the Upper Valley Groundwater Sustainability Plan's emphasis on closing data gaps in groundwater storage levels as critically important to achieving true sustainability.

It is no secret that the Upper Valley Subbasin Groundwater Sustainability Plan features a large data gap in monitoring groundwater storage. In Section 7.3.2., the GSP acknowledges:

> *The new DWR Upper Valley Aquifer Subbasin boundary results in a potentially large data gap in agricultural pumping information. Currently, pumping records are available only for the portion of the subbasin that overlaps with the MCWRA Upper Valley Subarea… A potential data gap is the accuracy and reliability of reported groundwater pumping. SVBGSA will work with MCWRA to evaluate methods currently in place to assure data reliability. Based on the results of that evaluation, the protocols for monitoring may be revised and a protocol for well meter calibration may be developed. In addition, crop data and crop duty multipliers for estimating unreported pumping must be developed in areas where agricultural groundwater pumping is not reported. These crop duty multipliers will be used to estimate groundwater pumping, based on crop type and acreage.*

Our alliance represents more than 41,000 acres throughout the Salinas Valley. All of our producers carefully monitor and report their water usage and several have property in multiple subbasins. We believe that universal, reported metering, not mere water usage estimates, are essential for achieving sustainability. Approving GSP projects or management actions without this data is ineffective at best and reckless at worse.

We are writing to encourage the GSA to address this data gap before pushing the subbasin committee to prematurely approve a draft GSP that may include or *not include* projects and management actions based on the incomplete data at hand. Achieving sustainability will require a true understanding of groundwater flow to and from the subbasin and will ensure community support and engagement.

That requires honest and transparent data throughout the valley and closing data gaps in the Upper Valley Subbasin is a critical step in that direction.

Sincerely,

George Fontes, President, Salinas Basin Water Alliance

COMMUNITY WATER CENTER
EL CENTRO COMUNITARIO POR EL AGUA

San Jerardo Cooperative, Inc.

April 23, 2021

Salinas Valley Basin Groundwater Sustainability Agency

Submitted electronically to:

Emily Gardner, Deputy General Manager

Donna Meyers, General Manager

Subject Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins

Dear Salinas Valley Basin Groundwater Sustainability Agency:

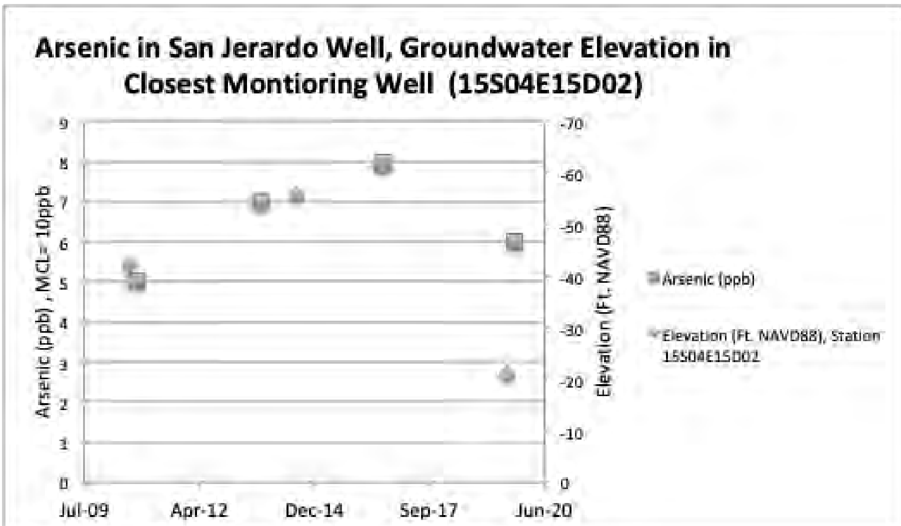
The Community Water Center (CWC) and the San Jerardo Cooperative would like to offer comments and recommendations in response to the draft Groundwater Sustainability Plans (GSPs) Chapter 1-8 for the Langley, East Side, Forebay, and Upper Valley Subbasins as well as Chapters 1-5 and 7 for the Monterey Subbasin that were released in 2020 and early 2021 by the Salinas Valley Basin Groundwater Sustainability Agency (SVB GSA). In addition, we offer preliminary comments on the draft Chapter 9 Implementation Actions that were shared with subbasin committees in April 2020. These comments are intended to add to the public record and are submitted in addition to previous written and spoken comments.

The challenges facing San Jerardo and similar communities throughout all the subbasins in the Salinas Valley are the foundation of our comments in this letter. The San Jerardo Cooperative's well is highly vulnerable to changes in groundwater levels and groundwater quality. Over decades of living and working at San Jerardo Cooperative, Horacio Amezquita has observed firsthand how the irrigation practices on properties surrounding the cooperative impact the water quality in their current and former wells. The San Jerardo Cooperative receives drinking water from a small public water system (CA2701904) and is very concerned that pumping, irrigation practices, and groundwater management in the East Side Subbasin will cause their drinking water well, which currently meets all drinking water standards, to exceed the maximum contaminant levels for arsenic and/or nitrate. Unfortunately, data from the State Water Board indicates increasing levels of nitrate and arsenic in their well with a high arsenic level of 8 ppb on 8/22/2016 that also corresponds to a low groundwater elevation of -61.5 in Station 15S04E15D02, the closest monitoring well to the San Jerardo Cooperative's well (See CWC Figures 1 and 2).[1] While there are too few monitoring data points to draw significant conclusions, CWC Figure 1 does suggest that arsenic levels are higher when groundwater levels are lower. Scientifics studies confirm that contaminants like arsenic, uranium, and chromium (including hexavalent chromium)

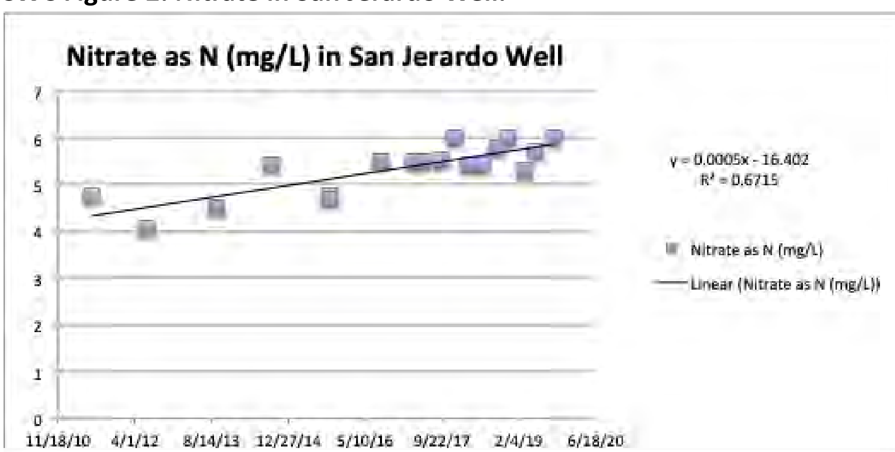
[1] CWC Figure 1 contains all available arsenic data from the State Water Board's Drinking Water Watch online database (https://sdwis.waterboards.ca.gov/PDWW/) which was collected in October 2010, 9/11/13, 8/22/16, and 9/23/19. We then added the monitoring data for Station 15S04E15D02 for the dates most close to the arsenic sampling dates (August 2010, August 2014, August 2016, and August 2019). CWC Figure 2 data was also downloaded from the same online database.

are more likely to be released under certain geochemical conditions influenced by pumping rates, geological materials, and water level fluctuations.[2]

CWC Figure 1: Arsenic in San Jerardo Well, Groundwater Elevation in Closest Monitoring Well
(Note: The groundwater elevation y-axis is reversed to illustrate that lower groundwater elevations are associated with higher arsenic levels.)



CWC Figure 2: Nitrate in San Jerardo Well.



We provide more specific chapter-by-chapter comments in this comment letter. We recommend the GSP should be revised throughout to acknowledge the science showing that groundwater pumping and groundwater level changes can influence water quality.

We strongly recommend that the GSPs incorporate a more robust and representative monitoring network and minimum thresholds to protect vulnerable communities like San Jerardo and those

[2] Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

dependent on shallow domestic drinking water wells. This network should include state and local small water systems.

We also firmly agree with the State Water Board's December 8, 2020 comments to the Department of Water Resources on the 180/400 Foot Aquifer GSP, have included them as a reference throughout this comment letter, and recommend that the SVB GSA implement their recommendations in all the other Subbasins GSPs currently in development.[3]

Thank you for reviewing this letter and for the consideration of our comments on the draft GSP chapters. We look forward to working with the SVB GSA to ensure that the GSPs are protective of the drinking water sources of vulnerable, and often underrepresented, groundwater stakeholders. Please do not hesitate to contact us with any questions or concerns. We also look forward to meeting with you in the future to further discuss issues raised in this and past comments.

Sincerely,

Heather Lukacs
Community Water Center

Horacio Amezquita
General Manager, San Jerardo Cooperative, Inc.

Justine Massey
Community Water Center

Mayra Hernandez
Community Water Center

GSP Chapter 3: Description of Plan Area

The description of the plan area can be improved by clarifying the descriptions of the drinking water users in the area. In order to develop a GSP that addresses the needs of all beneficial users, it is critical that the location and groundwater needs of Disadvantaged Communities (DACs) and all drinking water users including domestic well communities are explicitly addressed early on in the GSP. In addition to comments previously submitted to the GSA on July 10, 2020, we recommend the following updates to this chapter:

- **Include a map of all disadvantaged communities (DACs) and their drinking water sources in the subbasin including private wells** as determined both by census data (block groups, census designated places, and census tracts) and median household income surveys conducted in accordance with state and federal agency guidelines. We appreciate that the SVB GSA added "Appendix 11E Disadvantaged Communities" to the 180/400 foot aquifer GSP (Pages 928-941, January 3, 2020) with important information about the location and drinking water challenges, both water quality and seawater intrusion, facing DACs. This information is critical to inform the

[3] DWR SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29.

rest of the GSP. We recommend that it be moved into Chapters 3 and 5 and augmented in the ways described in this section.

- **Correct small error in text in Section 3.2.1 Water Source Types** that incorrectly states that "small state water systems" are included in the Tracking California database. The Tracking California database only includes public water systems serving 15 or more connections.
- **Clarify the number and type of public water systems in the subbasins throughout the entire plan.** In each subbasin plan, there are discrepancies between types and numbers of public water systems in different chapters. For example, the East Side GSP lists the following:
    - Table 3-2 Well Count Summary shows "Public Supply= **24 wells**"
    - Table 5-3 GAMA Water Quality Summary shows "Number of Existing Wells in Monitoring Network Sampled in Water Year 2019" to be **41** for 123-TCP, **46** for Nitrate, and 9 for TDS.
    - Section 7.5 "All the municipal supply wells in the Subbasin are part of the RMS network." A total of **51 public supply** wells were sampled in WY 2019.
    - Table 8-4 Groundwater Quality Minimum Thresholds - **No well count shown**.

  We recognize that different data sources have different limitations and recommend using the best available data consistently throughout the plan.
- **Add a table of all public water systems, their names, locations, number of connections, and number of active wells** in the text or in an appendix that is consistent with the numbers of wells in Table 3-2, Table 5-3, Section 7.5, and other locations where mentioned in the GSPs.
- **Add state and local small water systems to Figure 3-5.** While these systems are currently not in Figure 3-5, their services areas do appear on the SVB GSA GIS portal (svbgsa.maps.arcgis.com) and are labeled as "Parcels served by small water systems (fewer than 15 connections).
- Consider using the same terminology as the Monterey County Department of Health for the state and local small water systems serving 2-14 connections and not using "small public water systems" in Section 3.4.4.2 and throughout the plan. Some definitions of small public water systems include water systems serving up to 199 or even 3300 connections.[4]
- **Revise Section 3.6.3 on the Agricultural Order to indicate that Agricultural Order 4.0 was adopted in April 2021 and include monitoring requirements including on-farm domestic well monitoring of nitrate and 123-trichloropropane, as well as irrigation well monitoring of nitrate.**

GSP Chapter 4: Hydrogeologic Conceptual Model

The hydrogeologic conceptual model is a key component of the basin setting. The basin setting represents the baseline assumptions that the GSA relies on throughout the GSP when choosing minimum thresholds, measurable objectives, and undesirable results, as well as when planning projects and management actions. We recommend that the GSA:

- **Revise Section 4.6 on Water Quality to acknowledge that "natural groundwater quality in the Subbasin" can be influenced by pumping and the way groundwater is managed.**[5] As indicated

[4] California Code, Health and Safety Code - HSC § 116275

[5] Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

in our cover letter, this is of particular importance for the San Jerardo Cooperative who has experienced increases in nitrate and arsenic in their well.

GSP Chapter 5: Groundwater Conditions

In Chapter 5, we recommend that the GSA make the following changes to all subbasin GSPs (East Side, Langley, Monterey, Upper Valley, and Forebay). The goal is to clearly represent current and past water quality conditions in the subbasin in order to inform the monitoring network sustainable management criteria, planning, management actions, and projects.

Groundwater Quality Distribution and Trends

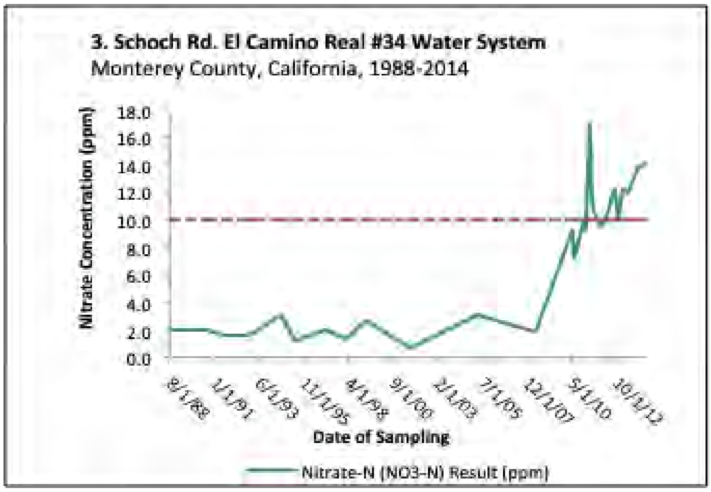
- **Clearly state in the introduction to Section 5.4 that the amount and location of pumping can impact groundwater quality distribution and trends.** We recommend including this language in the letter submitted by the State Water Board to DWR regarding the 180/400 foot aquifer GSP (Dec. 2020): "Not all water quality impacts to groundwater must be addressed in the GSP, but significant and unreasonable water quality degradation due to groundwater conditions occurring throughout the subbasin, and that were not present prior to January 1, 2015, must be addressed in the GSP's minimum thresholds."[6] High rates of groundwater pumping can pull in contaminant plumes towards drinking water wells, cause the release of arsenic from the strata in the ground, and when shallow wells go dry or are too contaminated to use, new wells must be drilled into deeper portions of the aquifer where they are more likely to encounter high arsenic levels.[7] As previously mentioned, this is of direct concern to the San Jerardo Cooperative who has observed increasing arsenic levels in their relatively new drinking water well, which was drilled to replace a more shallow well contaminated with nitrate and 123-trichloropropane.
- **Include trend data for drinking water wells in the subbasins.** In some places, nitrate and other contaminants are increasing in drinking water wells. It is important to understand current contamination values and also whether well water quality is improving, staying the same or declining as well as the relationship of water quality to other sustainability indicators. As indicated by the data provided in this section, Monterey County maintains an exceptional dataset of water quality data for over 900 state and local small water systems serving 2-14 connections that should be utilized throughout the GSPs. Monterey County has sampled many small water systems for decades. CWC Figures 3 and 4 show nitrate concentrations increasing over time in two state small water systems in the East Side sub basin with high levels in one of the systems (Middlefield Rd. Water System #4) in 2015. Figure 5 illustrates arsenic concentrations in the Metz Road Water System #4 in the Forebay Subbasin. In some cases, data shows fluctuations and peaks in concentrations during the 2015-2016 timeframe. This is similar to the San Jerardo example shared previously. Further, the Central Coast Regional Water Board has analyzed data from their Irrigated Lands Regulatory Program to show that many wells across the region are showing increasing levels of nitrate concentrations.[8]

[6] DWR SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29

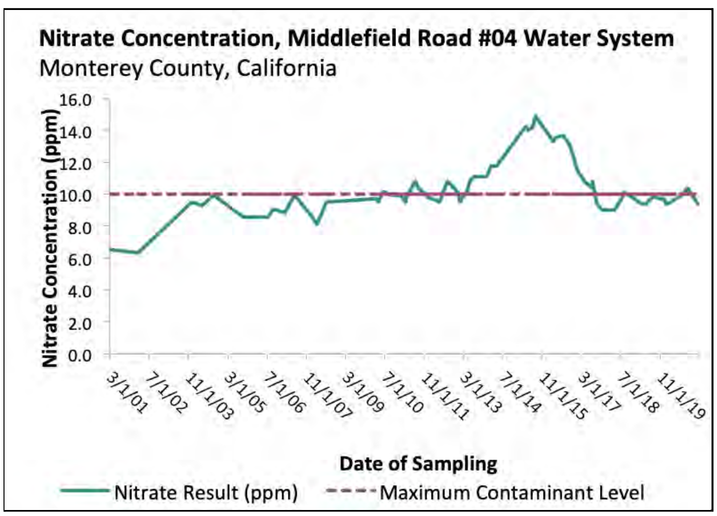
[7] Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information. Available at: https://www.communitywatercenter.org/sgmaresources

[8] Draft Ag Order, Attachment A, 141-143, https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/ag_order4_renewal/2021april/pao4_att_a_clean.pdf.

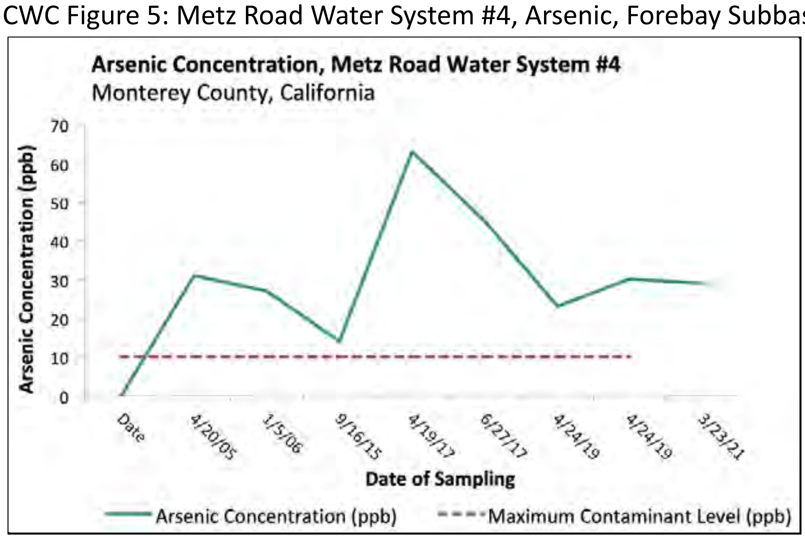
CWC Figure 3: El Camino Real WS #34 - Nitrate as N, East Side Subbasin



CWC Figure 4: Middlefield Road WS #4 - Nitrate as N, East Side Subbasin



CWC Figure 5: Metz Road Water System #4, Arsenic, Forebay Subbasin



- **Revise Section 5.4 to include a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have been detected in the subbasin and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** This section should include water quality data (both in map and tabular form) for all constituents (where available) with primary drinking water standards that have been detected in the subbasin including, but not limited to, **nitrate, 123-trichloropropane, hexavalent chromium,**[9] **arsenic, uranium, and perchlorate for all public drinking water wells, state and local small water system wells, and private domestic wells.** It is especially important for all groundwater stakeholders to be able to understand and visualize the location of contaminant hotspots throughout each subbasin.
    - **Present maps and supporting data for all constituents of concern.** The review of water quality data in the groundwater conditions section of the draft Section 5.4 in the subbasin GSPs is focused primarily on nitrate. The GSPs identify numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, do not present this data spatially. Even though the subbasin GSPs set water quality minimum thresholds for additional constituents (See Tables 8-4 and 8-5), the supporting data is not all presented, and no analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR § 354.16(d)).
    - **Augment and clarify data presented in Table 5-3 GAMA Water Quality Data Summary and Section 5.4.1 in the following ways:**
        - **Add all state and local small water systems data.** Table 5-3 should include all state and local small water system data for nitrate, arsenic, hexavalent chromium, and any other contaminants that Monterey County monitors in the subbasin.
        - **Include additional contaminants that have been detected in the subbasin(s) to be consistent with Tables 8-5 and 8-6.** Our review of publicly available data on drinking water wells of all types (private domestic wells, state/local small water systems, and public water systems) indicate that there are additional constituents of concern beyond those currently listed. We included CWC Figure 6 (page 9) to highlight the spatial distribution of arsenic in public water system wells in the **East Side, Langley and Monterey Subbasins**, and CWC Figure 7 (page 10) to highlight the spatial distribution of hexavalent chromium in in public water system wells in the **Langley Subbasin**. We recommend a more comprehensive analysis of all other constituents in the subbasins, including, but not limited to the following[10]:

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[9] The maximum contaminant level for hexavalent chromium should be reinstated in 2021. Data is available from the State Water Resources Control Board and Monterey County Environmental Health Bureau (public water system data, state/local small water system data) as well as on GAMA from the Central Coast Regional Water Quality Control Board's private well testing program.

[10] All Monterey County data shared in this section was collected by the small water system program.
https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/state-and-local
It was downloaded from the Greater Monterey County Community Water Tool on April 22, 2021:
http://www.greatermontereyirwmp.org/documents/disadvantaged-community-plan-for-drinking-water-and-wastewater/

- **East Side Subbasin:** Table 5-3 presents data on two primary contaminants in drinking water: nitrate and 123-trichloropropane, but arsenic is also of particular concern to San Jerardo Cooperative and others in the subbasin. GAMA shows that four public water system wells have exceedances of the arsenic MCL in the past three years (CWC Figure 8), and state/local small water system out of compliance lists from the Monterey County Health Department (2021) show that both Old Stage Rd WS #6 and Old Stage Rd WS #7 are out of compliance for arsenic and that at least five other state or local small water systems have between 6-8 ppb of arsenic, which means they are similar to San Jerardo Cooperative in terms of their vulnerability to water level fluctuations or other changes.
- **Forebay Subbasin:** While arsenic is less common in the Forebay than in the Langley, Monterey, and East Side Subbasins, our review of the Monterey County Health Department data indicates that 17 state or local smalls had arsenic at levels above 1 ppb in the 2015-2017 time period, and at least two of these had levels above the MCL. See CWC Figure 5 (page 8) which illustrates trends in one of the out-of-compliance small water systems, Metz Road Water System #4. In addition, three systems monitored by Monterey County as part of their Local Primacy Program for public water systems serving 15-199 connections had hexavalent chromium detections of 2.8 ppb, 3.4 ppb, and 2.1 ppb in the 2014-2017 timeframe.
- **Upper Valley Subbasin:** Although arsenic is not as common in the Upper Valley as other subbasins, it has been detected in levels between 3.2 and 5 ppb in six small water systems monitored by Monterey County.

■ Clarify what is meant by “DDW wells” in Table 5-3. If these are “public supply wells” in GAMA, please clearly state this.

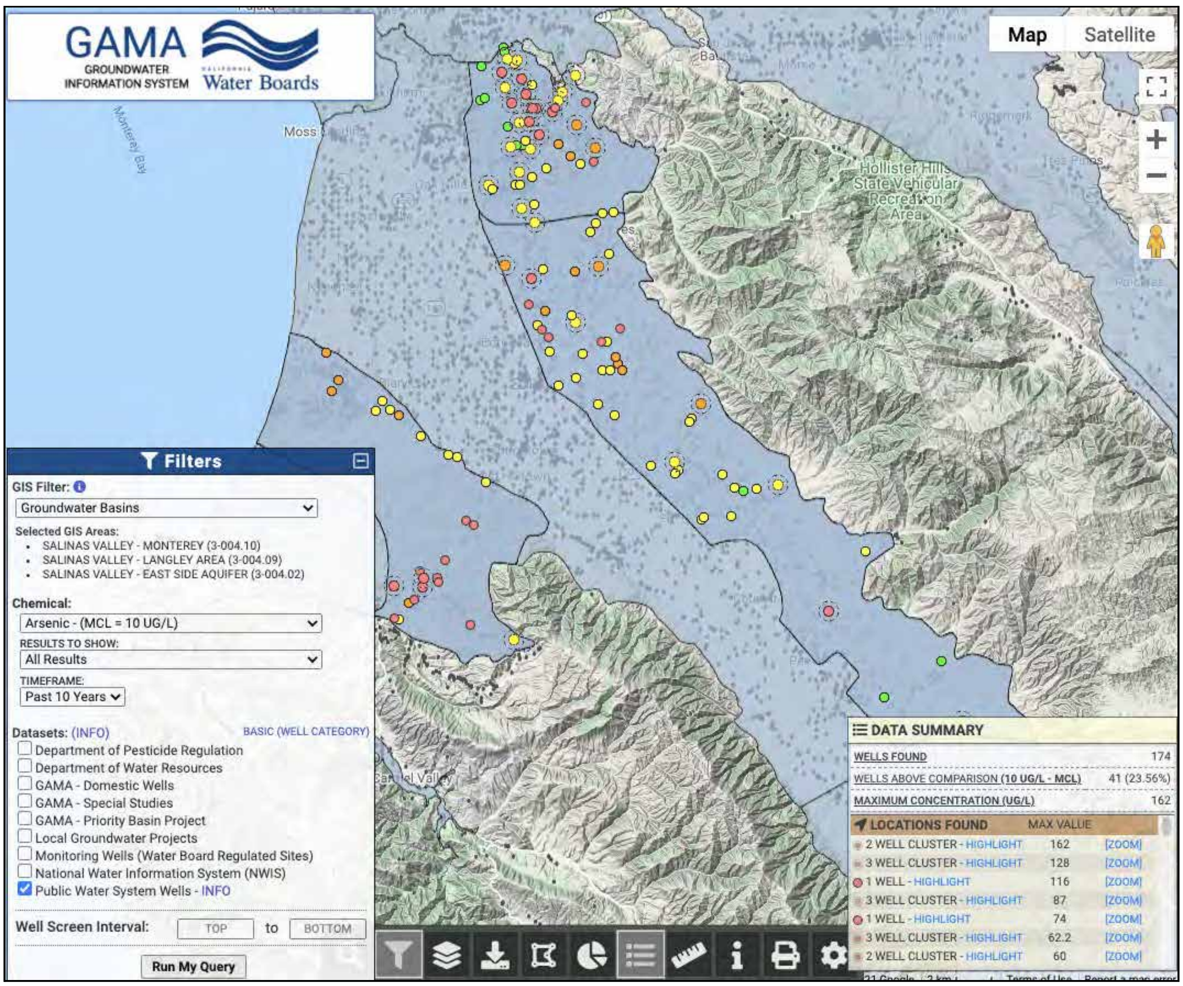
■ **Include the following in Table 5-3: (1) total number of wells of each type, (2) the total number of wells sampled for each constituent, and (3) Of the total number sampled, the number of systems that are out-of-compliance with drinking water standards.** Since public water systems and ILRP wells are monitored on different schedules, there are significant data gaps and inconsistencies when comparing one year to the next in the way that drinking water contaminants are currently represented in GSPs Chapters 5, 7, and 8. For example, we were surprised to see only 15 ILRP Domestic Wells included in Table 5-3 the East Side Subbasin GSP. GAMA shows that there were 139 ILRP wells in the East Side Subbasin sampled for nitrate in the past 3 years, 331 sampled in the last 10 years, and only 8 sampled in the last year. Moreover, CWC Figure 8 illustrates 43 Public Water System Wells in the East Side Subbasin with arsenic data in the past 3 years. On CWC Figure 8, San Jerardo Cooperative’s well is shown in orange to indicate that it is at-risk but has not yet exceeded the MCL. However, only 18 Public Water System Wells have sampling data for arsenic from the past year, and during this timeframe, San Jerardo Cooperative’s well is not represented (See CWC Figure 9).

■ **Use the compliance status or most recent sample result instead of using the "Number of Wells Exceeding Regulatory Standard in Regulatory Year 2019"**

This is especially important for Table 8-4 and Table 8-5 but also applies to Table 5-3. We recommend the following for different types of drinking water systems:

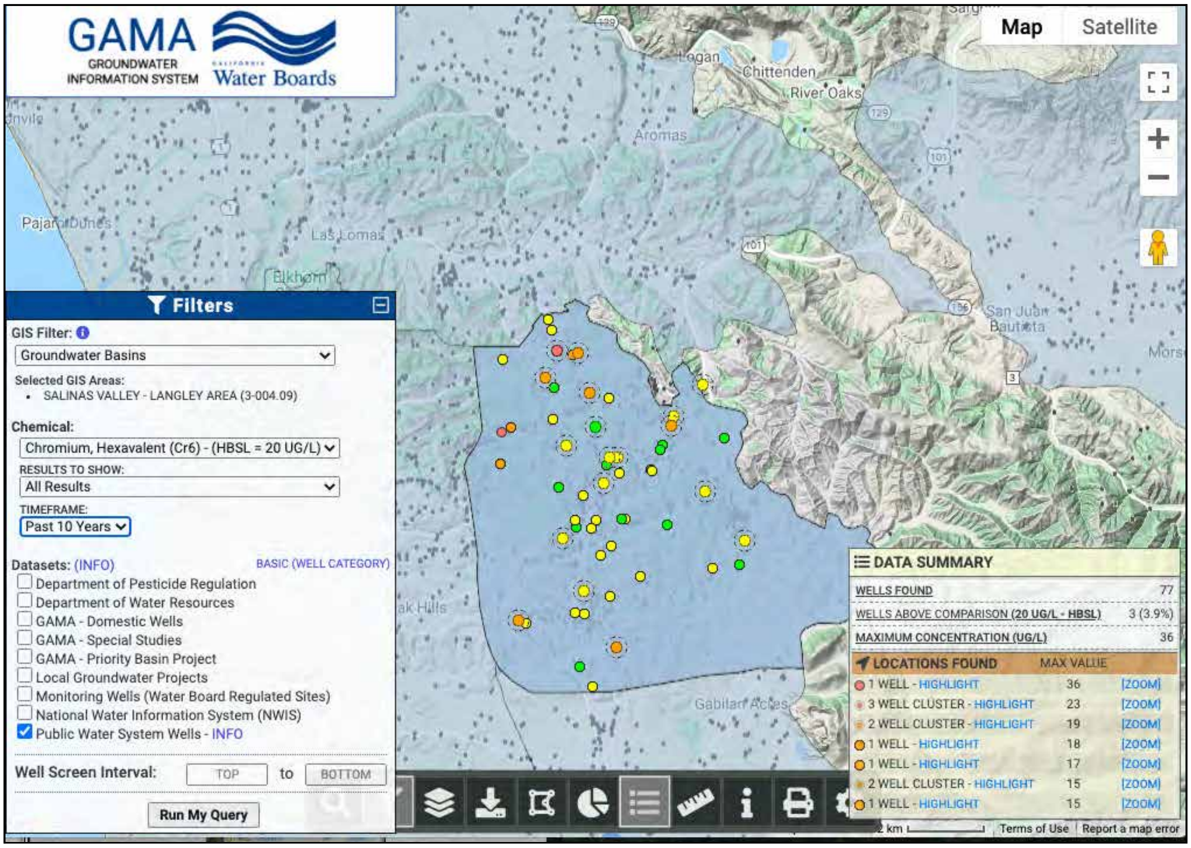
- For public water systems, we recommend using the State Water Board's determination regarding compliance status.
- For state and local small water systems, we recommend using the Monterey County Health Department list of out-of-compliance systems, which is published on their website and available by request on an annual basis based on the most recent sample collected.[11]
- For ILRP wells, we recommend the GSA consider an approach similar to Monterey County and show the most recent sample result for each monitoring well (and not only those sampled in the past year).

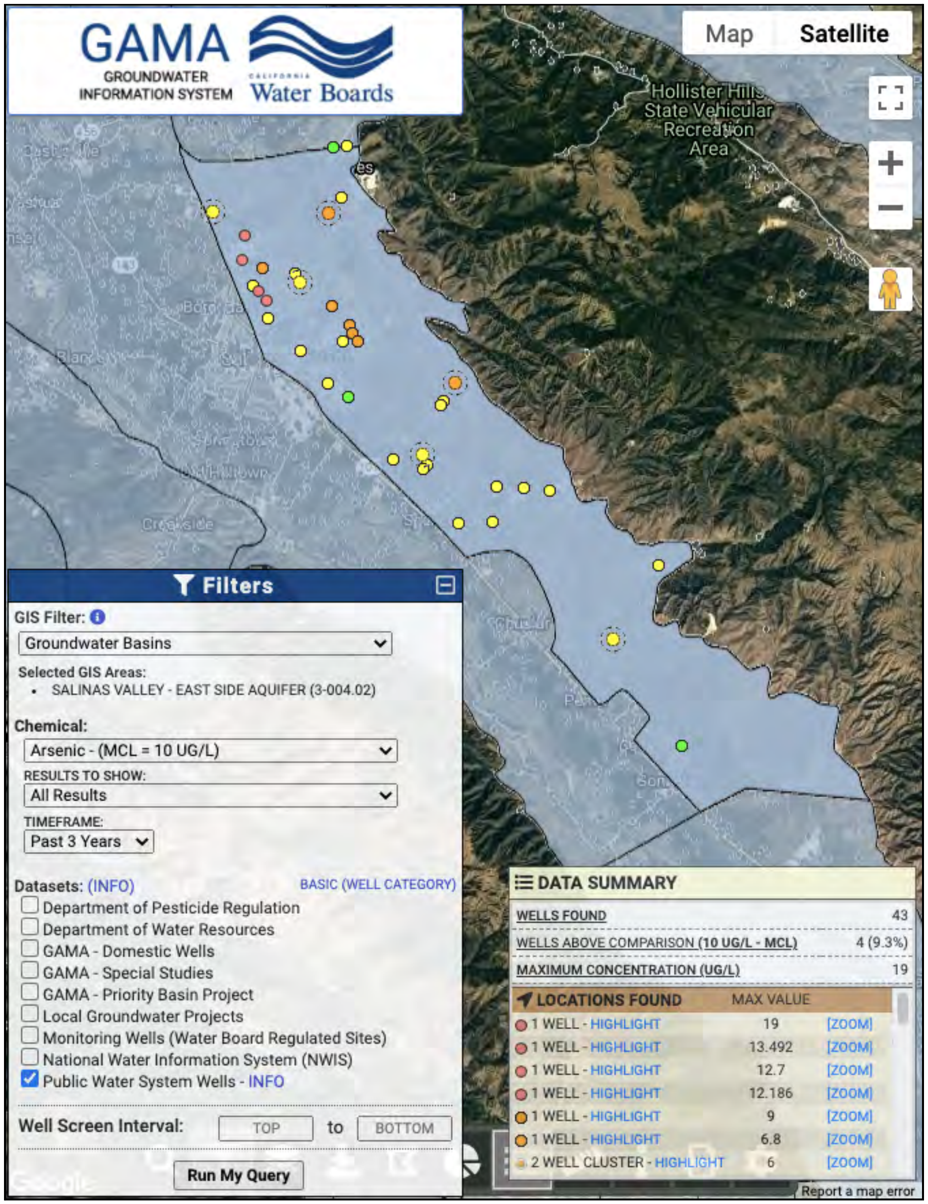
CWC Figure 6: Arsenic Concentrations in Public Water System Wells, Monterey, Langley East Side Subbasins (Red dots = >10 ppb, Orange = 5-9.9 ppb, Yellow = 0.6-5.9 ppb, Green= non-detect)



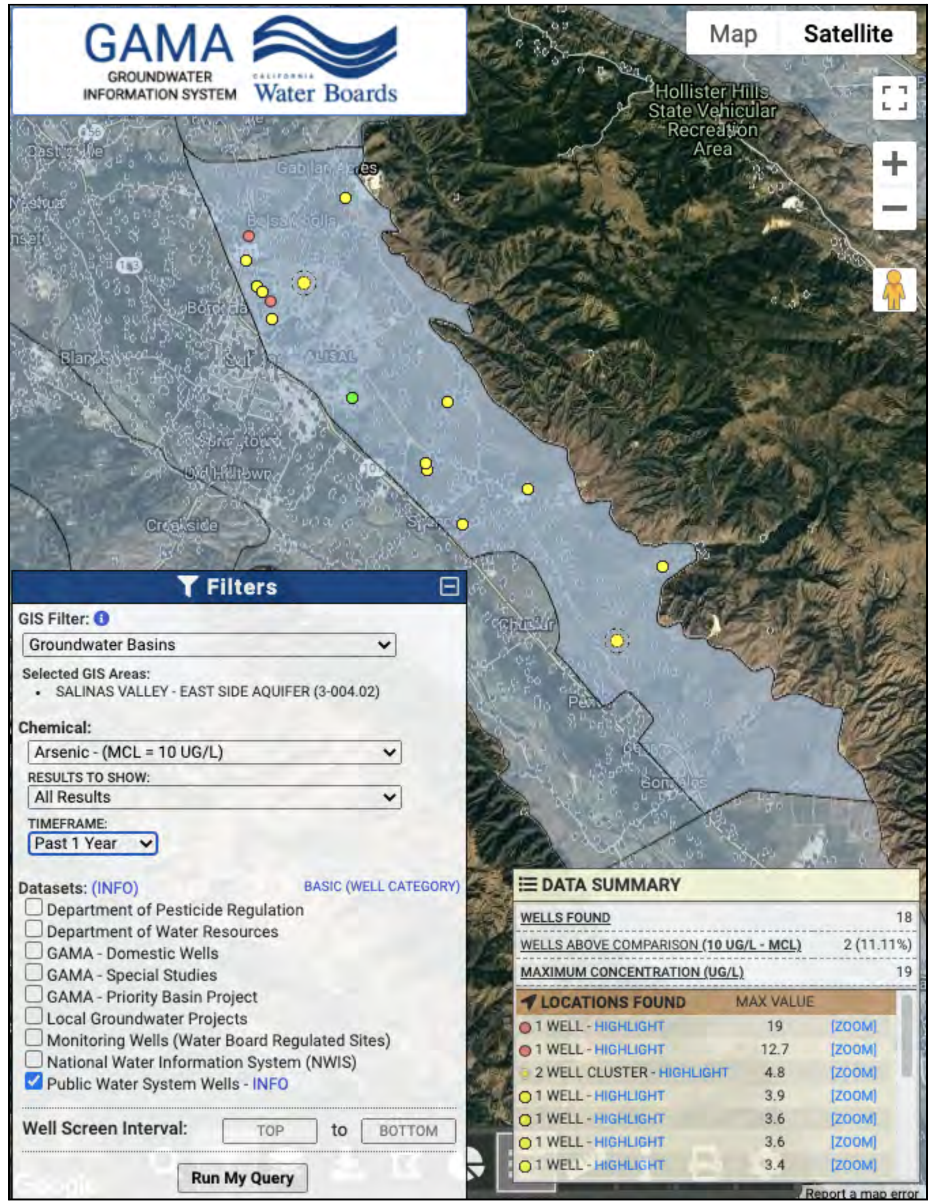
[11] https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/state-and-local.

CWC FIgure 7: Hexavalent Chromium Concentrations in Public Water System Wells, Langley Subbasin





CWC Figure 8: 43 Public Water System Wells have arsenic data in the past 3 years. One well at San Jerardo Cooperative appears orange on this map.



CWC Figure 9: Only 18 Public Water Systems Wells have arsenic data in the past year. San Jerardo Cooperative's wells are not shown on this map.

GSP Chapter 6: Water Budgets

SGMA requires a GSP to quantify the water budget in sufficient detail in order to build local understanding of how historic changes have affected the six sustainability indicators in the basin.[12] Ultimately, this information is intended to be used to predict how these same variables may affect or guide future management actions.[13] GSAs must provide adequate water budget information to demonstrate that the GSP adheres to all SGMA and GSP regulation requirements, that the GSA will be able to achieve the sustainability goal within 20 years, and be able to maintain sustainability over the 50 year planning and implementation horizon.[14]

We are concerned that the calculations of sustainable yield and the water budget in this chapter may *overestimate the actual sustainable yield and water availability of the subbasins*. We highlight points of concern below and recommended changes.

6.4 Projected Water Budgets

The SVB GSA Subbasin GSPs explain that "[p]rojected water budgets are extracted from the SVOM, which simulates future hydrologic conditions with assumed climate change. Two projected water budgets are presented, one incorporating estimated 2030 climate change projections and one incorporating estimated 2070 climate change projections. … The climate change projections are based on data provided by DWR (2018)."[15] Including climate change scenarios in water planning is an important step for California's increased resiliency, however, which scenarios to include is a critical question.

Climate change is changing when, where, and how the state receives precipitation.[16] Impacts to water supply, particularly drinking water supply, could be devastating if planning is inadequate or too optimistic. GSAs must adequately incorporate climate change scenarios in water budgets. As such, the DWR Climate Change Guidance[17] makes recommendations to GSAs for how to conduct their climate change analysis while preparing water budgets. DWR also provides climate data for a 2030 Central Tendency scenario and 2070 Central Tendency, 2070 Dry-Extreme Warming (DEW), and 2070 Wet-Moderate Warming (WMW) scenarios. While DWR's Guidance should be improved with more specific guidelines and requirements, the current Guidance specifically encourages GSAs to analyze the more extreme DEW and WMW projections for 2070 to plan for likely events that may have costly outcomes. Therefore, we recommend that the SVB GSA subbasin GSPs:

- **Include water budget analyses based on DWR's 2070 DEW and WMW scenarios in order to analyze the full range of likely scenarios[18] that the region faces.**

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[12] 23 CCR § 354.18.

[13] California Department of Water Resources (DWR), 2016. Best Management Practices for the Sustainable Management of Groundwater, Modeling (BMP #5), December 2016.

[14] 23 CCR § 354.24.

[15] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development. https://data.cnra.ca.gov/dataset/sgma-climate-change-resources/resource/f824eb68-1751-4f37-9a15-d9edbc854e1f?inner_span=True.

[16] Union of Concerned Scientists. Troubled Waters: Preparing for Climate Threats to California's Water System, 2020. https://www.ucsusa.org/resources/troubled-waters#top.

[17] See DWR (2018) reference above.

[18] Terminology used in the California Climate Change Assessment, 2019. (Table 3). https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf.

- Currently, the SVB GSA's exclusive use of the "central tendency" climate scenario predicts an increase in surface water availability, as represented in the tables in Section 6.4.3 of the subbasin GSPs. The Projected Groundwater Budgets show increases in deep percolation of stream flow, deep percolation of precipitation, and irrigation. The subbasin GSPs are relying on this presumed increase for their water budgets. However, the 2070 DEW scenario provided by DWR could likely result in a significant decrease in precipitation and increase in evapotranspiration, which would have substantial effects on the subbasin water budgets. By analyzing only the central tendency scenario and not other likely scenarios such as the extremely dry and wet scenarios provided by DWR, the SVB GSA is ignoring the specific 2070 DEW and WMW scenarios provided by DWR as well as an increasing trend in drought frequency. In doing so, the GSP could be overestimating groundwater recharge or underestimating water demands, inadequately planning, and jeopardizing groundwater sustainability. This will waste precious time to prepare and reduce the vulnerability of the basin's agriculture and already vulnerable communities.
- DWR's guidance (2018) states that the central tendency scenarios *might* be considered most likely future conditions -- that is not a clear endorsement of a higher statistical probability. It appears that they are calling it the central tendency merely because it falls in the middle of the other two projections, not because it's significantly more probable.
- DWR (2018) explicitly encourages GSAs to plan for more stressful future conditions:
  - "GSAs should understand the uncertainty involved in projecting future conditions. The recommended 2030 and 2070 central tendency scenarios describe what might be considered most likely future conditions; there is an approximately equal likelihood that actual future conditions will be more stressful or less stressful than those described by the recommended scenarios. Therefore, GSAs are encouraged to plan for future conditions that are more stressful than those evaluated in the recommended scenarios by analyzing the 2070 DEW and 2070 WMW scenarios."[19]
- Including the DEW and WMW climate scenarios as part of the 2070 water budget analysis is necessary to meet the statutory requirement to use the "best available information and best available science."[20] Sustainable planning must include planning for foreseeable negative and challenging scenarios. The extreme scenarios provided by DWR are certainly foreseeable, as they have been modeled and made available to the GSA for analysis.
- It is important for the SVB GSA to include the 2070 DEW and WMW scenarios, because shallow drinking water wells in the area are particularly vulnerable to various extreme conditions, especially drought.

[19] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development. Section 4.7.1. https://data.cnra.ca.gov/dataset/sgma-climate-change-resources/resource/f824eb68-1751-4f37-9a15-d9edbc854e1f?inner_span=True. (In red is a statement about the central tendency scenarios referenced in SVB GSA public meetings and email communications by the GSA's engineering consultant, and in blue is the important text accompanying it, urging GSAs to analyze the more extreme scenarios. CWC staff cited this complete paragraph in email communications with the consultant and GSA staff on April 8, 2021. CWC also raised this point at Forebay and Upper Valley Subbasin Committee meetings in March and at the April SVB GSA Board Meeting.)

[20] See 23 CCR § 355.4(b)(1).

- **Share water budget results based on the 2070 central tendency, DEW and WMW scenarios that DWR has provided with the Subbasin committees, the Advisory Committee, and the GSA board**. This should be done at a *minimum* to see what the difference in outcomes could be, and to provide a transparent process for selecting the preferred scenario. This analysis is particularly important because of the drastic differences between the dry and wet scenarios for this region. Drought and/or intensified rainfall (more water falling over a shorter period of time) would pose severe challenges[21] to the Subbasins' plans for recharge, which is a critical component of their plans to reach sustainability.
- **Plan for potential adverse climate conditions when determining Projects and Management Actions.** The results of limited-scope planning will be detrimental to beneficial users throughout the SVB GSA. "If water planning continues to fail to account for the full range of likely climate impacts, California risks wasted water investments, unmet sustainability goals, and increased water supply shortfalls."[22] This is true not just generally across California, but also specifically on the Central Coast. "Without effective adaptations, projected future extreme droughts will challenge the management of the Central Coast region's already stressed water supplies, including existing local surface storage and groundwater recharge as well as imported surface water supplies from the State Water Project which will become less reliable, and more expensive."[23]

GSP Chapter 7: Monitoring Network

Robust monitoring networks are critical to ensuring that the GSP is on track to meet sustainability goals. GSAs undertaking recharge, significant changes in pumping volume or location, conjunctive management or other forms of active management as part of GSP implementation must consider the interests of all beneficial users, including domestic well owners and S/DACs. We have the following overarching recommendations for this chapter and provide more details for sub-sections below:

- **Require well registration and metering for all wells in the Salinas Valley, and begin implementation of a well registration and metering program in early 2022 with a dedicated budget.** We voice our strong support, with modifications indicated in our comments below, for proposed "Implementation Action 12: Well Registration" in Section 9.1 of Chapter 9 released in April 2021 and recommend that this action be updated and moved to Chapter 7. We agree with the SVB GSA's statement in Section 7.3.2 Groundwater Storage Monitoring Data Gaps that: "Accurate assessment of the amount of pumping requires an accurate count of the number of municipal, agricultural, and domestic wells in the GSP area. During implementation, the SVB GSA will finalize a database of existing and active groundwater wells in the Eastside Aquifer Subbasin." This is essential for the plan to achieve sustainability for all beneficial users and influences many different chapters including:

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[21] Union of Concerned Scientists. Inter-model agreement on projected shifts in California hydroclimate characteristics critical to water management. 2020, p. 13.
https://link.springer.com/content/pdf/10.1007/s10584-020-02882-4.pdf.

[22] See Union of Concerned Scientists. Troubled Waters (2020) cited above.

[23] Regional Climate Change Assessment for the Central Coast, 2019. (Discussing drought pp. 21-23. Internal citations omitted).
https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf.

- Monitoring networks: In order to develop a monitoring network that is representative, it will be essential to understand the number, location, well construction, and type (domestic, irrigation, other) of all wells located in the subbasins.
- Water budget and minimum thresholds: Understanding the amount and location of pumping of all water users will be essential for creating an accurate water budget and minimum thresholds consistent with achieving sustainability.
- Projects and management actions: Section 9.2.1 Well Registration and Metering is a key management action and component of the Water Charges Framework (in the 180/400 foot aquifer) and forthcoming subbasin GSPs. This will underpin the funding structure for many future projects.

- **Require flowmeter calibration to ensure consistent and fair monitoring among all agricultural groundwater users (Section 7.3.1).** Rather than "consider the value of developing protocols for flowmeter calibration," the GSPs should require flowmeter calibration. The water budget and sustainable yield calculation depend on reliable and fair monitoring and reporting of pumping.
- **Provide a plan and schedule for data gap resolution in forthcoming Chapter 10 of the subbasin GSPs.** In the 180/400 foot aquifer GSP, there was not a clear plan or schedule for the resolution of data gaps in Chapter 7 even though it indicated that this would be included in Chapter 10.
- **Revise GSP monitoring chapters such that monitoring networks for groundwater storage (pumping), groundwater elevation, and groundwater quality adequately monitor how groundwater management actions could impact vulnerable communities including those reliant on domestic wells and shallow portions of the aquifers** (see more detail below).

7.2 Groundwater Elevation Monitoring Network

- **Include groundwater elevation monitoring sites in the network that are representative in terms of the depth and geographic distribution of private domestic wells, and that takes into account areas of high agricultural pumping and wells vulnerable to groundwater decline.**
  - The draft East Side Subbasin GSP Table 7-1 of "Eastside Aquifer Groundwater Elevation Representative Monitoring Site Network" shows all irrigation and observation wells (and no domestic wells) which range in depth from 299 to 1122 feet.[24] Yet, the DWR Well Completion Report Map Application[25] shows that 1 mile by 1 mile square sections near San Jerardo Cooperative include private domestic wells with the following minimum depths: 110 ft, 210 ft, 172 ft, 208 ft, and 132 ft which are more shallow than all the wells in the current monitoring network (See CWC Figure 10).
- **Overlay the private well density map (Figure 3-7), the DWR Well Completion Report Map Application (with minimum, average, and maximum depths), the water level monitoring network (with well depths), and available pumping data to better illustrate if and how representative the proposed groundwater elevation monitoring network is of private domestic wells and which areas are vulnerable to water elevation changes.** The GSPs state: "The BMP notes that professional judgment should be used to design the monitoring network to account for high-pumping areas, proposed projects, and other subbasin-specific factors. " This will also help to better visualize where there are gaps in the monitoring network which the GSAs can address.

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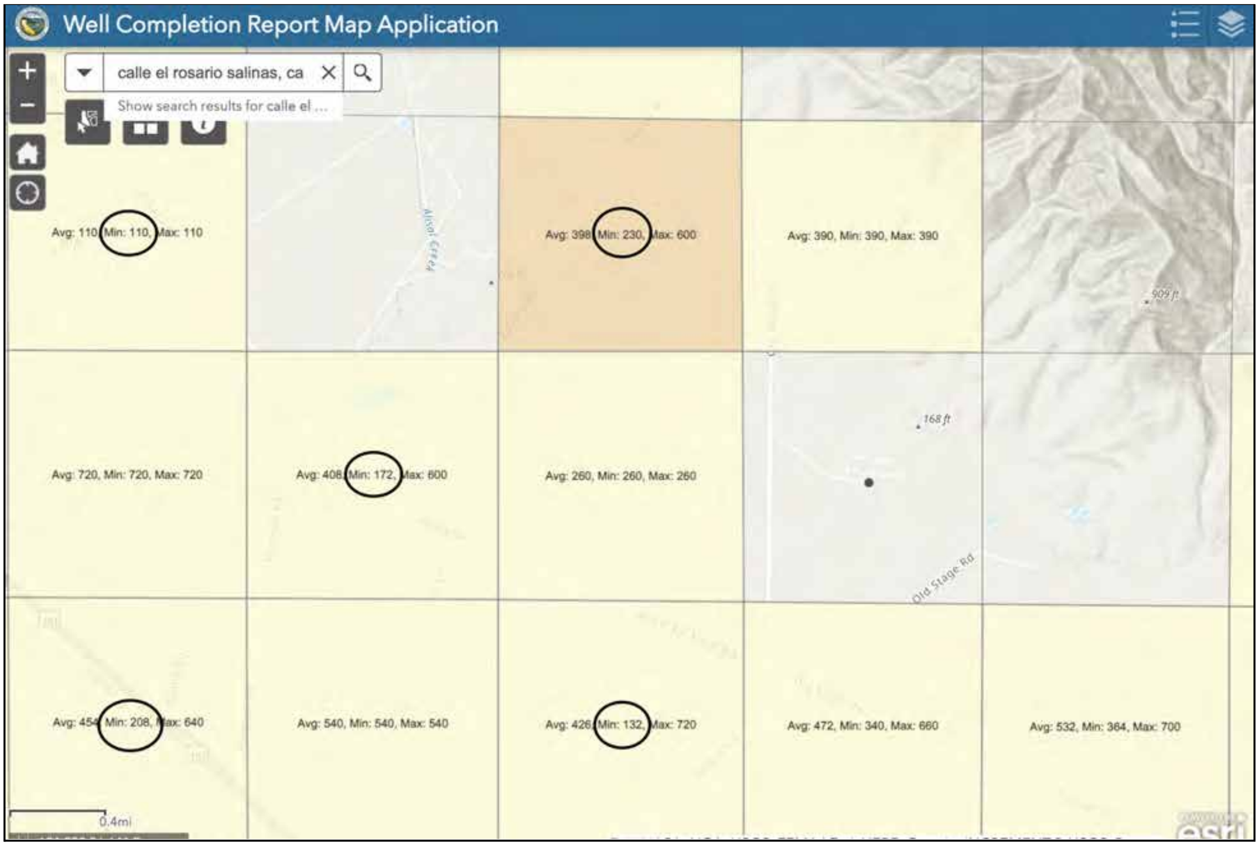
[24] One well shows "0" depth but that must be an error or missing value.

[25] https://water.ca.gov/Programs/Groundwater-Management/Wells/Well-Completion-Reports



CWC Figure 10: Screenshot of DWR Well Completion Report Map application in the area near San Jerardo Cooperative highlighting that several 1 mi. by 1 mi. square sections include private domestic wells less than 250 feet deep.

7.5 Water Quality Monitoring Network

- **Clarify the number of public water system wells that will be included in the water quality monitoring network.** We strongly support the GSPs inclusion stated in Section 7.5 that "All the municipal supply wells in the Subasin are part of the RMS network." As indicated in Chapter 3 and Chapter 5 comments, the GSPs should also clearly identify the number of public supply wells as well as the number of public supply wells that are out of compliance and at risk in each subbasin. Section 7.5 currently states that "A total of 51 public supply wells were sampled in WY 2019" and indicates that all wells are listed in Appendix 7E (which is not publicly available at this time). This section and appendix should be consistent with the total number of wells represented in Table 8-4 which includes groundwater quality minimum thresholds.
- **Representative Water Quality Monitoring Wells for the shallow aquifer should be established in the GSPs based on all currently available data sources with direct agreements with landowners or public entities established.**
  - **Develop long-term access agreements for Representative Monitoring Wells (RMWs) that use private wells.** Collecting data from private wells is not a reliable approach due to access challenges, lack of well construction information, and unreliable accounting of

pumping or non-pumping measurements. The GSPs should specifically identify the RMW owners and operators, include signed long-term access agreements, and identify a plan to obtain adequate monitoring data, if for any reason the well owners decide to not grant access to the wells or provide associated data to the SVB GSA. In order to maintain consistency for future sustainability analyses, the SVB GSA should also consider conducting its own water quality analysis of wells where access agreements have already been established to water quality RMWs.

- **Clarify that state and local small water systems will be added to the water quality monitoring network and that well construction information is no longer needed in order to fill this data gap.** Monterey County Environmental Health Bureau permits and monitors over 900 state and local small water systems in the County and have managed the data collected for decades. This dataset has advantages over the ILRP domestic well dataset in that it includes data on contaminants like arsenic and hexavalent chromium in addition to nitrate. Local small water systems serve 2-4 households and are much more similar to private domestic wells than public water systems in terms of depth, well construction, age, size, and maintenance - thus this data would provide a broader representation of shallow drinking water wells. State and local small water systems are located in areas of irrigated agricultural lands as well as rural residential and other land uses. This dataset should complement and not replace ILRP domestic well data.
    - **Clearly add state and local small water system data as a data gap in Section 7.5.2.** In Section 7.5 Water Quality Monitoring Network, the draft GSPs state: “These [state and local small] wells are not in the current monitoring system because well location coordinates and construction information are currently missing. SVB GSA will work with the County to fill this data gap. When location and well construction data become available, these wells will be added to the monitoring network and included in Appendix 7E and Figure 7-4." However Section 7.5.2 Groundwater Quality Monitoring Data Gaps states: "There is adequate spatial coverage to assess impacts to beneficial uses and users."
- **Do not rely solely on ILRP well data to represent private domestic wells (which are often more shallow than public water system wells).** Similar to CASGEM, the current groundwater quality monitoring network includes monitoring points on private property including ILRP domestic and irrigation wells, but it should not be restricted to ILRP sites only. While on-farm domestic and irrigation wells monitored through the ILRP provide a potentially useful, though limited, source of water quality information, additional representative monitoring wells in the shallow aquifer are important to include for several reasons: (1) The ILRP network only includes wells located on agricultural irrigated lands, and not all ILRP properties include domestic wells. Agricultural land use is not the primary land use in the Langley and Monterey Subbasins so this monitoring network offers very limited coverage. While agricultural land use is the primary land use in the East Side, Upper Valley, and Forebay Subbasins, there are private domestic wells in areas with different primary land uses (e.g. rural), and SGMA requires that monitoring networks are geographically representative. Monitoring network wells must also be sufficiently representative to cover all uses and users in the basin, (2) There are other, more robust networks established by USGS, GAMA, and Monterey County that could be drawn on and included to make the groundwater quality monitoring network more comprehensive and representative of conditions in the shallow aquifer, (3) Ag Order 4.0 was adopted on April 15, 2021, which means the first year of monitoring data will not be

available until late 2022, (4) The GSA has no authority to determine the robustness or enforcement of monitoring in the irrigated lands network, and (5) while Ag Order 4.0 proposes to require testing for 1,2,3-TCP as well as nitrate, the current ILRP domestic well data only samples for nitrate, and neither Order tests for other contaminants found in the region. In our experience, not all growers are consistent with their water quality and other reporting, despite the regulatory requirements in place.

- **Update Domestic ILRP and Irrigation ILRP wells in a different color on Figure 7-5 Locations of ILRP Wells Monitored under Ag Order 3.0.** Since these wells are monitored for different constituents and serve different beneficial users, it is important to illustrate them separately.

GSP Chapter 8: Sustainable Management Criteria

We have grouped our comments in this section into general recommendations related to all sustainable management criteria (SMCs) followed by a section specific to the water quality SMCs. We recommend that the Salinas Valley GSA implement the following recommendations in the subbasin GSPs:

- **Undertake a drinking water well impact analysis that adequately quantifies and captures well impacts at the minimum thresholds, proposed undesirable results, and potential interim conditions.** Include this analysis during the annual reporting process. We disagree with the assumption included in all draft GSPs that the exact location of wells needs to be known in order to include them in a drinking water well impact analysis. In the 180/400 Foot Aquifer Subbasin GSP, the SVB GSA included a domestic well impact analysis. Although the SVB GSA did not describe the methods used in this analysis,[26] it is CWC's understanding that the analysis was based on Public Land Survey System (PLSS) section location data, demonstrating that such an analysis is feasible. Similar analyses in the Water Foundation Whitepaper (June 2020)[27] and in the Kings River East GSP[28] were completed using the same PLSS section location data for private domestic wells that is available to the SVB GSA. The current analysis is incomplete as it includes very few wells in all subbasins. The current analysis is also substantially inaccurate as it relies on the "average computed depth of domestic wells in the Subbasin," and groundwater elevations vary significantly across the subbasin and also on an annual basis. For example, only 8 of the 154 domestic wells in the Forebay GSP with an average depth of 292.45 feet, and only 20 of 2016 domestic wells in the East Side GSP with an average depth of 365.5 feet were included. CWC Figure 10 illustrates that the average computive depth is not representative of conditions in shallow domestic wells. Therefore, we recommend revising Section 8.5.2.2 Minimum Threshold Impact on Domestic wells following the process explained below:
    - **Include a map of potentially impacted wells so the public can better assess well impacts specific to DACs, small water systems, or other beneficial users of water.**

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[26] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020. https://sgma.water.ca.gov/portal/service/gspdocument/download/4012

[27] The Water Foundation Whitepaper, April 2020: "Estimated Numbers of Californians Reliant on Domestic Wells Impacted as a Result of the Sustainability Criteria Defined in Selected San Joaquin Valley Groundwater Sustainability Plans and Associated Costs to Mitigate Those Impacts." April 9, 2020. http://waterfdn.org/wp-content/uploads/2020/05/Domestic-Well-Impacts_White-Paper_2020-04-09.pdf

[28] Kings River East Groundwater Sustainability Agency. Groundwater Sustainability Plan. Adopted December 13, 2019.

- ○ **Quantify impacts for all drinking water wells in the subbasin for which approximate location (PLSS section) and well depth are available.** Similar analyses based on the PLSS section location of private domestic wells have been completed by Water Foundation (June 2020)[29] and in the Kings River East GSP[30].
- ○ **Account for well screen and pump depth when available.** When not available, well screen and pump depth should be estimated conservatively to capture potential impacts to well operability under water scarcity conditions.
- ○ **Quantify impacts for potential unfavorable interim conditions, such as droughts and short-term lowering of groundwater levels while implementation measures are put in effect.**
- ○ **Quantify the elevation difference (in feet) between current groundwater levels and well bottoms, screens, and pumps.** If current groundwater levels are nearing well bottoms, screens or pumps, that indicates that the wells are vulnerable to interim lowering of groundwater levels.
- ○ **Quantify the elevation difference (in feet) between the minimum threshold groundwater levels and well bottoms, screens, and pumps.** If the minimum threshold is near the well bottom, screen or pump, that well will be impacted if groundwater levels in the vicinity drop below the minimum threshold (even if minimum thresholds are met at 90 percent of monitoring wells and an undesirable result has not technically occurred).
- ○ **Quantify the number of potentially impacted wells of each well type (irrigation, domestic, state/local small water system, public water system) for water quality, water levels, and sea water intrusion MTs.**
- ○ **Quantify the costs associated with impacted wells including desalinization/treatment, lowering pumps, well replacement and increased pumping costs associated with the increased lift at the projected water levels.**

Groundwater Quality

We are pleased that the Salinas Valley Subbasin GSPs establish minimum thresholds based on maximum contaminant levels (MCLs) for contaminants of concern for drinking water supply systems. There are however other areas in regards to groundwater quality sustainable management criteria that are not clear and could cause significant impacts to drinking water users if not adequately addressed. Therefore, we recommend the following revisions:

- **Revise Section 8.3 General Process for Establishing Sustainable Management Criteria to include a sensitivity analysis around "average hydrogeologic conditions" following our recommendations outlined in Chapter 6.**
- **Add state and local small water systems to the monitoring network with the same water quality minimum thresholds and measurable objectives for reasons stated in Chapter 7 comments.** A table for state and local small water system minimum thresholds was included in the 180/400 foot aquifer GSP, but in the draft subbasin GSPs, there is no such table and Table 8-1 only mentions public supply and on-farm domestic wells.

[29] See previous reference.
[30] See previous reference.

- **If a contaminant was already above the MCL as of January 1, 2015, subbasin GSPs should set a MT to prevent further degradation or aim to improve groundwater quality conditions where possible.** Increased contamination levels can require water systems to utilize more expensive treatment methods and/or to purchase additional alternative supplies as blending may become more difficult or impossible. Communities reliant on domestic wells who are aware of contamination in their water and use point of use/point of entry (POU/POE) treatment systems may no longer be able to use their devices if contaminate levels rise too high. Higher contaminant levels can also result in higher costs of waste disposal from certain types of treatment systems. Further, residents who rely upon domestic wells, state small water systems, or local small water systems may not even know what contaminants are in their water and at what levels. Users of these drinking water sources are not required to conduct testing, and many times do not have the resources necessary to conduct regular testing. Rising contaminant levels put these users and their health at serious risk. Increased contamination levels result in unreasonable impacts to access to safe and affordable water and are, thus, inconsistent with SGMA and the Human Right to Water. This recommendation is consistent with the State Water Board's recommendations regarding this topic in their letter to DWR regarding the 180/400 foot aquifer GSP in which they state: "Increasing concentrations of nitrate, arsenic, and other constituents at monitoring wells with existing exceedances may represent worsening of existing conditions due to groundwater pumping. Staff recommend setting concentration threshold levels for these wells in order to determine if impacts due to pumping are occurring."[31]
    - **Develop management areas to protect areas where drinking water wells have water quality that are vulnerable, including the San Jerardo area.**
- **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSPs should set MOs at 75% of the MCLs.** Subbasin GSPs should include MOs as action triggers at 75% of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold exceedance at a representative monitoring well. This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. If the GSA waits until the minimum threshold is exceeded, it may be too late or difficult for actions to be effective. Actions to prevent minimum threshold exceedances should also be clearly explained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded. *We also recommend that groundwater quality and trigger levels at 75% are added to Section 9.1.3 Implementation Action 11: Local Groundwater Elevation Trigger (April 2021 draft) which currently only includes groundwater elevations.*
- **Clearly identify and describe past and present levels of contamination and salinity at each representative monitoring well (RMW) and attribute specific numeric values for MTs/MOs at each RMW for each contaminant of concern.** Quantitative values need to be established for MTs/MOs for each applicable sustainability indicator at each RMW as required by 23 CCR § 354.28 and 23 CCR § 354.30. The GSPs should include a map and tables that include each individual RMW along with water quality data for each RMW (this data is currently summarized in Table 8-4 and Table 8-5). This information should be presented clearly so that both the public can determine how the proposed monitoring network and sustainable management criteria (SMCs) relate to their own drinking water well or water supply system.

[31] State Water Board comments to DWR on 180/400 Foot Aquifer GSP (Dec. 2020). Downloaded from SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29

- **Include hexavalent chromium as a contaminant of concern and plan to add contaminants of emerging concern to the monitoring network.** While there is currently not a Maximum Contaminant Level for hexavalent chromium, there is still a Public Health Goal and public health threat posed by this contaminant in drinking water. The State is required to adopt an MCL for chromium-6 again and is in the process of updating the MCL. In addition to including hexavalent chromium, the GSPs must explain how the Plans will be updated to align groundwater monitoring efforts and the sustainable management criteria with any contaminants of emerging concern in the basin and any future new MCLs.
- **Include an analysis of the relationship between changes in groundwater levels and groundwater quality concentrations.** Section 8.5.2.3 of the draft GSPs discusses the relationship between individual minimum thresholds and other sustainability indicators, and states: "Decreasing groundwater elevations can cause wells to draw poor-quality groundwater from deeper zone. No additional poor groundwater quality issues were identified due to low groundwater elevations when groundwater elevations were previously at minimum threshold levels." We ask that justification is provided to backup the second statement or that it is removed until an analysis is conducted. It is our understanding that groundwater quality issues did, in fact, worsen during low groundwater elevations years. Arsenic in the San Jerardo well was at its highest during the lowest groundwater elevation measurement (See CWC Figure 1). The text should acknowledge that groundwater pumping can not only cause the movement of contaminant plumes, but can also cause the release of naturally occurring contaminants such as arsenic and chromium. In order to clearly evaluate the relationship between changes in groundwater levels and groundwater quality, SVB GSA should undertake an analysis of the change in water quality constituent concentrations relative to change in water levels,[32] particularly over drought periods, to evaluate the potential relationship between water quality and groundwater management activities.[33]
- **Add the total number of wells in each category that will be included in the water quality monitoring network and have SMCs evaluated to Table 8-4. For each constituent of concern, add the number of wells included in the chart and the number exceeding the MT/MO based on the latest sample.** This comment has the same goal as the comment we provided in Chapter 7. SMCs should be set at every public drinking water well and a representative network of drinking water wells that rely on more shallow aquifers. It is essential to track the same wells each year in the monitoring network. If a well is no longer active, it should be removed from the network. In the current representation, it is not clear which wells are included in the monitoring

[32] See P.A.M. Bachand et. al. Technical Report: Modeling Nitrate Leaching Risk from Specialty Crop Fields During On-Farm Managed Floodwater Recharge in the Kings Groundwater Basin and the Potential for its Management https://suscon.org/wp-content/uploads/2018/10/Nitrate_Report_FInal.pdf. See also, Groundwater Recharge Assessment Tool, created by Sustainable Conservation to help groundwater managers make smart decisions in recharging overdrafted basins, including modeling whether a particular recharge project would result in short or long term benefits or harms to water quality, http://www.groundwaterrecharge.org/.

[33] More information about groundwater quality and the relationship between changes in groundwater levels can be found in the following resources:

Stanford, 2019. A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act. Community Water Center, 2019. Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act. https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858

Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

network, which wells have data for each constituent, and which wells are exceeding the regulatory standard.

- **Engage stakeholders and scientists in a transparent discussion regarding "the process the GSAs would use to decide whether or not an exceedance of an MT for water quality degradation was caused by GSP implementation."**[34] The State Water Board recommended that the 180/400 foot aquifer GSP outline this process "otherwise, it is difficult to judge how adequately the GSP addresses undesirable results related to water quality degradation." This relates to the undesirable result for water quality which currently reads: "There shall be no additional minimum threshold exceedances beyond existing groundwater quality conditions during any one year as a direct result of projects or management actions taken as part of GSP implementation."

[34] State Water Board comments to DWR on 180/400 Foot Aquifer GSP (Dec. 2020). Downloaded from SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29 .

COMMUNITY WATER CENTER
EL CENTRO COMUNITARIO POR EL AGUA

April 28, 2021

Salinas Valley Basin Groundwater Sustainability Agency

Submitted electronically to:

Emily Gardner, Deputy General Manager

Donna Meyers, General Manager

Re: Comments on Draft Chapter 9 Project and Management Actions for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins

Dear Salinas Valley Basin Groundwater Sustainability Agency:

The Community Water Center (CWC) offers the following comments and recommendations regarding key components of the draft Chapter 9 Projects and Management Actions (Implementation Actions) that were shared with SVB GSA subbasin committees in April 2020. These comments are intended to add to the public record and are submitted in addition to previous written and spoken comments.

Chapter 9 Projects and Management Actions

During the April 7, 2021 East Side and Upper Valley subbasin committee meetings, feedback was requested on a draft list of project and management actions. As outlined in the April 7 meeting materials, "[p]rojects implement the GSP and enable the subbasin to reach sustainability by 2042, then maintain sustainability for another 30 years." Both groundwater levels and water quality degradation can have adverse impacts on drinking water users and disadvantaged communities (DACs), who are protected as beneficial users under SGMA[1]. Therefore, projects and management actions (also referred to as implementation actions) should address sustainability issues facing drinking water and other domestic water uses, in order to ensure their continued availability.

As this chapter is further revised for the East Side and Upper Valley subbasins and as potential projects and management actions are considered for the Forebay, Langley, and Monterey, the GSPs should (1) clearly identify potential impacts to water quality from all projects and management actions, (2) include management actions that respond to immediate needs and (3) develop a more robust implementation schedule and funding plan for projects and management actions. We acknowledge that the implementation actions are currently in the beginning stages of design but encourage incorporating these elements early on.

9.1.3 Implementation Action: Local Groundwater Elevation Trigger

The Local Groundwater Elevation Trigger is a significant start to tracking and addressing impacts to domestic wells. We support the inclusion of a "notification system whereby well owners can notify the GSA or relevant partner agency if their well goes dry." Because SVB GSA defines its sustainability criteria in a way that potentially allows for drinking water well impacts and because there is so much uncertainty regarding potential domestic well impacts, we recommend that this implementation action be updated to incorporate a **Robust Drinking Water Well Mitigation Program.** This program should include the Local Groundwater Elevation Trigger as well as (1) a plan to prevent impacts to drinking water users from

[1] WAT § **10723.2.**

dewatering, increases in contaminant levels and increases in salinity, and (2) a plan to mitigate the drinking water impacts that occur even when precautions are taken.

CWC together with other organizations published a Framework for a Drinking Water Well Mitigation Program (2020) that we recommend the SVB GSA uses as a guide when further developing this implementation action. We are also interested in sharing more with staff and are willing to provide a presentation to SVB GSA staff, board members, and/or the advisory committee on this Framework. The framework describes the importance of adaptive management and affirms the intent of the draft Local Groundwater Elevation Trigger management action and states, "Developing a protective warning system... can alert groundwater managers when groundwater levels and groundwater quality are dropping to a level that could potentially negatively affect drinking water users. These "triggers" are essential for groundwater management and can be adjusted to fit the needs of different management actions as well as the basin as a whole."[2] We also support the provision in the draft "Local Groundwater Elevation Trigger" Implementation Action that offers "referral to assistance with short-term supply solutions, technical assistance to assess why it went dry, and/or long-term supply solutions." This type of adaptive management implementation action is crucial to ensuring that all beneficial users within the basin are protected under the GSP. As we have highlighted in previous comments[3]:

> A GSP that lacks a mitigation program to curtail the effects of projects and management actions as to the safety, quality, affordability, or availability of domestic water, violates both SGMA itself and the Human Right to Water (HR2W).[4] The California legislature has recognized that water used for domestic purposes has priority over all other uses since 1913[5] in Water Code § 106, which declares it, "established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation."[6] The passage of the Safe and Affordable Drinking Water Fund by Governor Newsom indicates a clear State-level commitment to provide safe and affordable drinking water to California's most vulnerable residents.[7] To ensure compliance with the Legislature's long established position, the HR2W requires that agencies, including the Department of Water Resources and the State Water Board, must consider the effects on domestic water users when reviewing and approving GSPs.[8] Therefore, GSPs that cause disparate impacts to domestic water use are in violation of the HR2W, SGMA, and Water Code § 106.6.

In order to effectively protect drinking water users during GSP implementation, we recommend that the GSA's **Drinking Water Well Impact Mitigation Program Implementation Action,** in line with and expanding upon the currently proposed Local Groundwater Elevation Trigger, should include the following components:

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[2] *See* Self-Help Enterprises, Leadership Counsel for Justice and Accountability, Community Water Center (2020) *Framework for a Drinking Water Well Impact Mitigation Program*.
https://static1.squarespace.com/static/5e83c5f78f0db40cb837cfb5/t/5f3ca9389712b732279e5296/1597811008129/Well_Mitigation_English.pdf.

[3] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020.
https://sgma.water.ca.gov/portal/service/gspdocument/download/4012.

[4] WAT § 106.3 (a).

[5] Senate Floor Analysis, AB 685, 08/23/2012.

[6] This policy is also noted in the Legislative Counsel's Digest for AB 685.

[7] SB 200 (Monning, 2019).

[8] WAT § 106.3 (b).

- **Include a vulnerability analysis of Disadvantaged Communities (DACs) and drinking water supplies in order to protect drinking water for these vulnerable beneficial uses and users.** Although rural domestic and small water system demand does not contribute substantially to the overdraft conditions, drinking water users could face significant impacts, particularly if the region faces another drought. Without a clear commitment and timeline for actions regarding establishing groundwater allocations or reductions in groundwater pumping, the SVB GSA may create disparate impacts on already vulnerable communities. See comments submitted by CWC and San Jerardo Cooperative on April 23, 2021 regarding Chapter 8 of SVB GSA Subbasin GSPs for further recommendations for conducting well impact analyses.
- **Develop the trigger system in collaboration with stakeholders, in particular groups that are more susceptible to groundwater elevation and quality changes, and then connect stakeholder recommendations back to quantifiable measures such as the GSP measurable objectives, MCLs, and numbers of partially or fully dry drinking water wells.**[9]
- **Ensure that the monitoring network is representative of conditions in all aquifers in general, including the shallow aquifer upon which domestic wells rely.** This comment aligns with comments submitted April 23, 2021 regarding Chapter 7 of the SVB GSA Subbasin GSPs, and is particularly crucial as part of a "Trigger" Management Action (or Well Impact Mitigation Program).
- **Routinely monitor for all contaminants that could impact public health (not only nitrate, but also chromium-6, arsenic, 123-TCP, uranium, and DBCP) through the representative water quality monitoring network.** Contaminated drinking water can cause both acute and long-term health impacts and can affect the long-term viability of impacted regions.[10] Among other causes, groundwater contamination can result through the use of man-made chemicals, fertilizers, or naturally-occurring elements in soils and sediments.[11] Routinely monitoring for contaminants will allow the GSA to accurately monitor for impacts on the most vulnerable beneficial users, and protect DACs' and domestic well owners' access to safe and affordable drinking water.[12]
    - **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSP should set MOs at 75% of the MCLs.** The GSP should include MOs as action triggers at 75% of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold exceedance at a representative monitoring well.[13] This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. As discussed in previous

[9] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

[10] Community Water Center. Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act. (2019). https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.

[11] See previous Community Water Center (2019) reference.

[12] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

[13] This recommendation was also made previously in a comment letter to SVB GSA from CWC and San Jerardo Cooperative regarding Chapter 8 of the 180/400 ft Aquifer GSP on November 25, 2020, as well as in our comments to the SVB GSA on April 23, 2021 regarding Chapter 8 of drafts for the SVB GSA Subbasin GSPs.

submitted comments, water quality impacts can intensify as water levels decrease.[14] If the GSA waits until the minimum threshold is exceeded, it may be too late or difficult for actions to be effective. Actions to prevent minimum threshold exceedances should also be clearly explained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded.

- **Include a combination of different strategies for mitigation including: replacing impacted wells with new, deeper wells, connecting domestic well users to a nearby public water system, or providing interim bottled water.**
- **Include an implementation timeframe, budget, and funding source**.[15] As currently written, the Local Groundwater Elevation Trigger suggests convening "a working group to assess the groundwater situation if the number of wells that go dry in a specific area cross a specified threshold." We support emergency response if one or more wells are impacted, and also request that this section be updated to include strategies to prevent impacts from occuring in the first place. Additionally, plans to address and mitigate those impacts should be solidified beforehand so resources can be mobilized in a timely manner. Drinking water users cannot afford to wait for interim plans to be developed once their primary sources of water for drinking, cooking and hygiene are compromised.

9.1.3 Implementation Action: Domestic Water Partnership

CWC would like to voice preliminary support for the Domestic Water Partnership Implementation Action, as a step towards coordinating local and regional responses to water quality issues. However, we reiterate that the GSA remains directly responsible for recognizing and resolving water quality degradation that results from its policies and projects. We also would like to affirm our previous comments encouraging the SVB GSA to include - without delay - Monterey County water quality data for state and local small water systems. This data is readily available and would add significantly to the proposed water quality monitoring network in draft subbasin Chapters 7. We do not want this potential partnership implementation action to delay the incorporation of this important data source. This action can and should, however, integrate this County data into current draft subbasin plans in order to identify potentially vulnerable populations and create management actions to protect them. We will offer further comments and recommendations on this subject as future drafts are released. To echo recommendations made previously regarding Suggested Partnerships for Multi-Benefit Remediation Projects:

- **The GSA should work with local and regional water agencies or the county to implement groundwater quality remediation projects that could improve both quality as well as levels and to ensure groundwater management does not cause further degradation of groundwater**

[14] Community Water Center and Stanford University. Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium. (2019). https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

[15] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

quality.[16] The strategic governance structure of GSAs can uniquely leverage resources, provide local empowerment, centralize information, and help define a regional approach to groundwater quality management unlike any other regional organization. When implemented effectively, GSPs have the potential to be instrumental in reducing levels of contaminants in their regions, thus reducing the cost of providing safe drinking water to residents. GSAs are the regional agency that can best comprehensively monitor and minimize negative impacts of declining groundwater levels and degraded groundwater quality that would directly impact rural domestic well users and S/DACs within their jurisdictions. When potential projects are proposed, SVB GSA should consider how projects could potentially both positively and negatively impact groundwater quality conditions and should take leadership in coordinating regional solutions.

[16] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020. https://sgma.water.ca.gov/portal/service/gspdocument/download/4012.

SALINAS BASIN
AGRICULTURAL WATER ASSOCIATION

SALINAS BASIN
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May 12, 2021

Salinas Valley Basin Groundwater Sustainability Agency
Board of Directors
P.O. Box 1385
Carmel Valley, CA 93924

VIA: Email to SVBGSA General Manager

RE: Groundwater Sustainability Plans – Water Quality Objectives

Dear SVBGSA Chair Adcock and Directors:

Salinas Basin Agricultural Water Association is a coalition of agricultural organizations tasked with overseeing the implementation of the Sustainable Groundwater Management Act (SGMA) and the development of the groundwater sustainability plans for the Salians Valley groundwater aquifer. Our organization has been integrally involved in groundwater management since this passage of SGMA and the formation of the SVBGSA.

Watching the development of the groundwater sustainability plans for the five sub-basins, due in January 2022, there appears to be attention drawn by various stakeholders to specific groundwater quality references that are under the jurisdiction of the Central Coast Regional Water Board (RWB).

On April 15, 2021, a new Irrigation Lands Regulatory Program was adopted by the RWB, also knows as Ag Order 4.0. This program manages farming activities to specific water quality objectives, including the amounts of nitrogen that can be either applied or discharged from production fields, to either surface or groundwaters. Farming operations will be required to calculate their "Applied-Removed ratio" for each crop produced, meeting specific compliance standards that are ratcheted down each successive year. Additionally, each domestic-use well located on a farming operation must be tested annually for a broad set of water quality constituents.

Water quality objectives are heavily managed by Ag Order 4.0 and will be costly for farming operations and their landowners to implement. Record keeping, annual compliance reporting, and cooperative monitoring fees will add heavily to the burden of farm management and financial sustainability.

As the groundwater sustainability plans are developed, discussed by the Sub-basin Committees, and ultimately brought to the Advisory Committee and SVBGSA Board for approval, it should be clearly stated within those forums that water quality objectives for farming operations are managed under Ag Order 4.0 by the RWB, and that SVBGSA should not set any additional water quality parameters within the groundwater sustainability plans.

Conflicting and duplicative water quality objectives, if included in the groundwater sustainability plans, would lead to unnecessary costs for farming operations and landowners. Due consideration should be given to the Ag Order 4.0 program and how water quality objectives will be managed on-farm going forward, limiting groundwater sustainability plans to manage the balance of extractions and recharge for each respective sub-basin.

Thanks for your consideration.

Sincerely,

Norman C. Groot
President

T0: Salinas Valley Groundwater Sustainability Agency

From: Fred Nolan as public commentary

(montereyfred@gmail.com)

Subject: Suggested Solution to the groundwater sustainability in Monterey County

As I no longer use pen and pencil nor do I type due to Parkinson's disease I am dictating this with Dragon NaturallySpeaking.

The solution to all groundwater sustainability is not desalinisation. It is the reuse of the water we already have. The largest water reuse facility in the world is right here in California. Orange County produces in their ground water replenishment system enough drinkable water for 2 1/2 million people. On a vastly smaller scale we can do the same thing.

Recycling water is one third the cost desalinated ocean water. Building a desalinisation length costs approximately $200 million dollars. The probability of raising that kind of money in central California is ZERO.

I suggest we study Orange County's impressive recycling system. They have a number of very illuminating websites. The time has come to get over unscientific reservations about recycled water. The time for recycled water is here. Plant in Marina produces a small amount of high quality recycled water right now. By dramatically increasing the output of this desirable commodity we can meet our water needs indefinitely. If we are scientifically capable of putting robots on Mars we are capable of producing exquisite water over and over again.

Fred Nolan

Thomas S. Virsik
ATTORNEY AT LAW

11 June 2021

To: Salinas Valley Basin Groundwater Sustainability Agency (GSA)
Public Comments - Chapter 9 (draft) of Upper Valley GSP

I represent interests predominantly in the Upper Valley and Forebay basins of the Salinas Valley. These comments are directed to the May 12, 2021 draft Chapter 9 ("Chapter") of the Upper Valley ("UV") GSP crafted by the Salinas Valley Groundwater Sustainability Agency ("GSA"). It is apparent and unremarkable that portions of all basin chapters are used either verbatim or with very slight modifications for other basins, e.g., the Upper Valley and the Forebay draft GSP chapters share much content. The below points are therefore also applicable to those Forebay Chapter sections that are identical to those of the UV.

I. SUSTAINABILITY IS EITHER TO BE MAINTAINED OR WILL BE ATTAINED IN THE FUTURE

According to the chapter drafts released to date, the two southern basins (Forebay and Upper Valley) have had no long-term chronic overdraft and are expected to so remain. The language used to describe the state of the UV and its sustainability goals is inconsistent within this Chapter, however. Chapter 9 starts with a statement that strongly suggest that the UV will become sustainable only if and when various actions/projects are implemented. "This chapter describes the projects and management actions that will allow the Subbasin to attain sustainability in accordance with §354.42 and §354.44 of the SGMA regulations." § 9.1 (emphasis supplied). The statement about a path towards future sustainability is followed within the same section on the same page with language about "maintaining" sustainability. "The projects and management actions included in this chapter outline a framework for maintaining sustainability . . .". Id. Language reflecting the goal of "maintaining" sustainability can be found throughout the Chapter. Frankly, the Chapter is far from consistent in its characterization of the goals of the basin as maintaining -- rather than reaching or attaining -- sustainability. All language suggesting that the goal of the UV GSP is to offer a path to attain, achieve, or reach presently lacking sustainability must be revised.

If the intent of the draft language is to offer a path to maintain sustainability and a means to return to sustainability should sustainability lapse, then "attain" remains incorrect and potentially misleading. Among others, the goals could be described as returning to, reestablishing, or reinstating sustainability.

II. ADAPTATION CANNOT BE LIMITED TO DEFERENCE TO OTHERS' ACTIONS

The GSP process has emphasized the iterative process and adaptive management from the outset. That is all well and good, but the statement in Chapter 9 about that process suggests that adaption is a one-way process. "If current infrastructure is operated differently or other projects are implemented within the Valley that affect groundwater conditions, SVBGSA will adapt its consideration of projects and management actions accordingly." § 9.1 (emphasis supplied). As phrased, the GSA is committing to modifying its GSP to the choices (whims?) of other entities or agents. As a matter of policy, to date the GSA has not abdicated its statutory authorities[1], which include a broad array of powers and abilities to protect the integrity of the groundwater -- even from others' actions. For example, the GSA has a role to play in general plan amendment. Water Code § 65352.5(d) (hereafter all statutory references are to the Water Code unless specified otherwise); §§ 10725 et seq, (including the ability to participate in or commence an action or proceeding). It may go without saying, but the GSA is required to implement the plan to meet its goals, not simply hope that the goals comes to pass by others' actions. § 10727.

By way of example and not prediction, if a GSP called for the diversion of water at point X and another entity (private or public) applied to divert water such that it could not reach X, the GSA would have the ability and duty to consider whether to contest or compromise the dueling approaches, not just unilaterally "adapt" its implementation away from its stated goal.

The language of "adaption," perhaps inadvertently, omits the array of other powers and duties a GSA possesses. Language that recognizes the GSA's statutory power and authority may include: ". . . the GSA will consider the effect of any such changes in meeting sustainability goals and will act in furtherance of reaching such goals." No pride of authorship of phrasing is asserted, so long as the GSA is not signaling that its only response to others' action is to unequivocally defer.

III. DISTINGUISHING BETWEEN BASIN AND "VALLEY" MUST BE CLEAR AND SPECIFIC

The final sentence of the final paragraph of the introductory section is unremarkable in general, but could benefit by more specificity. The inference is that the stakeholders, actions, and projects being addressed are those of this specific GSP, i.e., the Upper Valley. Clarity would be improved if the words "Upper Valley"[2] were added in two places along with a small edit to prevent any inadvertent or misplaced interpretation: "Upper Valley stakeholders will work collaboratively to determine which projects and management actions to implement in order to maintain sustainability of the Upper Valley and will pursue adaptive management[3] when conditions change."

IV. PRICE OF LAND IS NOT UNIFORM

My informal inquiries of knowledgeable ag interests suggest that using a $45,000 per acre figure for land acquisition across multiple GSP's is unrealistic. § 9.2.2. The land

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[1] It's an open question whether an entity has the ability to abdicate statutory authority.
[2] The parallel language could be narrowed in every GSP, e.g., Eastside, Langley, etc.
[3] Unlike the concern expressed at II. above, when conditions change -- not new or modified actions by others -- adaptive management is an appropriate default.

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cost among the several basins does not necessarily differ by orders of magnitude, but the cost of land is not generally consistent among the basins.

V. BENEFITS AND COSTS OF PROJECTS ARE INACCURATE AND/OR MUDDLED

Table 9-1 contains inaccuracies and suffers from a lack of specificity. First of all, the projected cost of the Interlake Tunnel project is $180,500,000 according to the most recent filings by the MCWRA at the SWRCB. Project B2. “Relative to the Interlake Tunnel Project, the Agency has spent approximately $8,000,000 to date, and anticipates the project will cost approximately $180,500,000 through completion.” MCWRA Petition for Extension of Time under Permit 21089, March 2021 (page 6 of 6), attached hereto. At face value, the General Manager of the MCWRA declares under penalty of perjury that completing the tunnel project -- not operating or maintaining it -- requires $180M. See, signature block on SWRCB petition.

Table B-1 claims the capital cost of the Tunnel project is $118,503,000. The narrative appears to support that figure by relying on an August 2020 presentation. Page 9-35. In its August 2020 presentation, the MCWRA projected a total cost of $173M for construction and operation but in its March 2021 petition to the SWRCB the cost of completing the project had risen to $180M. The GSA is patently ignoring the most current and best available data -- a sworn declaration post-dating earlier unsworn data -- reflecting an updated cost projection that has (unsurprisingly) risen over time.

The ASR project (B1) recites that it is a combination of reservoir reoperation and ASR wells, at a cost of $172,000,000 for apparently designing/building the wells. The other reservoir reoperation project (B3) reflects modest cost. The technical advisory committee that would analyze reservoir operations as part of its scope (C3) is projected to cost $10,000 in staff time. Considering those three projects (B1, B3, and C3) together, it seems odd that that the “Valley” is projected as paying for/being benefited by the ASR wells. The ASR wells would benefit the CSIP and perhaps other 180/400 (maybe the Eastside) locations via additional water delivery and/or SWI benefit, but how injecting water far north of the UV would benefit any area far south of the ASR wells is entirely unclear. Adopting the language used by Gus Yates in a May 31, 2021 memo on behalf of the ASGSA commenting on substantially identical Forebay Chapter 9 language, the wells and reoperation are not “inherently linked.” That the reservoir reoperation portion of the ASR project may benefit the southern reaches is possible but the cost/efforts for such southern areas appears to be rather modest based upon projects B3 and C3.[4]

Table B-1 should be modified to distinguish that the ASR component of project B1 is not a benefit/to be paid by the UV but that the reservoir reoperation portion could potentially benefit it. The danger of using the “Valley” label in connection with projects, costs, or goals is that interests that may have no connection whatsoever to the

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[4] Section 9.4.3.7 confuses matters further by seemingly reassuring the Upper Valley that it is not a recipient of any benefits from the ASR project itself. If that language is correct, Table 9-1 needs to so reflect.

projects, cost, or goal may mistakenly assume they are being unfairly targeted and oppose or undermine the proposal. For example, the Water Charges Framework, proposed and adopted for the 180/400 GSP, created substantial pushback by certain non-180/400 interests. Clarity (to the extent available at the time) about which specific basins are involved for which components of an identified project can reduce later controversy.

Please note that the identified errors, inconsistencies and anomalies of Table 9-1 can be found to varying degrees in the more detailed narratives in the Chapter, but are not here listed seriatim.

VI. WATER METERING SHOULD FOLLOW -- OR AT LEAST NOT CONTRADICT -- STATE REGULATIONS

I have made oral comments about the GEMS system and in particular how client extractions are reported. My clients -- surely not uniquely -- report their water extractions to both the MCWRA via the GEMS tool and to the SWRCB on statements of water diversion. §§ 5100 et seq. Within the last decade, the standards for SWRCB reporting have evolved and become more rigorous. Different standards are required based on the scale of diversions. https://www.waterboards.ca.gov/waterrights/water_issues/programs/diversion_use/water_measurement.html (SB 88). For example, minimal extractions in remote locations, such as watering a few head of livestock, need nowhere near the accuracy or verifiability of extractions measuring many acre-feet, which may be required to report in real time. The state system for surface water diversion is a rational approach to requiring more accuracy and reliability for the larger extractors. Should a basin be subject to SWRCB management, groundwater reporting substantially follows the surface water reporting model. §§ 5200 et seq. Management Actions D1 and D2 are broadly reasonable, but not if a "one size fits even when it does not fit" rule is imposed.

Thank you for your continued attention to the details of this (among others) GSP.

Very truly yours,

Thomas S. Virsik
Thomas Virsik

Encl.
MCWRA Petition for Extension of Time under Permit 21089, March 2021

MONTEREY COUNTY

WATER RESOURCES AGENCY

PO BOX 930
SALINAS, CA 93902
P: (831) 755-4860
F: (831) 424-7935

BRENT BUCHE
GENERAL MANAGER

STREET ADDRESS
1441 SCHILLING PLACE, NORTH BUILDING
SALINAS, CA 93901

March 29, 2021

Mr. Erik Ekdahl, Deputy Director
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000

Subject: Monterey County Water Resources Agency Petition for Extension of Time under Permit 21089 (Application 30532)

Dear Mr. Ekdahl:

On behalf of Monterey County Water Resources Agency (Agency), enclosed are the following documents relative to a Petition for Extension of Time (Petition) under the Agency's Permit 21089 (Application 30532):

1. Petition for Change Form with an Attachment (one original and one copy).
2. Environmental Information Form (one original and one copy).
3. Check in the amount of $6,078 to cover the Petition fees which is based on the total quantity of storage authorized under Permit 21089 per annum, up to 27,900 acre-feet (AF), along with the reduction for filing in conjunction with another type of change petition for the same right (see Petitions for Change under Permit 21089 also submitted by the Agency).

The Agency is petitioning for additional time to complete use of water under its Permit 21089. As you might be aware, the Agency is filing Petitions for Change concurrently with this Petition pursuant to direction from Division of Water Rights staff; and we appreciate your attention to these Petitions.

Please call if you have any questions or require additional information.

Sincerely,

E-signed 3/29/2021

Brent Buche
General Manager

cc: Kevin O'Brien, Downey Brand (via e-mail)
Samuel Boland-Brien, Division of Water Rights (via e-mail)
Julie Vance, Department of Fish and Wildlife (via-email)
Jon Rohrbough, Central Coast Regional Water Quality Control Board (via-email)
Kelly Donlon, County of Monterey (via-email)

Please indicate County where your project is located here:

Monterey, San Luis Obispo

MAIL FORM AND ATTACHMENTS TO:
State Water Resources Control Board
DIVISION OF WATER RIGHTS
P.O. Box 2000, Sacramento, CA 95812-2000
Tel: (916) 341-5300 Fax: (916) 341-5400
http://www.waterboards.ca.gov/waterrights

PETITION FOR EXTENSION OF TIME

Cal. Code Regs., tit. 23, § 842

Application 30532 Permit 21089

Separate petitions are required for each water right. Incomplete forms may not be accepted. Complete this form if the time previously allowed in your permit within which to complete construction work and/or use of water has either expired or will expire and you require additional time. Provide attachments if necessary.

Water Code section 1396 requires an applicant to exercise due diligence in developing a water supply for beneficial use. The State Water Resources Control Board (State Water Board) will review the facts presented to determine whether: (a) due diligence has been exercised, (b) failure to comply with previous time requirements has been occasioned by obstacles which could not reasonably be avoided, and (c) that satisfactory progress will be made if an extension of time is granted. (Cal. Code Regs., tit. 23, § 844.) If an extension of time is not granted, the State Water Board may initiate formal action to either: (a) issue a license for the amount of water heretofore placed to beneficial use under the terms of the permit, or (b) revoke the permit.

If this is your first extension of time, answer the questions below for the permitted construction and water use development period. If previous extensions have been approved, answer these questions for the most recently approved extension period (for example, if a ten-year extension was previously granted, list the activities completed during the ten-year period).

I (we) request a 10 year extension of time to complete construction work and/or beneficial use of water.

Construction
Estimate the date construction work will begin, list the actions taken toward commencing or completing construction, and list the reasons why construction of the project was not completed.

See attachment.

Insert the attachment number here, if applicable:

Complete Use of Water
List reasons why use of water was not completed within time previously allowed.

See attachment.

Insert the attachment number here, if applicable:

Quantities Diverted
For direct diversion projects, list the cubic feet per second (cfs) or gallons per day (gpd) diverted during the maximum month of use, and the acre-feet per annum (afa) and identify the year this occurred. For storage projects, identify the maximum amount collected to storage and withdrawn for beneficial use in afa and identify the year this occurred.

	Year	Maximum Diversion Rate (cfs or gpd)	Maximum Annual Amount (afa)
Direct Diversion	N/A		
Storage	2019		313,789.00
Beneficial Use			218,792.00

Insert the attachment number here, if applicable:

Information on Beneficial Uses
Number of Acres Irrigated 200,000.00
Number of Houses or People Served 250,000
Per Capita Residential Water Use During the Maximum 30-day Period (gpd)
Extent of Past Use of Water for Any Other Purpose (identify gpd, cfs or afa)
Insert the attachment number here, if applicable:

Approximate Amount Spent on Project $ 8,000,000.00

Water Conservation – If water conservation is required by your permit, provide the information below.

Water Conservation Measures In Effect
List the water conservation measures that are in effect within the place of use.

See attachment.

Insert the attachment number here, if applicable:

Water Conservation Measures Planned
List the water conservation measures that are feasible within the place of use and the date the measures will be implemented. Identify the quantities estimated to be conserved when the measures are implemented.

See attachment.

Insert the attachment number here, if applicable:

All Right Holders Must Sign This Form: I (we) declare under penalty of perjury that the above is true and correct to the best of my (our) knowledge and belief. Dated 03/30/2021 at Salinas, CA .

E- signed 3/30/2021

Right Holder or Authorized Agent Signature

Right Holder or Authorized Agent Signature

NOTE: All petitions must be accompanied by:
(1) the form Environmental Information for Petitions, available at:
http://www.waterboards.ca.gov/waterrights/publications_forms/forms/docs/pet_info.pdf
(2) Division of Water Rights fee, per the Water Rights Fee Schedule, available at:
http://www.waterboards.ca.gov/waterrights/water_issues/programs/fees/
(3) Department of Fish and Wildlife fee of $850 (Pub. Resources Code, § 10005)

Attachment to Petition for Extension of Time
Permit 21089 (Application 30532)
Held by Monterey County Water Resources Agency

The purpose of this Petition for Extension of Time (Petition) is to request additional time from the time previously allowed under Monterey County Water Resources Agency's (Agency) Permit 21089 (Application 30532) for Nacimiento Reservoir to complete beneficial use of water. Currently, Permit 21089 provides that complete application of the water to the authorized use shall be prosecuted with reasonable diligence and completed by December 31, 2021.

The operations of Nacimiento and San Antonio Reservoirs are closely coordinated to meet common downstream demands, primarily groundwater recharge in the Salinas Valley Groundwater Basin (Basin), fishery flow requirements, and the rediversion of surface water for irrigation. Submitted concurrently with this Petition, the Agency has requested water right changes for Nacimiento Reservoir by Petitions for Change for License 7543 and Permit 21089 which would facilitate the Agency's Interlake Tunnel Project. The Interlake Tunnel Project will connect Nacimiento Reservoir to San Antonio Reservoir. Operationally, the Interlake Tunnel would divert water from Nacimiento to San Antonio Reservoir to optimize the use of existing storage capacity. The Nacimiento River basin produces nearly three times the average annual flow of the San Antonio River basin. Capturing high Nacimiento River flows and rediverting those flows to be stored in San Antonio Reservoir improves the overall storage capability of the system; providing greater incidental flood protection, greater certainty in meeting instream flow requirements while optimizing the use of existing surface water rights and facilitating the long-term conjunctive management of the groundwater basin. The total volume of stored water from the Nacimiento River (including through the Interlake Tunnel Project) in any given year will not exceed the maximum amounts authorized under the Agency's existing water rights for storage of Nacimiento River water, License 7543 (Application 16124) and Permit 21089 (Application 30532) for up to 377,900 acre-feet. Preliminary modeling shows that with the Interlake Tunnel Project, water could be stored under Permit 21089 up to the full volume of 27,900 acre-feet in approximately 8-10% of years. Approval of this Petition will allow additional time for the Agency to further develop its beneficial uses of Permit 21089, including the storage and withdrawal of water in Nacimiento Reservoir through the Interlake Tunnel Project. This Petition is submitted in conjunction with a Petition for Change under Permit 21089 to facilitate the Interlake Tunnel Project.

BACKGROUND

By 1924 there was broad scale cultivation of vegetables in the Salinas Valley, primarily irrigated by wells. By the 1940s, water use for irrigation continued to increase, with additional acreage and more double cropping. As a result of the decline of groundwater levels in the Basin and seawater intrusion near Monterey Bay, in the mid-1940s the Monterey County Board of Supervisors and State Department of Public Works conducted a joint investigation (results published in DWR Bulletin 52) and recommended surface water storage on the Salinas River system. The predecessor to the Agency elected to construct Nacimiento Reservoir and San Antonio Reservoir to meet the then-existing and future water demands of the Salinas Valley, and filed water right Applications 16124 and 16761 for each (in 1954 and 1955, respectively). Surface water stored in the reservoirs is released at a rate that allows it to be absorbed into the ground to replenish and supplement the naturally available Basin supply. Absorption occurs through the channels of the Nacimiento, San Antonio, and Salinas Rivers.

Shortly after the Agency's filings, San Luis Obispo County Flood Control and Water Conservation District (SLO District) filed its own water right application for San Antonio Reservoir (Application 16778) for San Antonio River water to be pumped through a pipeline to the SLO District service area. In addition, SLO District filed an application to divert water from the Nacimiento River (at the Agency's Nacimiento Dam) through a tunnel to San Antonio Reservoir, from which it would be pumped through the same pipeline to the SLO District service area (Application 16779). This initial "Interlake Tunnel" project was first applied for with Application 16779 in December of 1955.

Protests by both the Agency and SLO District were filed on the various applications and were eventually dismissed through negotiations led by SWRCB staff. The resulting agreement dated October 19, 1959, between the Agency and SLO District (1959 Agreement) generally provides SLO District with up to 17,500 acre-feet in each water year from the Agency's Nacimiento Dam and Reservoir (conveyance of water from Nacimiento Dam and Reservoir to the SLO District service area required a shorter pipeline than from San Antonio Reservoir). The 1959 Agreement allowed the protests to be resolved and Applications 16778 and 16779 to be withdrawn. The 1959 Agreement is currently still in effect, and does not have an expiration date. The SWRCB issued License 7543 in 1965 subject to the 1959 Agreement, for storage up to 350,000 acre-feet per annum with an identified maximum historic withdrawal of 180,000 acre-feet.

Application 30532 was filed on April 23, 1996 to cover the full capacity of the existing Nacimiento Reservoir, 377,900 acre-feet (the authorized collection to storage amount under the existing senior water right, License 7543 was/is 350,000 acre-feet). Permit 21089 was issued on Application 30532 on March 23, 2001, for storage of the additional 27,900 acre-feet. In 2008, License 7543 and Permit 21089 were amended to facilitate the Agency's Salinas River Diversion Facility project which was added as a downstream point of rediversion under the rights. In order to dismiss protests, flow prescriptions from the National Marine Fisheries Service were added as terms of the Agency's water rights.

In summary, today the Agency holds various water rights for both Nacimiento and San Antonio Reservoirs. Each reservoir has year-round downstream flow requirements for habitat just below the dam. In addition, there are downstream flow requirements on the Salinas River below the confluences of the Nacimiento and San Antonio Rivers with the Salinas River. The operations of Nacimiento and San Antonio Reservoirs are closely coordinated to meet these requirements and other water demand in the Salinas Valley, including the operation of a downstream point of rediversion, located approximately 100 miles downstream from the confluence of Salinas River and San Antonio River, and approximately 5 miles upstream from the ocean. The Agency's service area encompasses significant productive farmland downstream of both reservoirs.

CONSTRUCTION

Construction of Nacimiento Dam was completed in 1957, prior to the filing of Application 30532. The Interlake Tunnel Project concept was included in a 1955 water right filing but was held in abeyance. The Interlake Tunnel Project has been under consideration by the Agency since the late 1970s, and was included in the Agency's Water Facilities Capital Plan in the 1990's. The Agency began more actively pursuing the Interlake Tunnel Project beginning in 2014 due to ongoing multi-year drought conditions. Since that time, the cost effectiveness of the project has changed as the need for water supply has increased and the Agency has obtained funding agreements and contracts to proceed with the project. Specific activities conducted to date relative to the Interlake Tunnel Project are described below.

The estimated date that construction will begin is:
June 2023

Actions taken toward commencing construction:
The Interlake Tunnel Project was included in the 2013 Greater Monterey County Integrated Regional Water Management Plan.

On June 3, 2014, the Board of Supervisors of the Agency authorized negotiation and execution of a funding agreement between Monterey County and the Agency for an amount not to exceed $500,000 for program management, engineering and environmental review of the Interlake Tunnel, said funds to be reimbursed to Monterey County if the Interlake Tunnel is approved and financed; and directed staff to return to the Board of Supervisors in July 2014 with a project status report and information on financial impact to the County in regards to funding the agreement. The Board of Supervisors of the Agency also authorized the Agency General Manager to enter into the necessary agreements to prepare for and commence environmental review of the Interlake Tunnel Project in an initial amount not to exceed $500,000 provided funding is approved by Monterey County.

On July 1, 2014, the Monterey County Board of Supervisors approved a funding Agreement and approved the use of County funds for the Agreement. The Agency has contracted with EPC Consultants as the Program Manager and Construction Manager, a legal firm to perform the water rights analysis, and will solicit a qualified environmental firm.

On August 25, 2014, the Board of the Agency held a public workshop to provide background information about the Interlake Tunnel Project and to provide an update of current project activities and accomplishments.

On November 19, 2014, the Board of the Agency held a public workshop to provide current feasibility status on the Interlake Tunnel Project.

On January 15, 2015, the Agency published an Informational Notice of pending RFP's for engineering design.

On February 26, 2015, the Agency held a public meeting on the proposed Interlake Tunnel and San Antonio Spillway Modification project. The meeting was held in the Heritage Ranch Conference Room, Paso Robles, CA.

On March 13, 2015, the Agency published an UPDATED Informational Notice of pending RFP's for engineering design.

On April 16, 2015, a RFP pre-proposal meeting was held.

In April 2015, the Agency contacted the U.S. Army Corps of Engineers regarding a 404 permit.

On April 28, 2016, a Notice of Preparation/Initial Study (NOP/IS) was circulated, initiating a 45-day scoping period for the Environmental Impact Report for the Interlake Tunnel Project. The scoping period concluded on June 13, 2016.

On May 16 and 17, 2016, scoping meetings were held.

In May 2016, the Agency contacted the California Department of Fish and Wildlife, the California Department of Water Resources Division of Safety of Dams, and the Central Coast Regional Water Quality Control Board regarding the various approvals and permits required from additional agencies.

On July 14, 2016, a meeting with property owners was held.

On September 15, 2017, a stakeholder workshop was held.

On May 10, 2018, a project status report was provided.

On July 6, 2018, a project status report was provided.

On August 24, 2020 the Agency met with Division of Water Rights staff to discuss the Interlake Tunnel Project and its proposed approach relative to water rights.

On September 29, 2020 the Agency met with Division of Water Rights staff to discuss the Interlake Tunnel Project and its proposed approach relative to water rights, including a review of draft Petitions for Change.

On October 21, 2020 the Agency conducted a follow-up discussion with Division of Water Rights staff to discuss the Interlake Tunnel Project and its proposed approach relative to water rights, including a review of draft Petitions for Change. Correspondence and other communications continued with Division of Water Rights staff for direction through December 2020.

In January 2021, the Agency revised the draft Petitions for Change to incorporate feedback and direction from Division of Water Rights staff.

Environmental work and permitting efforts are expected to occur through January 2023, with a draft EIR prepared by June 2021 and a final EIR by March 2022. Certification of the Final EIR is anticipated by January 2023. The Agency hopes to issue a design-build request for qualifications in December of 2022, with final design and construction starting in June 2023.

Reasons why construction of the project was not completed:
As previously described, construction of Nacimiento Dam was completed prior to the filing of Application 30532 and construction of the Interlake Tunnel Project was held in abeyance. The Interlake Tunnel Project more recently has become a cost-effective project as the need for water supply in the Salinas Valley has increased. Construction of the Interlake Tunnel Project requires various approvals and permits, including water rights changes requested under other Petitions for Change submitted by the Agency to the SWRCB, many of which are yet to be obtained and take multiple years to obtain. Information on the status of various other agency approvals and permits are included within the attached Environmental Information form. Construction of the Interlake Tunnel Project will not begin until all necessary approvals and funding are obtained. Specific activities conducted to date relative to the Interlake Tunnel Project are described below.

COMPLETE USE OF WATER

The use of water (storage or withdraw) was not completed within the time previously specified because there was no physical expansion of the reservoir and the reservoir already had a history of filling completely when Permit 21089 was issued. Any water stored is credited in order of water right priority: first under License 7543 up to 350,000 acre-feet, and then under Permit 21089 up to 27,900 acre-feet. Due to the minimum pool requirements in Nacimiento Reservoir, after the initial filling when the dam was constructed, the reservoir could not physically store the total amount authorized under the permit and license of a combined 377,900 acre-feet, or even the total amount authorized under License 7543 of 350,000 acre-feet. Therefore, following water right priorities and under current circumstances it would only be possible to credit storage of water under Permit 21089 if Nacimiento Reservoir were to empty almost completely (to something less than 27,900 acre-feet) and refill almost completely in one year (to something greater than 350,000 acre-feet). Furthermore, annual withdrawal limits under License 7543 (180,000 acre-feet) reduce the likelihood that the reservoir would be drawn to and below the current minimum pool requirement. The additional volume of withdrawal under the permit would allow for greater and more efficient use of Nacimiento River water on an annual basis.

QUANTITIES DIVERTED

For the reasons identified in the "Complete Use of Water" section, at this time no quantities of water have been stored or used under Permit 21089. For reference, since 1996 (the year that Application 30532 was filed), the largest annual volume of water stored in Nacimiento Reservoir occurred in water year 2019, when 313,789 acre-feet was stored. Storage is reported and accounted for in order of priority under the Nacimiento storage rights and therefore was fully credited under the senior License 7543. The largest annual withdrawal (or beneficial use) at Nacimiento since 1996 occurred during water year 2018, when 192,155 acre-feet was withdrawn from storage. Approximately 17,000 acre-feet of which was released for fisheries requirements, resulting in a net withdrawal of approximately 175,000 acre-feet. As noted in the "Complete Use of Water" section, in the past current minimum pool requirements, withdrawal limits, and physical capacities essentially prevented the ability to store water under Permit 21089. It is expected that development of the Interlake Tunnel Project will create opportunities for water to be stored and withdrawn for beneficial use under this permit.

INFORMATION ON BENEFICIAL USES

Per Capita Residential Water Use During the Maximum 30-day Period (gpd):
The Agency does not provide water directly to residential users and therefore does not have this information.

Extent of Past Use of Water for Any Other Purpose (identify gpd, cfs or afa):
The Agency reports all past purposes of water use from Nacimiento Reservoir in its annual Reports of Licensee submitted to the SWRCB. Additional details regarding the Agency's purposes of water use are included in prior sections of this Attachment.

APPROXIMATE AMOUNT SPENT ON PROJECT

Relative to the Interlake Tunnel Project, the Agency has spent approximately $8,000,000 to date, and anticipates the project will cost approximately $180,500,000 through completion.

WATER CONSERVATION

Measures in effect within the place of use:
The Agency has various water conservation ordinances in effect, including the following ordinances. Ordinance No. 3851 requires that all growers farming property within the Agency file plans annually showing the water conservation measures to be implemented for agricultural operations during that calendar year and the water conservation measures implemented during the previous year. Similarly, Ordinance No. 3886 requires annual water conservation plans from all cities and urban water purveyors.

In addition, the Monterey County Water Recycling Projects, a combination of the Castroville Seawater Intrusion Project and the Salinas Valley Reclamation Project, began construction in 1995 and started delivering recycled water to fields near Castroville in 1998. By using recycled water pumped from the Monterey Regional Water Pollution Control Agency, farmers can irrigate crops and reduce pumping of groundwater.

Measures planned:
At this time, there are no additional specific planned water conservation measures that are feasible within the place of use. The Agency's current water conservation efforts will continue, and additional projects and measures will continue to be evaluated in the future.

State of California
State Water Resources Control Board
DIVISION OF WATER RIGHTS
P.O. Box 2000, Sacramento, CA 95812-2000
Tel: (916) 341-5300 Fax: (916) 341-5400
http://www.waterboards.ca.gov/waterrights

ENVIRONMENTAL INFORMATION FOR PETITIONS

This form is required for all petitions.

Before the State Water Resources Control Board (State Water Board) can approve a petition, the State Water Board must consider the information contained in an environmental document prepared in compliance with the California Environmental Quality Act (CEQA). <u>This form is not a CEQA document.</u> If a CEQA document has not yet been prepared, a determination must be made of who is responsible for its preparation. <u>As the petitioner, you are responsible for all costs associated with the environmental evaluation and preparation of the required CEQA documents.</u> Please answer the following questions to the best of your ability and submit any studies that have been conducted regarding the environmental evaluation of your project. If you need more space to completely answer the questions, please number and attach additional sheets.

DESCRIPTION OF PROPOSED CHANGES OR WORK REMAINING TO BE COMPLETED

For a petition for change, provide a description of the proposed changes to your project including, but not limited to, type of construction activity, structures existing or to be built, area to be graded or excavated, increase in water diversion and use (up to the amount authorized by the permit), changes in land use, and project operational changes, including changes in how the water will be used. For a petition for extension of time, provide a description of what work has been completed and what remains to be done. Include in your description any of the above elements that will occur during the requested extension period.

The water right changes requested by this Petition would facilitate the Agency's Interlake Tunnel Project, which will connect Nacimiento Reservoir to San Antonio Reservoir by constructing an underground gravity flow tunnel Operationally, the Interlake Tunnel would divert water from Nacimiento to San Antonio Reservoir to optimize the use of existing storage capacity. The total volume of stored water from the Nacimiento River (including through the Interlake Tunnel Project) in any given year will not exceed the maximum amounts authorized under the Agency's existing water rights for storage of Nacimiento River water, License 7543 (Application 16124) and Permit 21089 (Application 30532) for up to 377,900 acre-feet. This Petition will not result in any exceedances of the Agency's existing water right terms and conditions, including the downstream fishery flow requirements.

The Project involves construction and grading activities for the tunnel intake facility at Nacimiento Reservoir, tunnel outlet facility at San Antonio Reservoir, an 11,000 ft underground tunnel and San Antonio dam spillway modification, which are described under "Construction Activity" on page 3 of this form.

Insert the attachment number here, if applicable:

Coordination with Regional Water Quality Control Board

For change petitions only, you must request consultation with the Regional Water Quality Control Board regarding the potential effects of your proposed change on water quality and other instream beneficial uses. (Cal. Code Regs., tit. 23, § 794.) In order to determine the appropriate office for consultation, see: http://www.waterboards.ca.gov/waterboards_map.shtml. Provide the date you submitted your request for consultation here, then provide the following information.

Date of Request: May 2016

Will your project, during construction or operation, (1) generate waste or wastewater containing such things as sewage, industrial chemicals, metals, or agricultural chemicals, or (2) cause erosion, turbidity or sedimentation?

- [ ] Yes
- [x] No

Will a waste discharge permit be required for the project?

- [ ] Yes
- [x] No

If necessary, provide additional information below:

Insert the attachment number here, if applicable:

Local Permits

For temporary transfers only, you must contact the board of supervisors for the county(ies) both for where you currently store or use water and where you propose to transfer the water. (Wat. Code § 1726.) Provide the date you submitted your request for consultation here.

Date of Contact:

For change petitions only, you should contact your local planning or public works department and provide the information below.

Person Contacted: Carl Holm

Date of Contact: June 2014

Department: Resource Management Agency

Phone Number: 831-755-5183

County Zoning Designation: Public / Quasi Public

Are any county permits required for your project? If yes, indicate type below.

- [x] Yes
- [ ] No

- [x] Grading Permit
- [x] Use Permit
- [ ] Watercourse
- [ ] Obstruction Permit
- [ ] Change of Zoning
- [ ] General Plan Change
- [ ] Other (explain below)

If applicable, have you obtained any of the permits listed above? If yes, provide copies.

- [ ] Yes
- [x] No

If necessary, provide additional information below:

Insert the attachment number here, if applicable:

Federal and State Permits

Check any additional agencies that may require permits or other approvals for your project:

- [x] Regional Water Quality Control Board
- [x] Department of Fish and Game
- [x] Dept of Water Resources, Division of Safety of Dams
- [ ] California Coastal Commission
- [ ] State Reclamation Board
- [x] U.S. Army Corps of Engineers
- [ ] U.S. Forest Service
- [ ] Bureau of Land Management
- [ ] Federal Energy Regulatory Commission
- [ ] Natural Resources Conservation Service

Have you obtained any of the permits listed above? If yes, provide copies. ○ Yes ◉ No

For each agency from which a permit is required, provide the following information:

Agency	Permit Type	Person(s) Contacted	Contact Date	Phone Number
CDFW	Streambed Alter	Julie Vance	May 2016	559-243-4005
CA DSOD	Enlargement	Andrew Mangeny	May 2016	916-227-4631
US Army Corps of Eng.	404	Greg Brown	April 2015	415-503-6791

If necessary, provide additional information below:

Central Coast Regional Water Quality Control Board 401 Certification Jon Rohrbough May 2016 805-549-3458

Insert the attachment number here, if applicable:

Construction or Grading Activity

Does the project involve any construction or grading-related activity that has significantly altered or would significantly alter the bed, bank or riparian habitat of any stream or lake? ◉ Yes ○ No

If necessary, provide additional information below:

The Project involves construction and grading activities for the tunnel intake facility at Nacimiento Reservoir, tunnel outlet facility at San Antonio Reservoir, and San Antonio dam spillway modification. The intake will be a reinforced concrete structure that covers an area 72 feet by 288 feet and comprised of foundation slab, walls, elevated slabs and associated fish exclusion screens. The outlet will be a concrete hydraulic-jump stilling basin that covers an area 25 feet by 53 feet and comprised of concrete transition chute, baffle blocks, and end sill. The underground tunnel will be 10,890 ft. long and 10 ft diameter. It will be conventionally mined with a roadheader excavator

The spillway modification will demolish the existing ogee spillway and construct a labyrinth weir and spillway extension. The labyrinth weir will be 17 feet tall, 40 feet wide, and 142 feet long. The existing spillway will be extended by 650 feet, with a width varying between 100 feet and 142 feet.

Insert the attachment number here, if applicable:

Archeology

Has an archeological report been prepared for this project? If yes, provide a copy. Will another public agency be preparing an archeological report?

Has an archeological report been prepared for this project?	◉ Yes	○ No
Will another public agency be preparing an archeological report?	○ Yes	◉ No

Do you know of any archeological or historic sites in the area? If yes, explain below. If necessary, provide additional information below: ○ Yes ◉ No

The cultural report may contain confidential cultural resources location information and report distribution is be restricted to those with a need to know. Cultural resources are non-renewable, and their scientific,cultural and aesthetic values can be significantly impaired by disturbance. To deter vandalism,artifact hunting, and other activities that can damage cultural resources, the locations of culturresources should be kept confidential. The legal authority to restrict this information is CA Government Code 6254.1 and the National Historic Preservation Act of 1966, as amended, Section 304. If the Water Board must have a copy of this report, please provide the contact information of the authorized individual for direct submittal.

Insert the attachment number here, if applicable: ____

Photographs

<u>For all petitions other than time extensions</u>, attach complete sets of color photographs, clearly dated and labeled, showing the vegetation that exists at the following three locations:

- ☒ Along the stream channel immediately downstream from each point of diversion
- ☒ Along the stream channel immediately upstream from each point of diversion
- ☒ At the place where water subject to this water right will be used

Maps

<u>For all petitions other than time extensions</u>, attach maps labeled in accordance with the regulations showing all applicable features, both present and proposed, including but not limited to: point of diversion, point of rediversion, distribution of storage reservoirs, point of discharge of treated wastewater, place of use, and location of instream flow dedication reach. (Cal. Code Regs., tit. 23, §§ 715 et seq., 794.)

Pursuant to California Code of Regulations, title 23, section 794, petitions for change submitted without maps may not be accepted.

This Petition is being made to coordinate between existing water rights held by the Agency and to facilitate the Interlake Tunnel Project. Thus, all maps are currently on file with the Division of Water Rights (see description in the Attachment to the Petition). Pending review by Division staff, any required changes will be made as directed.

All Water Right Holders Must Sign This Form:

I (we) hereby certify that the statements I (we) have furnished above and in the attachments are complete to the best of my (our) ability and that the facts, statements, and information presented are true and correct to the best of my (our) knowledge. Dated 3/30/2021 at Salinas, CA .

E-signed 3/30/2021

Water Right Holder or Authorized Agent Signature

Water Right Holder or Authorized Agent Signature

NOTE:

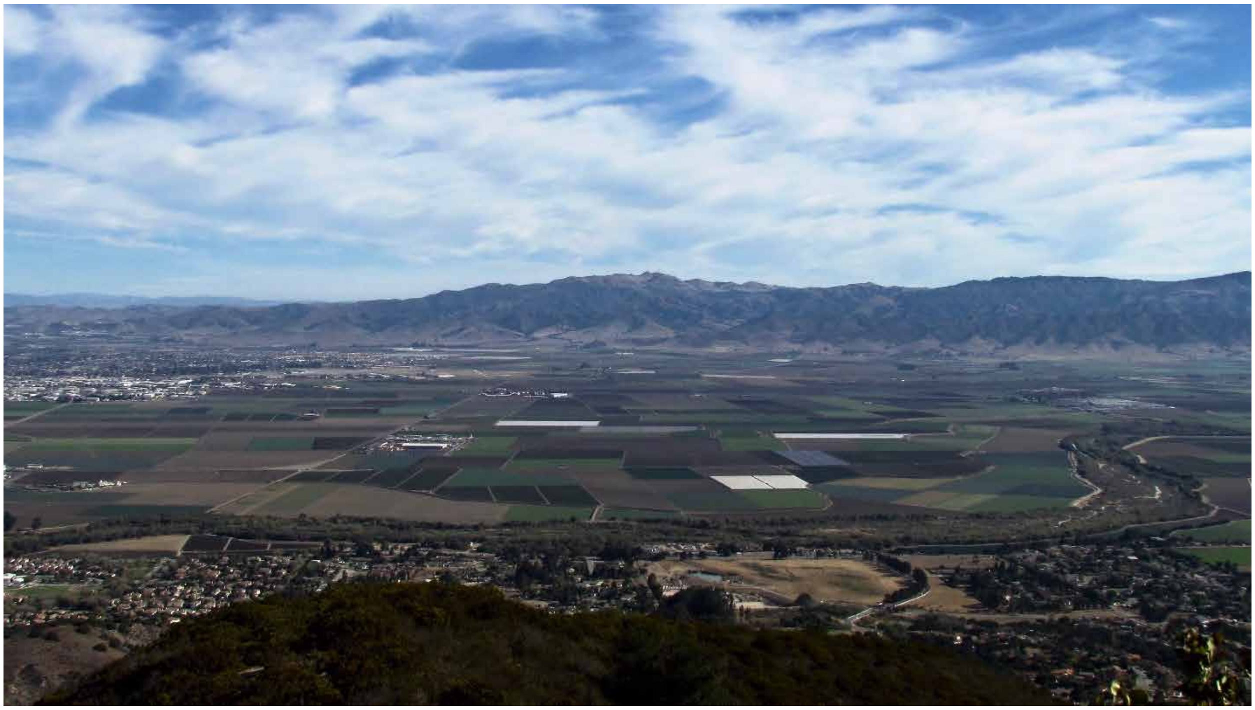
- **<u>Petitions for Change</u> may not be accepted unless you include proof that a copy of the petition was served on the Department of Fish and Game. (Cal. Code Regs., tit. 23, § 794.)**
- **<u>Petitions for Temporary Transfer</u> may not be accepted unless you include proof that a copy of the petition was served on the Department of Fish and Game and the board of supervisors for the county(ies) where you currently store or use water and the county(ies) where you propose to transfer the water. (Wat. Code § 1726.)**

Nacimiento River below the dam

Nacimiento Dam and Reservoir

San Antonio Reservoir

San Antonio Reservoir, dam and river below dam



Salinas Valley Place of Use

Salinas Valley Water Coalition

33 El Camino Real • Greenfield, CA 93927
(831) 674-3783 • FAX (831) 674-3835

TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Atten: Ms. Emily Gardner, Deputy General Manager 16 June, 2021

Re: SVBGSA Upper Valley Subbasin GSP, Chapters 9 Projects and Management Actions and Chapter 10 Implementation

Dear Ms. Gardner;

The Salinas Valley Water Coalition (Coalition) appreciates this opportunity to comment on the draft Chapters 9 and 10 of the Upper Valley Groundwater Sustainability Plan (GSP). This letter augments our December 7, 2020 and May 3, 2021 comments previously submitted on Chapter 9 and those comments are incorporated herein and are part of the administrative record. We ask that you share/distribute our comments to the UV Subbasin Committee so that the Committee members are afforded an opportunity to review and consider the comments herein prior to any decision making. We would like to state upfront that many of the herein comments are based on our understanding that the Upper Valley Subbasin is sustainable.

Chapter 9 Projects and Management Actions

Section 9.1 Introduction

This section provides an overview of the basis and goals for projects and management actions that will allow the Subbasin to ***attain*** sustainability. [emphasis added]

Comment: The SVBGSA staff and the GSP itself, states that the Upper Valley Subbasin is currently sustainable. It would be more appropriate to state that **the projects and management actions will allow the Subbasin to ‘maintain’ sustainability;** isn’t that the true goal of the GSP and SGMA?

The GSP states that the following action is needed to achieve a number of outcomes the projects and management actions are designed to achieve: “providing incentives to ***constrain*** groundwater pumping with limits”. [emphasis added]

Comment: Groundwater pumping limits are not needed in the Upper Valley Subbasin. The Upper Valley Subbasin is sustainable and does not show any undesirable results ”constrain” groundwater pumping with limits. This sentence should be deleted or modified to reflect the sustainability of the Upper Valley Subbasin.

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

Section 9.2.1 Process for Developing Projects and Management Actions

This section states that the projects and management actions for this GSP, involve building on, revising, and adding to the projects and management actions developed for the entire Valley as part of the 180/400-Foot Aquifer Subbasin GSP. The section goes on to state that the projects that could benefit the Upper Valley Aquifer Subbasin were considered and refined for this GSP.

Comment: Bulletin 118 clearly distinguished the 180/400-Foot Aquifer Subbasin from the Upper Valley Subbasin. That is, the two subbasins are not only physically distanced, but their respective hydrogeology is clearly distinct from one another. Accordingly, the projects and management actions for the 180/400-Foot Aquifer Subbasin would not necessarily apply to the Upper Valley Subbasin, particularly since the Upper Valley Subbasin is sustainable, i.e., does not show undesirable results. Applying projects and management actions of the 180/400-Foot Subbasin to the Upper Valley Subbasin is inappropriate.

Section 9.2.2 Cost Assumptions Used in Developing Projects

The fourth paragraph discusses the annual operations and maintenance fees to operate and maintain new project infrastructure. It then goes on to state that O&M costs do not include the O&M or pumping costs associated with existing infrastructure because these are assumed to be part of the ***water purchase costs.*****[emphasis added]** The discussion continues on to say that water purchase costs are assumed to include repayment of loans for existing infrastructure.

Question: What is considered a 'water purchase cost'? Is this referring to project capital costs for projects that provide a new supply of water or?

Comment: The Coalition is opposed to any water purchase costs. The Upper Valley Subbasin is sustainable and does not likely need any new project to maintain its sustainability. The Upper Valley Subbasin is wholly dependent on how the Monterey County Water Resources Agency (Agency) operates the reservoirs. Specifically, the Upper Valley Subbasin will maintain its sustainability if the Agency captures the additional 29,000 acre-feet and reoperates the reservoirs consistent with the Salinas Valley Water Project. During any prolonged drought period, the Agency will engage its Technical Advisory Committee to implement reservoir operations that would hopefully maintain the sustainability of the Upper Valley Subbasin such as by providing winter releases.

Section 9.3 Overview of Projects and Management Actions

This section states the GSP is part of an integrated plan for managing groundwater in all 6 subbasins of the Salinas Valley that are managed by the SVBGSA. It goes on to state that the Upper Valley Subbasin GSP focuses on the projects that directly help the Upper Valley Aquifer Subbasin ***reach*** its sustainability goals and also includes Valley-wide projects outside the Subbasin that supposedly benefits the subbasin and reduces the need for additional projects and management actions.

Comment: Since it has been stated by the SVBGSA staff, supported by the Upper Valley Subbasin GSP, that the Upper Valley Subbasin is sustainable, no additional project is needed as stated above. Additionally, it would be more appropriate to state the GSP focuses on the projects and management that directly help the Upper Valley Aquifer Subbasin ***'maintain'*** its sustainability.

We appreciate that the focus of the GSP is on projects and management actions that directly benefits the Upper Valley. We note two projects/management actions that are missing from the project list in the GSP; specifically, (1) the deferred maintenance of the two reservoirs and (2) habitat conservation plan (HCP). Although the SVBGSA is not the lead agency for these two projects, they both are essential for projects and management actions to proceed. The Coalition believes these two important projects should be, at the very least, mentioned in the GSP and should be supported by the SVBGSA.

Table 9-1 Projects and Management Actions

Comment: Under the cost section of B1 and B2, it is stated that the capital costs are valley-wide, while it does not show the distribution of special benefits throughout the valley. Unless and until the special benefits for each project are determined in an engineer's report, it is not appropriate to state the capital cost is to be applied valley-wide. We suggest that the table be revised to simply state 'Capital Cost'.

Section 10.3 Road Map for Refining and Implementing Projects and Management Actions

Section 10.3.4 makes the following statement:

> "The Drought TAC will likely be compatible with either the Interlake Tunnel or Winter Release project; however, the compatibility of the Interlake Tunnel, Winter Release project, and any other reservoir reoperation projects that arise needs to be evaluated. ***SVBGSA will begin these steps before or immediately following the submittal of the GSP." [emphasis added]***

Comment: To our knowledge neither the Interlake Tunnel, nor the Winter Release project, has a final/complete project description. Moreover, the SVBGSA is not the lead agency on the Interlake Tunnel project. Further, the Winter Release project involves Agency's infrastructure and actions, i.e., Agency has control over its assets – the reservoirs. The Drought TAC is a committee separate from the SVBGSA and should not be influenced by the SVBGSA. The SVBGSA is overstepping by taking any step on evaluating compatibility of either project, when both projects involve the Agency's infrastructure and authority. Should the Agency proceed with these projects, SVBGSA's role is limited to submitting comments during the application process.

Section 10.5.3 Funding for Projects and Management Actions

Comment on Fees: There has been much discussion throughout the development of this GSP and of other subbasin GSPs of the water charges framework and water marketing. It is our understanding that the Upper Valley Subbasin Committee has rejected the idea of a water charges framework and/or water marketing. The Coalition believes there should be a statement in the GSP that reflects the discussion and direction the Upper Valley Subbasin Committee gave on this matter – in other words, no development of a water charges framework or water market at this time.

Thank you for your consideration of the foregoing comments.

Sincerely,

Nancy Isakson

Nancy Isakson, President
Salinas Valley Water Coalition

COMMUNITY WATER CENTER
EL CENTRO COMUNITARIO POR EL AGUA

San Jerardo Cooperative, Inc.

June 17, 2021

Salinas Valley Basin Groundwater Sustainability Agency

Submitted electronically to:

Emily Gardner, Deputy General Manager

Donna Meyers, General Manager

Re: Comments on the Draft Salinas Valley GSP Chapters 2, 9, and 10 for the Langley, East Side, Forebay, and Upper Valley Subbasins

Dear Salinas Valley Basin Groundwater Sustainability Agency:

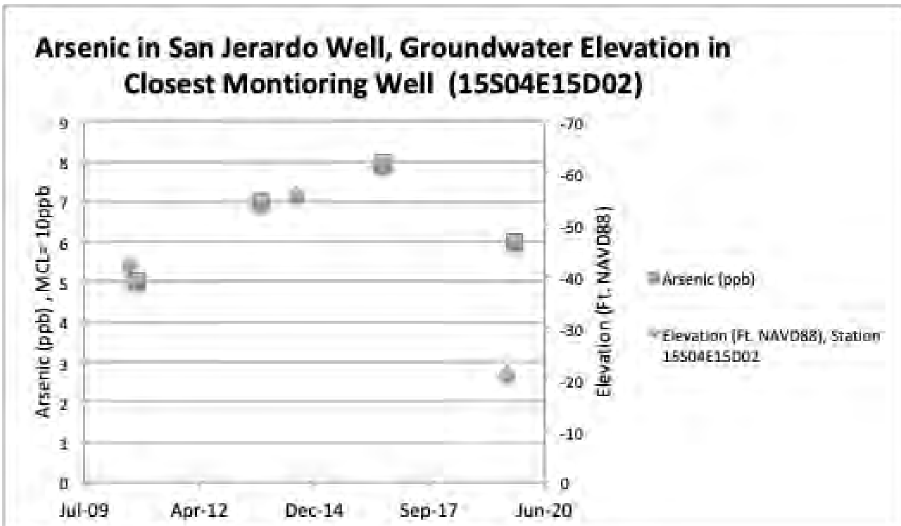
The Community Water Center (CWC) and the San Jerardo Cooperative would like to offer comments and recommendations in response to the draft Groundwater Sustainability Plans (GSPs) Chapters 2, 9, and 10 for the Langley, East Side, Forebay, and Upper Valley Subbasins that were released mid-2021 by the Salinas Valley Basin Groundwater Sustainability Agency (SVB GSA). These comments are intended to add to the public record and are submitted in addition to previous written and spoken comments.

We reiterate the following context for this comment letter and the San Jerardo Cooperative's participation in particular. The challenges facing San Jerardo and similar communities throughout all the subbasins in the Salinas Valley are the foundation of our comments in this letter. The San Jerardo Cooperative's well is highly vulnerable to changes in groundwater levels and groundwater quality. Over decades of living and working at San Jerardo Cooperative, Advisory Committee Member Horacio Amezquita has observed firsthand how the irrigation practices on properties surrounding the cooperative impact the water quality in their current and former wells. The San Jerardo Cooperative receives drinking water from a small public water system (CA2701904) and is very concerned that pumping, irrigation practices, and groundwater management in the East Side Subbasin will cause their drinking water well, which currently meets all drinking water standards, to exceed the maximum contaminant levels for arsenic and/or nitrate. Unfortunately, data from the State Water Board indicates increasing levels of nitrate and arsenic in their well with a high arsenic level of 8 ppb on 8/22/2016 that also corresponds to a low groundwater elevation of -61.5 in Station 15S04E15D02, the closest monitoring well to the San Jerardo Cooperative's well (See CWC Figures 1 and 2).[1] While there are too few monitoring data points to draw significant conclusions, CWC Figure 1 does suggest that arsenic levels are higher when groundwater levels are lower. Scientific studies confirm that contaminants like arsenic,

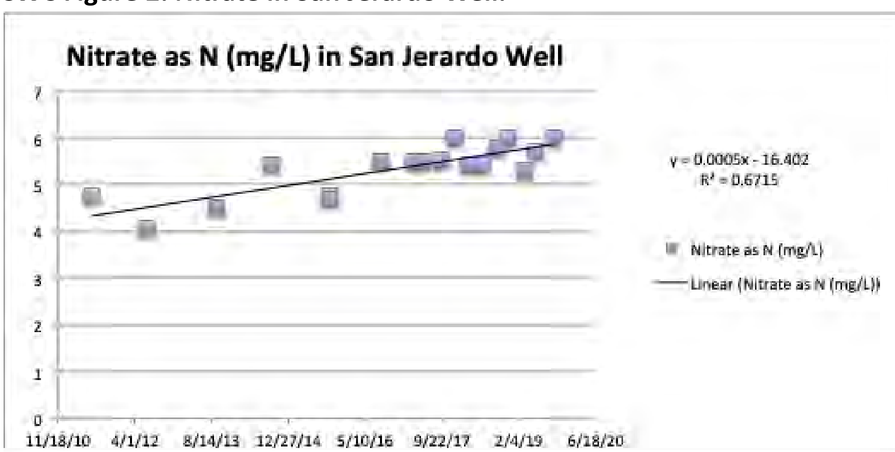
[1] CWC Figure 1 contains all available arsenic data from the State Water Board's Drinking Water Watch online database (https://sdwis.waterboards.ca.gov/PDWW/) which was collected in October 2010, 9/11/13, 8/22/16, and 9/23/19. We then added the monitoring data for Station 15S04E15D02 for the dates most close to the arsenic sampling dates (August 2010, August 2014, August 2016, and August 2019). CWC Figure 2 data was also downloaded from the same online database.

uranium, and chromium (including hexavalent chromium) are more likely to be released under certain geochemical conditions influenced by pumping rates, geological materials, and water level fluctuations.[2]

CWC Figure 1: Arsenic in San Jerardo Well, Groundwater Elevation in Closest Monitoring Well
(Note: The groundwater elevation y-axis is reversed to illustrate that lower groundwater elevations are associated with higher arsenic levels.)



CWC Figure 2: Nitrate in San Jerardo Well.



We provide more specific chapter-by-chapter comments below. We also reiterate our recommendation that the GSP should be revised throughout to acknowledge the science showing that groundwater pumping and groundwater level changes can influence water quality. This recommendation is supported by DWR's 180/400 ft Aquifer GSP Determination on June 3, 2021:

[2] Community Water Center and Stanford University (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium*. Available at: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

"**[S]taff find that the approach to focus only on water quality impacts associated with GSP implementation, i.e., GSP-related projects, is inappropriately narrow.** Department staff recognize that GSAs are not responsible for improving existing degraded water quality conditions. **GSAs are required; however, to manage future groundwater extraction to ensure that groundwater use subject to its jurisdiction does not significantly and unreasonably exacerbate existing degraded water quality conditions.** Where natural and other human factors are contributing to water quality degradation, the GSAs may have to confront complex technical and scientific issues regarding the causal role of groundwater extraction and other groundwater management activities, as opposed to other factors, in any continued degradation; but **the analysis should be on whether groundwater extraction is causing the degradation in contrast to only looking at whether a specific project or management activity results in water quality degradation**. Department staff recommend that the SVBGSA coordinate with the appropriate water quality regulatory programs and agencies in the Subbasin to understand and develop a process for determining when groundwater management and extraction is resulting in degraded water quality in the Subbasin (see Recommended Corrective Action 5)."[3]

We reiterate our strong recommendation that the GSPs incorporate a more robust and representative monitoring network and minimum thresholds to protect vulnerable communities like San Jerardo and those dependent on shallow domestic drinking water wells. This network should include state and local small water systems.

Thank you for reviewing this letter and for the consideration of our comments on the draft GSP chapters. We look forward to working with the SVB GSA to ensure that the GSPs are protective of the drinking water sources of vulnerable, and often underrepresented, groundwater stakeholders. Please do not hesitate to contact us with any questions or concerns. We also look forward to meeting with you in the future to further discuss issues raised in this and past comments.

Sincerely,

Heather Lukacs | Horacio Amezquita

Heather Lukacs
Community Water Center

Horacio Amezquita
General Manager, San Jerardo Cooperative, Inc.

Justine Massey | Mayra Hernandez

Justine Massey
Community Water Center

Mayra Hernandez
Community Water Center

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[3] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* Pp. 26-27. (Internal citations omitted; emphasis added). Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

GSP Chapter 2: Communications and Public Engagement

Community Water Center appreciates the statement found in Chapter 2 of the Langley, Eastside, Forebay, and Upper Valley subbasins: "[T]he success of the... Subbasin GSP will be determined by the collective action of every groundwater user."[4] Public engagement invites citizens to get involved in deliberation and to take action on public issues that are important to them. More importantly, it helps leaders and decision-makers have a better understanding of the perspectives, opinions, and concerns of citizens and stakeholders, especially those who are traditionally underrepresented. DWR's Guidance for Stakeholder Communication and Engagement acknowledges that public engagement, when done well, goes far beyond the usual participants to include those members of the community whose voices have traditionally been left out of political and policy debates.[5] Additionally, as part of a Strategic Planning Review, SVB GSA has recently recognized an overrepresentation of agricultural interests in its GSP formation process and voiced interest in balancing its representation. In this light, we offer the following recommendations:

- **Specify which outreach strategies will be used to reach underrepresented communities and disadvantaged communities.** The proposed goals for communication and engagement actions and strategies in this chapter are in some senses robust, but lack important details to ensure that all beneficial users, especially underrepresented communities and disadvantaged communities, will have access to all of the resources that are being proposed. It must be noted that underrepresented communities and disadvantaged communities may not have access to the internet, therefore they may not have access to the online resources on either the SVB GSA website or through social media. Additionally, in the case that they do have access to the internet, they may lack knowledge or familiarity regarding how to access the online resources.
- **Fast-track stakeholder outreach efforts in order to meaningfully engage beneficial users throughout the basin in the GSP development process currently underway.** SGMA specifically requires GSAs to "encourage the active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin *prior to and during the development and implementation of the groundwater sustainability plan.*"[6]
    - Based on our review of the language in Chapter 2 of the Subbasin GSPs, it seems like the outreach and engagement strategies outlined in Section 2.7, which are specific to the underrepresented communities and disadvantaged communities in the Basin, are to be put in place after the GSP is submitted in 2022.
    - This delay would result in little to no participation or input from these communities during the GSP development process currently underway. The regulations similarly require that a GSP summarize and identify, "opportunities for public engagement and a discussion of how public input and response will be used."[7] The GSA thus must engage,

[4] SVB GSA (2021). *Subbasin GSPs Draft - Chapter 2: Goals for Communication and Public Engagement.* P. 10 (in all drafts). Available at: https://svbgsa.org/subbasins/.
[5] DWR (2018). *Guidance Document for Groundwater Sustainability Plan: Stakeholder Communication and Engagement.* Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Assistance-and-Engagement/Files/Guidance-Doc-for-GSP---Stakeholder-Communication-and-Engagement.pdf.
[6] Water Code §10727.8. (Emphasis added).
[7] 23 CCR §354.10(d)(2).

"diverse social, cultural, and economic elements of the population within the basin."[8] SGMA Regulations recognize that failure to engage adequately with a diverse cross-section of the public undermines the likelihood that a GSP will avoid undesirable results and meet its sustainability goal.[9]

- **Provide a strategy for how to reach stakeholders with limited or no SGMA knowledge.** In Subbasin GSPs' Section 2.6.3, SVB GSA acknowledges that there is a "variety of audiences targeted within the Basin whose SGMA knowledge varies from high to little or none." However, no strategy is provided for how those with no knowledge will be reached. This chapter should be modified to include more details on how and what additional strategies will be implemented to ensure that SVB GSA is reaching all beneficial users. We recommend the following approaches:
    - **Include more grassroots-based approaches, which are critical to actually reaching stakeholders and fulfilling the GSA's goal.** One of the goals of the CPE Actions which we strongly support is to "invite input from the public at every step in the decision-making process and provide transparency in outcomes and recommendations." However, based on the communication/ outreach strategies mentioned in the chapter, efforts fall short of inclusivity. The general public does not always have access to certain resources like the internet, and even if they do have access they may not know how to use social media, use email, or browse the web.
    - **Document and continue the policy of providing translation services at public meetings and of providing bilingual (English and Spanish) information and materials on the website, via email, and paper mail.** The Dymally-Alatorre Bilingual Services Act requires that public agencies serving over 10% of non-English speaking constituents provide appropriate translation services.[10] At a minimum, translated information should be provided during Plan updates and prior to critical decisions. In particular, the submitted GSP released during the formal comment period should include bilingual materials highlighting key summaries of the GSP. Critical decision points also include the adoption of groundwater fees, the approval of new groundwater projects or management actions, and decisions around pumping restrictions.
    - **Consider inserting short notices in water bills and/or community newsletters on a monthly basis (notices should include key messages, visuals and information that is relevant to the average water user).** These notices must be translated as described above.
    - **Specify how and when the accessible and culturally responsive GSA materials mentioned in Section 2.7 will be developed to communicate impacts of groundwater management on local water conditions and how they will be delivered or made available to URCs and DACs that don't have internet access.** Accessibility includes appropriate visual content and translation.
    - **Consider using USPS every door direct mail (EDDM) to send out educational materials and updates to all stakeholders.** This tool can be used to map ZIP Code(s) and neighborhoods, it also has a filter feature that lets you filter by age, income, or

[8] DWR (2018). *Guidance Document for Groundwater Sustainability Plan: Stakeholder Communication and Engagement.* P. 1. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Assistance-and-Engagement/Files/Guidance-Doc-for-GSP---Stakeholder-Communication-and-Engagement.pdf.

[9] 23 CCR §355.4(b)(4).

[10] California Government Code §7290.

household size using U.S. Census data. This tool can be helpful to reach stakeholders that don't have internet access.

- **Clearly identify and utilize existing community venues (on a monthly basis if possible) for community meetings, workshops, and events to provide information**. For example, the GSA could hold educational workshops during water board and school district board meetings, or after church services. Venues should be carefully selected in order to meet the needs of the targeted audience.
- **Clearly identify radio channels, social media avenues, websites, and other media outlets readily accessible to the community**. The submitted GSP should be revised with a policy requiring a broader outreach effort in the near future, with bilingual outlets.
- **Specify a timeline to work with key community leaders or trusted messengers on at least a monthly basis to distribute information and encourage community participation.** Venues for such leaders to share information could include churches, civic groups, clubs, non-profit organizations, and schools.
- **Consider hosting Spanish-only outreach meetings, as they can be more effective in transferring knowledge and receiving feedback.** It can be a challenge to provide real-time translation of technical groundwater terms and concepts in a way that is understandable and promotes participation, so it may be appropriate to conduct a meeting entirely in Spanish so that participants can be fully immersed in the discussion.
- **Consider hiring a bilingual Stakeholder and Outreach Communication specialist as part of the SVB GSA staff.** As expanding the GSAs audience reach and maintaining a robust stakeholder list of interested individuals, groups and/or organizations is a good step to ensure that the general public is informed about the GSA's activities, it may take a lot of time and effort to develop a clear methodology to conduct focused outreach to obtain a representative list of all stakeholders (more inclusive of just those who engage online) and make sure they stay informed and engaged.

GSP Chapter 9: Projects and Management Actions

Projects and Management Actions should benefit the basin and all beneficial users. While determining how those benefits will be distributed based on the nature of different projects and actions, and who should bear the associated costs, the SVB GSA should keep in mind the **"polluters pay" principle,** in combination with the **"users pay for benefits" principle**. While it makes sense to associate local benefits with local cost-share, drinking water users should not be put into the position of shouldering additional costs to protect their basic Human Right to Water. Domestic water use has not led to overdraft conditions, as evidenced by the statutory designation of "de minimis" use. Nor should benefits be distributed based on which interested parties can most easily fund a project, but rather towards the overall sustainability of the basin and equity of benefits among beneficial users.

Recharge Projects (Direct or Indirect)

We offer the following overarching comments regarding Recharge Projects in the Subbasin GSPs:

- **Assess constituents in the ground before using land for recharge, to avoid further contamination.** Reference the Groundwater Recharge Assessment Tool (GRAT) developed by Sustainable Conservation.[11]
    - On-farm recharge has the potential to further spread contaminants. Soil contaminants should be measured before dedicating the land to recharge purposes. "Short-term" impacts on domestic wells due to recharge efforts, which can include increased leaching of certain contaminants such as uranium, or displacement of contaminant plumes, should be mitigated in order to minimize the harm to beneficial drinking water users, and to replace water sources if compromised.[12]
- **Implement recommendations from our previous comment letter regarding Section 5.4, as they are also pertinent to successful recharge management**:
    - "**[I]nclude a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have been detected in the subbasin and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** This section should include water quality data (both in map and tabular form) for all constituents (where available) with primary drinking water standards that have been detected in the subbasin including, but not limited to, nitrate, 123-trichloropropane, hexavalent chromium, arsenic, uranium, and perchlorate for all public drinking water wells, state and local small water system wells, and private domestic wells. It is especially important for all groundwater stakeholders to be able to understand and visualize the location of contaminant hotspots throughout each subbasin.
    - **Present maps and supporting data for all constituents of concern.** The review of water quality data in the groundwater conditions section of the draft Section 5.4 in the subbasin GSPs is focused primarily on nitrate. The GSPs identify numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, do not present this data spatially. Even though the subbasin GSPs set water quality minimum thresholds for additional constituents (See Tables 8-4 and 8-5), the supporting data is not all presented, and no analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR § 354.16(d))."[13]
- We appreciate the identification of multi-benefit improvements to streams, and agree that slowing the speed of groundwater in its course of movement is a useful way to increase recharge. Such improvements to multi-benefit streams are a cost-effective and low-harm recharge method.

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[11] Sustainable Conservation. *Groundwater Recharge Assessment Tool.* https://suscon.org/wp-content/uploads/2016/08/GRAT-Summary-8-2017.pdf.
[12] Community Water Center and Stanford University (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium*. Available at: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.
[13] Community Water Center and San Jerardo Cooperative, Inc. *Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins.* (April 2021). P. 7. On file with SVB GSA and available at: https://drive.google.com/file/d/1wH7wvCMmQd4bu_PIri5o66_y5caW9ti7/view.

Reoperation of Reservoirs

We offer the following overarching comments regarding Reoperation of Reservoirs projects:

- **Conduct holistic cost-benefit analyses for large-scale infrastructure projects such as the MCWRA Interlake Tunnel and Spillway Modification, taking into account the specific benefits that projects will or will not confer on underrepresented communities and DACs, including the San Jerardo Cooperative in the Eastside Subbasin.**
  - Benefits should be equitable and take into account how different climate projections would impact the potential benefits from such a project in the case of little to no rainfall.
  - Cost-benefit analyses should also consider alternatives that could provide affordable long-term benefits.
- **The MCWRA Drought TAC should ensure that all beneficial water users are considered, and that drinking water needs are particularly protected from harm during current and future droughts, in line with the Human Right to Water.**

Management Actions

Conservation and Agricultural BMPs

- **Best Management Practices (BMPs) should utilize the latest technologies and take advantage of opportunities to modify agricultural pumping needs in order to provide overall groundwater basin benefits for all beneficial users.**
- **BMPs should also be used as a mechanism to improve or stabilize groundwater quality by using evapotranspiration (ET) data with soil moisture sensors and soil nutrient data to promote efficient irrigation practices and limit the application of synthetic fertilizers.**
- **BMPs should include best available science, including climate-smart approaches and nature-based solutions which have been recognized on state, national, and international levels.** For example, while written with the Central Valley in mind, FoodFirst's *Healthy Soils, Healthy Communities* outlines the following strategies and benefits which can also be applied to the Central Coast:
  - **Soil organic matter can reduce soil fumigant emissions** – Pesticides applied directly to soils form short-lived climate pollutants, and contribute to air and water pollution. Increased soil organic matter can reduce fumigant emissions and reduce the need for fumigants in the first place.
  - **Soil organic matter slows water contamination** – Synthetic fertilizer and pesticides have contaminated drinking water in the Central Valley over the last 70 years. Soils higher in organic matter leach fewer pollutants, including nitrates and pesticides. Soils high in organic matter also require less synthetic fertilizer to produce a crop. Using compost instead of synthetic fertilizer can reduce nitrogen loads in the Valley. Over time, increased soil organic matter and riparian restoration could help reduce groundwater contamination.

- **Composted manure from dairies could be a source of soil organic matter** – Concentrated manure from industrial dairies is a major local air quality and water quality issue. If that manure were composted, it could become a source of valuable nutrients and soil organic matter instead of a pollutant, and help displace the use and manufacture of synthetic fertilizers.
- **Composting farm waste could prevent black carbon emissions** – Instead of burning orchard waste, another local air pollutant, mulches and composted farm waste could be a source of soil organic matter for farms and rangelands.
- **Rural workforce development and wildfire management** – From the Conservation Corps, to ecological restoration, nursery stock production, wetland management and fire prevention, there is a lot of work to do to conserve and increase terrestrial carbon on public and private lands. This is an opportunity to both train and employ young people with low-to-moderate incomes and in communities of color in natural resource and agricultural management.
- **Carbon-friendly practices can support small scale and immigrant farmers** – Public support for carbon-friendly practices could help make small to mid-scale and immigrant farmers more resilient and boost their bottom line through a combination of financial support for carbon-friendly practices and more stable land access. These programs will have to be accessible to small scale farmers and take into account chronic issues around access to land, credit and technical assistance.
- **Healthy food systems in the San Joaquin Valley** – Soil carbon is part of a much larger project to re-design food systems that better support people and the environment in the San Joaquin Valley.[14]

Fallowing, Fallow Bank, and Agricultural Land Retirement

- **Dewatered drinking water wells or migration of contamination plumes should be considered as factors when deciding where to incentivize targeted agricultural fallowing or land retirement, and should trigger pumping restrictions in affected areas as necessary.** This approach is further elaborated in the Drinking Water Well Impact Mitigation Framework[15], which has been shared with the GSA and is in the process of being partially integrated into another section of the Subbasin GSPs.

Forebay Pumping Technical Advisory Committee (TAC)

- **Quantify the necessary demand reductions (pumping restrictions) in order to meet all minimum thresholds in the short and long-term, including in dry conditions. Parameters for pumping restrictions in times of widespread water shortages should be decided ahead of time**

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[14] Food First- Shattuck, et al. (April 2017). *Healthy Soils, Healthy Communities: Opportunities to Bridge Environmental Justice and Soil Carbon Sequestration*. P. 3. Available for download at: https://foodfirst.org/publication/healthy-soils-healthy-communities-opportunities-to-bridge-environmental-justice-and-soil-carbon-sequestration/.

[15] Self-Help Enterprises, Leadership Counsel for Justice and Accountability, Community Water Center (2020) *Framework for a Drinking Water Well Impact Mitigation Program*. Available at: https://static1.squarespace.com/static/5e83c5f78f0db40cb837cfb5/t/5f3ca9389712b732279e5296/1597811008129/Well_Mitigation_English.pdf.

as part of a publicly-informed, adaptive management approach. Decisions around pumping regulation should be made as part of GSP development and not relegated to a later decision-making body which will be inherently less accountable to the public than SVB GSA's current Committees and Board. It will not be sufficient to solely bring pumping decisions to the public after actions have already been designed and are at the point of being approved. Lack of public input for such a critical component of the GSA's management is especially troubling in the negative—if action is not being taken.

- **As part of an adaptive management approach, pumping restrictions should be implemented by the GSA in a timely way so as to prevent harm to beneficial users, particularly vulnerable drinking water users and DACs.** As currently proposed, there is no set criteria for when or to what extent pumping restrictions would be implemented, except for the general outline that they may go into effect in the summer months. The timeline for the Ad Hoc group to be summoned, create a plan, and put that plan into action is simultaneously compressed (planning should occur ahead of time, as the comment above stresses), and delayed—pumping should be curtailed in response to on-the-ground conditions, which may show stress much earlier than the summer months when domestic wells are potentially already going dry due to insufficient groundwater levels.

SMC Technical Advisory Committee (TAC)

- **Create management zones with pumping restrictions in areas with vulnerable drinking water wells.**
- **The SMC TAC should consider and recommend projects and management actions that mitigate groundwater quality degradation for drinking water users due to GSA actions, including impacts resulting from over-extraction under GSA management, as was clarified in DWR's 180/400ft Aquifer Determination Letter on pages 26 and 27.**

Pumping Allocations and Control

- **Quantify demand reductions necessary in order to meet all minimum thresholds in the short and long-term, including considering water quality impacts.** Designing a feasible and effective allocation structure requires thorough groundwater elevation data as well as a comprehensive, ongoing assessment of the interrelated effects of SMCs on one another. Pumping allocations must be responsive to groundwater conditions throughout the basin and avoid undesirable results.
- **Consider hybrid allocation systems which account for de-minimis users, regardless of homeownership status, to ensure sustainable yields for all beneficial users.** Langley GSP proposes such a hybrid allocation system in which de-minimis users are included within the estimated sustainable yield. This approach will provide a more complete picture of groundwater use within the basin, to inform groundwater management decisions.

Floodplain Enhancement and Recharge

- **Floodplain restoration should consider contaminants in any area selected for recharge to avoid transport of any contamination plumes into the aquifer.**

Implementation Projects

Groundwater Elevation Management System (GEMS) Expansion

- **Include data from more drinking water wells, including small water system wells and domestic wells, in order to have a sufficiently representative monitoring program.**

Water Quality Partnership (formerly Domestic water partnership)

- **Integrate key components of a Drinking Water Well Mitigation Program Framework in order to protect drinking water users from losing access to their drinking water during GSP implementation.** We appreciate that SVB GSA has begun this process of incorporating concepts from the Mitigation Framework, and we plan to offer further information including a presentation to the Committees and Board.
- **Integrate water quality considerations across planning and implementation.** Groundwater quality in the Subbasins can be influenced by pumping and the way groundwater is managed. This is of particular importance for the San Jerardo Cooperative who has experienced increases in nitrate and arsenic in their well, as highlighted in our cover letter and previous comments.[16]
    - Support for this recommendation is evidenced by Recommendation #5 of DWR's 180/400 GSP Determination.
- **Fill previously identified water quality data gaps in baseline information and the monitoring network.**
    - DWR assesses water quality monitoring in the 180/400ft Aquifer as follows: "The monitoring network to evaluate degradation of groundwater water quality is based on three existing water quality regulatory programs operating in the Subbasin: Monterey County's small community water system wells program, the State Water Resources Control Board's public supply well program, and the Central Coast Water Board's Irrigated Lands Regulatory Program. The Plan proposes to use four sets of wells that are routinely sampled under these programs. Within each set of wells, a specific set of constituents of concern will be monitored. In total, the monitoring network consists of 136 small community water system wells, 51 public supply wells, and a currently unknown number of domestic and agricultural wells from the Irrigated Lands Regulatory Program. The specific number of Irrigated Lands Regulatory Program wells will be finalized when the Central Coast Water Board adopts Agricultural Order 4.0 (anticipated in 2020). The Plan identifies the lack of well construction information (e.g., the depth of well screens or the total depth of the well) for many groundwater quality monitoring wells as a data gap. The implementation chapter of the Plan simply states that "[d]uring implementation, the SVBGSA will obtain any missing well information, select wells to include in monitoring network, and finalize the water quality network." Department staff recommend the SVBGSA provide updates on the

[16] Community Water Center and San Jerardo Cooperative, Inc. *Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins.* (April 2020). Pp. 4-5. On file with SVB GSA and available at: https://drive.google.com/file/d/1wH7wvCMmQd4bu_PIri5o66_y5caW9ti7/view.

progress toward filling this data gap in its annual reports and that more details be provided in the first five-year assessment of the Plan."[17]

Localized Groundwater Elevation Triggers

This implementation project is an important component of the Subbasin GSPs, for tracking and responding to impacts due to droughts and overdraft. We recommend:

- **Integrate technical assistance into this program, facilitate access to resources through a collaboration with state agencies and/or directly administer impact mitigation funding.**
  - Tracking instances of dry or depleted wells and linking impacted beneficial users to information about potential available resources is a positive step, however services such as directing DACs and other impacted drinking water users to apply for funding would only be minimally helpful while those households are experiencing a water shortage crisis. The GSA's efforts to respond to impacts due to low groundwater elevations should go further in order to be effective. Such services should include reducing pumping in areas where groundwater supply shortages are being exacerbated by over extraction, actively facilitating coordination between residents and assistance programs, and potentially providing a conduit to state funds directed towards water resiliency—a multi-billion dollar drought & water resiliency package is currently being finalized in the State Legislature.

Well Registration

- **We reiterate our recommendation that SVB GSA require all wells to be metered and charge fees based on the amount of water pumped, to pay for future projects and incentivize voluntary reductions.**

Support Protection of Areas of High Recharge

- **Develop criteria for recharge projects that prevent unintended impacts to drinking water.**
- **For all recharge projects, evaluate whether recharge could have any unintended consequences such as moving contaminant plumes to wells that are currently not contaminated, and closely monitor water quality in areas affected by recharge.**
- **Encourage use of low-impact cover crops where water is captured at the site of precipitation.** Roots in the soil help to capture more water, clean the water source, and maintain healthy soils so that less fertilizer/pesticide is used, as evidenced in organic and regenerative agricultural practices. Cover crops and compost cycles, as well as chicken manures or natural organic-matter fertilizers can also keep nitrogen in the soil longer, providing benefits to crops and keeping nitrate out of groundwater).

New Water Supply Projects

- **Quantify which combinations of projects could address projected overdraft and what the costs of those combinations would be.** With high costs, permitting and other challenges, there is a

[17] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* Pp. 30-31. (Internal citations omitted). Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

high degree of uncertainty whether each project can be implemented. As written, it is difficult to evaluate how feasible it is to address overdraft via the options provided.

  - For example, in the Eastside GSP draft, Table 6-15 in Chapter 6 projects 20,400 AF/yr overdraft in 2030 and 20,500 AF/yr overdraft in 2070. Table 9-8 in Chapter 9 lists projects that could mitigate overdraft. However, Table 9-8 only quantifies benefits for some of the projects, and often for the Salinas Valley basin as a whole as opposed to the Eastside Subbasin. The table also omits costs. This information will be critical for planning and implementing projects to address overdraft.

- **Factor in known uncertainties when determining which projects to prioritize in implementation.** At the top of pg 9-24 for 11043 Diversion at Chualar, and also for 11043 Diversion of Soledad, the GSP states that the groundwater model used to estimate Salinas River flows "does not account for the uncertainty surrounding greater variations in precipitation, timing, intensities and subsequent flows." The model should provide a sensitivity analysis for potential conditions, particularly in light of large variations between climate change predictions in the region.
  - This recommendation is also in line with DWR's 180/400 Determination which instructs SVB GSA to determine how they will define "average hydrogeological conditions,"in Section 4.3.3.2 and the overarching statutory requirement to continually update the GSP to meet the statutory requirement to use the "best available information and best available science."[18]
- **Where projects overlap between subbasins, clarify what effects the project will have across subbasins.** For example, provide clarity around what effects the Eastside Irrigation Water Supply Project (or Somavia Road Project) will have on the 180/400 Foot Aquifer Subbasin where water will be pumped from. Account for any effects in the 180/400-Foot GSP in ongoing updates, including pertinent sections of Annual Reports.

GSP Chapter 10: Groundwater Sustainability Plan Implementation

Our overarching recommendations for GSP Implementation and Updates are as follows:

- **Take interim actions while working toward long-term sustainability.**
- **Address missing data for domestic wells as recommended by DWR:**
  - "[T]he GSA should inventory and better define the location of active wells in the Basin and document known impacts to drinking water users caused by groundwater management … in subsequent annual reports and periodic updates."[19]
- **Continue to include the small water system data from the County as a data gap in the subbasin GSPs, as it was in the 180/400 foot Aquifer GSP.** As Tom Berg, a DWR representative, indicated at the SVB GSA Advisory Committee meeting on June 17, 2021, the specific decisions made during the formation of the 180/400 foot Aquifer GSP allowed for it to receive DWR's approval. Mr. Berg recommended that the SVB GSA review the three other letters that DWR released on

[18] 23 CCR § 355.4(b)(1).

[19] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* P. 24. Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

June 3, 2021, to better understand the parameters of what is required for a GSP to receive approval.

- **Engage underrepresented communities immediately.** As this section acknowledges, underrepresented communities have little or no representation in water management and have often been disproportionately less represented in public policy decision making. It's important to note that their engagement and input around their main concerns must be noted and considered during routine GSA proceedings. Their input should be solicited and received while the GSP formation process is still active.
- **Continually update the GSP and Implementation strategy as best available science evolves.** Meaningful updates to data sources and interpretation should occur at a minimum on a yearly basis, time with the Annual Reports.

Comprehensive River Management

125 Letters of Support

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Duflock. 011921
Giudici. 012121
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Wiley. 012121
Pomo. 012221
Pezzini. 012521
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Currently, Invasive Species Eradication in the Salinas River is a project in the agency's Pressure sub-basin 20-year plan. However, this project only targets invasive species like arundo. This is not enough. Much more needs to be done.

Native species in the river, such as willows, cottonwoods, etc., also need to be managed. Problematic sandbars need to be managed. These activities are currently permitted in the ongoing work coordinated by the River Management Unit Association, assisted by the Resource Conservation District and Monterey County Water Resources Agency. However, Comprehensive River Maintenance needs to be added to the Groundwater Agency's 20-year plans so that the work can be done comprehensively and economically.

There are logical reasons for doing Comprehensive River Maintenance:

1. The river is the main conduit for water to travel down the valley.
2. The river is vital for recharge throughout the valley at various prime percolation points.
3. The river is needed to move water efficiently to the rubber dam for the Castroville Saltwater Improvement Project and future expansion of that project.
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6. The reservoirs cannot be operated optimally without a clean exit pipe—the river.
7. The water created by stopping excess evapotranspiration will be more cost-effective than many of the Groundwater Agency's proposed projects.

So far, the Groundwater Agency has not given any logical reason for excluding Comprehensive River Maintenance. The only specific reason they've given is the difficulty of obtaining permits. However, the farming community has been successfully getting those permits since 1995.

The Salinas Valley Basin Groundwater Agency must include Comprehensive River Maintenance in all of the 20-year sub-basin plans.

STAN BRAGA
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12/17/20
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Brian Antle

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Carson Braga

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Marshall Braga

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CHRIS BRAGA

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Mercedes Bravo
printed name

12/18/2020
date

Mercedes Bravo.
signature

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12/18/20
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David Bunn

printed name

December 18, 2020

date

signature

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Allan Clark

printed name

12/18/20

date

signature

Fontes Farms
PO Box 3008
Salinas, California 93912-3008
Telephone (831) 424-6151
gefontes@fontesfarms.com

December 18, 2020

Salinas Valley Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA. 93924

RE: Salinas River Maintenance

Board of Directors

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8. Preventative flood control and property damage mitigation.

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Thank you

George Fontes

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Isaias Gallardo
printed name

12-18-2020
date

Isaias Gallardo
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Ivonne Garcia Santos

printed name

12/18/20

date

signature

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Deidra Gonzales
printed name

12/18/20
date

Deidra Gonzales
signature

American Takii, Inc. 301 Natividad Road Salinas, CA 93906 Phone: 831-443-4901 / FAX 831-443-3976 www.takii.com

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printed name Kelly Gularte - Production Manager

date 12-18-20

signature Kelly Gularte

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KENT HIBINO
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[signature]
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Colby Pereira — printed name

12/18/2020 — date

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Josh Roberts
printed name

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GARY TANIMURA
printed name

12/18/20
date

Gary Tanimura
signature

American Takii, Inc. 301 Natividad Road Salinas, CA 93906 Phone: 831-443-4901 / FAX 831-443-3976 www.takii.com

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printed name Steve Wiley - GM/COO

date December 18, 2020

signature St R Wiley

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David Gill

printed name

12/19/20

date

[signature]

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Mark Mason | 12/19/20

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ANN R MYHRE
printed name

Dec 19, 2020
date

Ann R Myhre
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Kurt Almond 12/21/2020

printed name date

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John Baillie Jack T Baillie Co. Inc

printed name

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TROY BOUTONNET
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10855 Cara Mia Parkway, Suite B Castroville, CA 95012
Phone 831/633-4977 Fax 831/633-4577

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Sea Mist Farms

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10855 Ocean Mist Parkway, Suite C ☐ Castroville, California 95012 ☐ Office (831) 633-2144 ☐ Shop (831) 633-3211

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J. IVERSON — 12-21-20

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BLACK DAVE
printed name

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Martin Jefferson

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12-22-2020

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printed name

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printed name

Dec. 23, 2020
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printed name

12/23/20
date

[signature]
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Wiley Hearne

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12-23-20

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SHARON HORNLEIN
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12/23/2020
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Sharon M Hornlein
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JEFF

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printed name

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December 23, 2020
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GWEN PLASKETT
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12/23/02
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Gwen Plaskett
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Mike Voelker

printed name

12/23/2020

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printed name — date

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Chase Barbree

printed name

12-24-20

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Brant Conatser
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12/24/2020
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Danny Yop
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Kristina Nunes

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12/26/20

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printed name

12/28/2020

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Paul Arnaudo
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John ROMANS

printed name

12/29/2020

date

[signature]

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Tim Borel

printed name

12/30/20

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[signature]

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GREG CLASSEN

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PETE [illegible]
printed name

12/31/20
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printed name

1-4-21

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01-04-2021

date

Jerry Rava II

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1-5-2021

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Brad Rice - California Orchard Co. 1/6/21

printed name date

B Rice

signature

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Brad Rice - Smith - Monterey, LLC 1/6/21

printed name date

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Gregory M. Scattini
printed name

1/10/21
date

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ADAM SECUNDO

printed name

1-11-2021

date

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ANTONE ALAMEDA
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1/12/2021
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printed name

1/12/2021
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Martin Orradre

printed name

1-12-21

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William T. Tarp

printed name

1/12/2021

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JOHN R MARCHART
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1/13/21
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John R. Marchart
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DAVID MARIHART

printed name

1/14/2021

date

David Marihart

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MARIHART FAMILY LLC

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1-15-21
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Jynel Gularte

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Christopher Bunn

printed name

1/17/2021

date

signature

Genery Farm investment
Bunn / Yuki ranches

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JEFF HITCHCOCK
printed name

1/18/21
date

J Hitchcock
signature

HITCHCOCK FARMS, INC.
P.O. BOX 2266
SALINAS, CA 93902

January 19, 2019

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Melissa Duflock (property owner along the Salinas river)

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Francis Giudici

printed name Giudici Family Properties

1/21/21

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Native species in the river, such as willows, cottonwoods, etc., also need to be managed. Problematic sandbars need to be managed. These activities are currently permitted in the ongoing work coordinated by the River Management Unit Association, assisted by the Resource Conservation District and Monterey County Water Resources Agency. However, Comprehensive River Maintenance needs to be added to the Groundwater Agency's 20-year plans so that the work can be done comprehensively and economically.

There are logical reasons for doing Comprehensive River Maintenance:

1. The river is the main conduit for water to travel down the valley.
2. The river is vital for recharge throughout the valley at various prime percolation points.
3. The river is needed to move water efficiently to the rubber dam for the Castroville Saltwater Improvement Project and future expansion of that project.
4. The river will be a vital part of moving water to the 11043 permit diversion sites.
5. The river loses water from evapotranspiration due to vegetation overgrowth. Stopping this evapotranspiration by managing vegetation will help solve the valley's water deficit. Studies calculate the evapotranspiration loss at 10s of thousands of acre-feet per year.
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7. The water created by stopping excess evapotranspiration will be more cost-effective than many of the Groundwater Agency's proposed projects.

So far, the Groundwater Agency has not given any logical reason for excluding Comprehensive River Maintenance. The only specific reason they've given is the difficulty of obtaining permits. However, the farming community has been successfully getting those permits since 1995.

The Salinas Valley Basin Groundwater Agency must include Comprehensive River Maintenance in all of the 20-year sub-basin plans.

Raymond Gularte
printed name

1/21/2021
date

Raymond Gularte
signature

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Doris Gularte   1/21/2021

printed name   date

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Joel Wiley
printed name

date 1/21/21

Joel S. Wiley
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JEFF Pomo
printed name

1-22-21
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Sean Pozzini

printed name

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Tony Pezzini

printed name

1/25/21

date

signature

Salinas Valley Groundwater Sustainability Agency

July 9, 2021

Dear Ms. Meyers and Ms. Gardner,

In reviewing the chapters for the upcoming Upper Valley Sub-basin Committee meeting I would like to commend both of you on incorporating the input that has been shared by everyone. I have a few items to point out that need further consideration. Please consider this public comment.

Chapter 1

Section 1.1

Paragraph 3 talks about when the Salinas River Flows do not provide sufficient flow for recharge. The statement is true, but it avoids the real reason. The reason for the insufficient flow was the mismanagement of the reservoir releases. It is a fact and made a huge impact on the groundwater resources in many sub-basins. By not stating this we are not learning from our mistakes. To state it in the positive, the GSP should state that when reservoir releases are managed correctly the Salinas River provides sufficient flow for recharge.

Paragraph 4 uses the word Achieving and should say maintaining. The last sentence could state that the sub-basin needs to maintain sustainability for 50 years.

Section 1.3

Paragraph 1 talks about a cohesive set of projects and plans to achieve sustainability. This is not a true statement. There is a list of projects and plans they have not been developed enough or universally accepted to be a “cohesive set” to “achieve sustainability”. We have not openly discussed the overall shape of the Basin and any water shortfalls, and we have data gaps that are apparently important enough that we need to increase our monitoring. So, I think at this point the statement is ambitious. IT is also believed by many that the number of projects should be minimal and as we develop data and understanding of our need the project list can be developed. Paragraph 4 in this section supports that.

Section 2.6.1

The winter release and ASR injection should be separated. Winter releases are a management action and can have benefit independent of the ASR wells. There may be other options as to how to use the winter releases.

In the same section items #4 and #5 are projects with other agencies. Their impact may need to be noted in the GSP but there existence as a GSA project is out of place here.

Section 4.4

Paragraph 2

"These deposits represent the lateral equivalents of the 180-Foot and 400-Foot Aquifers located in the lower Salinas Valley
(DWR, 2004)."

This sentence offers no real value. The sub-basins recharge and produce water in such different ways that this comparison is misleading. This language can be perceived as an attempt to equate the two sub-basins. It in a subliminal way is working to establish the 180/400 as the standard for the Basin. In section 4.4.1 the sixth paragraph does the same. This is also in conflict with the first sentence in 5.4.1 paragraph 1.

Chapter 5 first paragraph says that the Upper Valley will use 2019 as the current water year when possible. Then in 6.1.2.1 the year used is 2016. 2016 is not an accurate year, are we using this because there is not newer data? If so, why state 2019 in the beginning of Chapter 5.

6.1.2.3 the statement "using current reservoir operations rules" needs clarification. The "reservoir operations rules" need to be fully explained in an appendix. The way this is stated here could mean that the "current" operations of 2014, 2015, and 2016 are acceptable, they are not and that was settle in court.

Table 6-3 shows why WY 2016 is not a representative year. The deltas between historical average and actual are too big.

6.1.3.2 Paragraph 5 is trying to minimize or rationalize the error in the model. The GEMS average for the Upper Valley is 131,000 ac/ft (1995 to 2019). The fact that the model produces such a different number further shows that putting a number to pumping is futile. We should monitor ground water levels.

6.3.3 The mismanagement of the reservoirs lead to the recent decline in water storage. It is a fact, just state it.

6.3.4 needs to highlight the dramatic difference between SVIHM historical use and the GEMS historical. The GEMS is the best data me have. It should be clearly explained that the SVIHM is incorrect and we are currently moving forward with the GEMS data. It also needs to be noted that these numbers do not count the pumping outside of Zone 2C. In the future the Upper Valley number will be higher because of the pumping not counted now.

6.4.1 The statement: "Reservoir Operations: The reservoir operations reflect MCWRA's current approach to reservoir management." needs more clarity. They are bound by law to operate in a certain manner and that must be clear. The current approach is not acceptable. They are not following their own rules.

Table 6-12 is mislabeled

8.2 paragraph 2 achieve sustainability should be changed to maintain.

9.1 paragraph 5 the modeling of the Basin and the impact of the projects are not clear enough to call the proposed projects integrated.

9.1 paragraph 6 needs to further clarify on reservoir operations.

The statement in 9.3 “Projects and management actions currently being pursued by other agencies are considered sufficiently established and will be pursued independently of this GSP”

Would mean that in Table 9-1 A1, B2, B3, and D2 should be removed, they are with other agencies.

Project B1 should be separated into the management action, winter releases and the project ASR wells. There maybe a better way to use winter releases than ASR well.

We have all come a long way educating ourselves on the Basin and the GSP process. I think the items above can be resolved relatively easily. I am still reviewing chapters 9 and 10 and may have more comments for Monday. Have a great weekend.

Sincerely,

Grant Cremers

Salinas Valley Water Coalition

33 El Camino Real • Greenfield, CA 93927
(831) 674-3783 • FAX (831) 674-3835

TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Atten: Ms. Emily Gardner, Deputy General Manager 14 July, 2021

Re: SVBGSA Upper Valley Subbasin GSP Version 2 Chapters 6, 9 and 10

Dear Ms. Gardner;

We appreciate this opportunity to comment on the Upper Valley (UV) Subbasin GSP Version 2 draft Chapters 6, 9 and 10. We ask that you share/distribute our comments to the UV Subbasin GSP Committee so that the Committee is afforded an opportunity to review and consider the comments prior to any final recommendation.

We offer the following comments for your consideration, and acknowledge that some of these comments are restated from our previous letters:

Chapter 6

1. **Overview of Water Budget Development, Section 6.1:** This section states that the historical and current water budgets were developed using a provision version of the Salinas Valley Integrated Hydrologic Model (SVIHM) developed by the USGS. It also states that the future water budgets are being developed using an evaluation version of the Salinas Valley Operational Model (SVOM), developed by USGS and MCWRA. This section includes a footnote stating that the model and/or model results are preliminary or provisional and are subject to revision. The model has not received final approval, no warranty, expressed or implied, is made by the USGS as to the functionality of the model and related material.

   The SVBGSA continues to state it is using this model as it is the best science available. This is just not correct. This is not the best available science for establishing water balances of the Forebay and Upper Valley Subbasins and the Arroyo Seco Management Area. There are other models and water balance calculation methods that have been shown to be more accurate and are available for use by the SVBGSA.

   The SVBGSA states that the USGS model has a recognized error of 30%+ for the model output for estimated groundwater pumping. This is unacceptable and until and unless the model calibration shows more accurate model runs, the outputs from such runs should

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

not be published in any quasi-regulatory document, such as the GSPs, irrespective of the disclaimers included therein. The bottomline is that a provisional model which is not properly calibrated, nor publicly released, should not be used as the basis for any subsequent management action or project.

2. **Current Water Budget:** Chapter 6 utilizes the year 2016 for 'current conditions/water budget' as the "most recent conditions for which adequate data are available and that represent recent climatic and hydrologic conditions."

   Specifically, Section 6.1.2.2 states, "Water year 2016 is classified as dry-normal and is ***reflective of current and recent patterns in groundwater use and surface water use.***" (Emphasis added.) We disagree with this statement and have previously questioned, and continue to question the use of 2016 data as the "best reflection of current land use and water use conditions based on best available data," as stated in Table 6-1. Water Year 2016 was preceded by two dry years in which the Nacimiento and San Antonio reservoirs were mis-operated/mismanaged by the Monterey County Water Resources Agency (MCWRA). Specifically, the MCWRA significantly reduced reservoir releases, even the minimum flow releases in contravention of the MCWRA's water rights permit and its commitment to abide by the National Marine Fisheries' Biological Opinion, resulting in harm to many Upper Valley lands. Water Year 2016 is not representative of the current basin condition for the purpose of determining the basin's water balance because the MCWRA created a condition of man-made drought which took several years to recover. Based on the foregoing, any 'overdraft' asserted in these chapters may be distorted because of the use of 2016 data as baseline condition, regardless of the 'disclaimer' used and/or noted that using 2016 as the baseline condition may affect the water budget numbers.

3. **Section 6.1.2.3:** This section states that the future projected conditions are based on model simulations using the SVOM using current reservoir operations rules. The GSP should include as an appendix the operational rules that are being utilized in the SVOM.

4. **Section 6.4.1 Assumptions Used in Projected Water Budget Development:** includes a statement that the reservoir operations "reflect MCWRA's current approach to reservoir management." As stated in #3 above, the GSP should include as an appendix the operational rules that are being utilized. It would also be helpful if this paragraph was expanded to include a brief overview/summary of the MCWRA's 'current approach.'

Chapter 9

1. The GSP recognizes that the Upper Valley Subbasin is in balance and therefore any management actions or projects are only needed that will assist the Upper Valley in maintaining sustainability. To this end, shouldn't the focus of the GSP be on implementing management actions that will maintain the Upper Valley's sustainability?

2. **Section 9.3, page 9-5,** states: "Projects and management actions currently being pursued by other agencies are considered sufficiently established and will be pursued independently of this GSP." This statement recognizes that other agencies are pursuing several projects and/or management actions and that the SVBGSA is not the lead agency for these. Therefore, rather than including a lengthy discussion of each project, their costs and potential benefits, it seems the SVBGSA should focus on their role in evaluating and analyzing the different projects/management actions as they are moving through their approval process to identify any adverse impacts to their ability to maintain

sustainability. The bottomline costs and benefits associated with any project will be discussed and identified in the associated Engineer's Report.

It is premature to include a detail of costs and benefits for any project or management action. It is appropriate for the SVBGSA to acknowledge these projects/management actions are in process and that they will be evaluated as to their effect/impact on the Upper Valley Subbasin's GSP. The stakeholders will rely on the SVBGSA to complete such an evaluation in an effort to maintain the sustainability of the basin.

3. **Section 9.4.3.1:** The first bullet point, second sentence states "…the principal aquifers in the Forebay Subbasin…" – this should be the "Upper Valley Subbasin". The same error occurs in the second bullet point, second sentence.

4. **Section 9.4.3.3:** This section states that this project "***will not proceed*** until the water rights and flow prescriptions from the HCP have been determined." [emphasis added] Chapter 10, section 10.6 states that the focus of implementation during the first 2-3 years will be in projects that reoperate the reservoirs. The water rights for the reservoirs are held by MCWRA and therefore any project associated with reoperation of the reservoirs will require the MCWRA to identify that project as a priority and the SVBGSA must rely on the MCWRA to move forward accordingly.

   The same is true for the HCP. The MCWRA is the lead agency for the HCP but we are not sure the status of the HCP and if or how it is being currently being processed. The HCP is a heavily involved stakeholder process and to our knowledge that process has not begun and we anticipate it taking several years.

5. **Section 9.4.5 Management Action B3: Drought Reoperation:** This section, third paragraph, last sentence states: "These are in place ***until*** a Habitat Conservation Plan is completed." [emphasis added] This statement is not correct. The Standards and Guiding Principles adopted for the D-TAC specifically states the following:

   > "Documents and procedures developed by the D-TAC will be considered during development of the HCP. MCWRA will convene with stakeholders to determine if modifications to these drought procedures are warranted in light of the terms of the final HCP."

It is understood that the reservoir operations and recommendations of the D-TAC 'may' change with the development and adoption of the HCP, but ***the D-TAC standards, guiding principles and implementation procedures will remain in place unless modified by the HCP***. The GSP language should be modified accordingly.

Chapter 10

1. **Section 2, 'Underrepresented Communities':** how and where are 'underrepresented communities defined?

2. **Section 10.3, #4 Projects and Management Actions that Result in Reservoir Reoperation:** This section states that the "Drought TAC will likely be compatible with either the Interlake Tunnel or Winter Release project.." It is not clear what is meant by 'compatible' since to our knowledge neither project has yet been evaluated and the Drought TAC will remain in place unless and until it is changed by the MCWRA as established with the TAC's standards and guiding principles.

This section goes on to state that the SVBGSA will work with the MCWRA on the evaluation of any reservoir reoperation projects within the first 2 years of GSP implementation. It then goes on to list a host of items that will need to be completed, including water rights and permits. However, we don't understand why the SVBGSA would need to work with the MCWRA on these things since the SVBGSA will not be the lead agency, and rather their role would be to participate in the process in order to represent stakeholders and evaluating the projects as needed to protect and ensure that there are no impacts to the subbasin(s) ability to maintain sustainability and are consistent with the adopted GSPs.

3. **Section 10.3, #5 Other Projects:** The last sentence of the second paragraph states: "Projects and management actions will be approved by the Board of Directors and ***will be*** implemented in a coordinated manner across the entire Salinas Valley." [emphasis added]

   Not all projects need to, or should be, implemented across the entire Salinas Valley, as some may only need to be implemented in a specific subbasin. However, it is important that the projects and management actions are evaluated in a manner so ensure there are no adverse impacts to other subbasins. We recommend clarifying the statement to reflect this type of evaluation and action.

4. **Section 10.6 Implementation Schedule and Adaptive Management:** the first sentence of the last paragraph states: "The general implementation schedule for projects and management actions focuses on implementation actions and projects that result in reservoir reoperation for the first 2 to 3 years." This seems to assume that reservoir reoperations are needed as presented in the GSP, which are primarily the Interlake Tunnel and Winter Release with ASR. These are not projects the SVBGSA will be lead agency for, and therefore shouldn't their role be one to participate in the process and evaluate the projects as necessary to avoid impacts to the various subbasin(s) ability to maintain sustainability.

We thank the SVBGSA staff and consultants along with the committee members of the various subbasin committees, for their willingness to work with stakeholders to develop a GSP that can be supported by science and the facts, and there have been many positive changes because of this. However, there remains much concern regarding the model and the manner in which it will be use as the foundation to develop and implement the various projects and management actions. The Upper Valley Subbasin is in balance and is sustainable. Let's work together to ensure that we maintain its sustainability.

Thank you for your consideration of the foregoing comments.

Sincerely,

Nancy Isakson

Nancy Isakson, President
Salinas Valley Water Coalition

Gmail

Emily Gardner <gardnere@svbgsa.org>

Problems with SVBGSA projects

Yahoo Mail <sangjames@yahoo.com> Tue, Jul 20, 2021 at 10:24 AM
Reply-To: Yahoo Mail <sangjames@yahoo.com>
To: [redacted]

Hello All,

Can you forward this email to all sub-basin commitee members and anyone interested in the groundwater sustainability problem? Can you also forward this letter to Landwatch and George Fontes of Salinas Valley Water Coalition?

The problem with the SVBGSA plans is that they are a solution for the sustainability of the entire basin and not for the individual wells. Sustainability means that the goal is make sure that the amount of water being pumped out of the ground is equal or less than the amount of water entering the groundwater in each individual sub basin. But the focus of the plans should be to increase the levels of each farmers well water level, because the minimum threshold and the measurable objective of each well is what will determine whether the SVBGSA or the County of Monterey will determine if they need to take action to close the wells that may be running dry. Even if the SVBGSA meets it's goals of sustainability for the sub-basin, individual wells may be running dry. So the goal should be to raise the well water levels for each well, not to just reach sustainability for each sub-basin.

For example in the Eastside sub-basin, a plan for managed aquifer recharge on individual land owners and a plan for flood plain soaking from the creeks are being planned, but even if this happens, this plan may not have an effect on wells that are a distance away. That means that the well water may not be replenished because the source of infiltrating water will not reach the well water source. Two other plans for groundwater recharge are a diversion at Chualar at a cost of $56,000,000.00 and a diversion at Soledad at a cost of $105,000,000.00. These will divert excess stream water . The problem with these two plans are that they do not have a way to connect this water with the individual wells. They will probably direct the water to a basin, which will connect to an aquifer and not to any particular well. This diversion of water will fill a large area of groundwater but not all wells. You have to realize that each well is at a different area and connected to different water sources. You can determine this because each well has a different minimum threshold and measurable objective. For example monitoring well (14S/03E-06R01) has a MT of -29.7 and a MO of -24.9, while monitoring well {14S/03E-25C02} has a MT of -65.4 and a MO of -42.2. This means that each well has a different water source and cannot probably be replenish by delivering water from a far away infiltrating water basin. The other problem with these diversion plans are that they are dependent on excess stream water before there is allowed any diversion. If there is no excess water, there is no water being redirected! There are two other plans Eastside irrigation Water Supply Project at a cost of ($140,000,000.00) and a Surface Water Diversion from Gabilan Creek at a cost of ($10,000,000.00). Both have the same problem of delivering to the individual well. In the foreseeable drought that we have, I do not see these as reliable sources of water!

The Eastside Sub-basin is the most overdrawn of all the sub-basins. I presented a plan which I believe will solve the delivery of water and the supply of water to the wells at a greatly reduced cost. My plan involves the harvesting of rainwater during the rainy season of Monterey County during the wettest months of December, January and February. The rainy season of Monterey County involves the 5 months of November to March. Our rainfall varies between 5 inches to 30 inches per year. On an average we should be able to get 12 inches per year. In the Eastside Sub-basin their are 34,000 irrigated acres. The sub-basin is short about 10,000 to 20,000 acre feet of water per year. During wet season, when the farmers are not planting crops, they can subsoil plow their land to a depth of 24 to 36 inches. This will have the effect of capturing all the rainfall and prevent the precipitation from evaporating. The deeper the depth of plowing, the less evaporation. It is also important to subsoil plow close to their well, so that there is a better chance of this plowing to refill their well water. So if the farmer will subsoil plow at least 60 percent of their land during the wet season of December to February. They will capture enough rainfall to fill that 20,000 acre feet deficit for the basin. After the wet season is over, the farmer can plow his land normally and use it as he wishes. This strategy should work for any farmland whether you are in the Salinas Valley or the Central Valley. You may want to incentivize this in order to encourage the grower to do this strategy. In the Pajaro Valley, the growers are paid for the collection of rainwater by infiltrating basins. This plan will prevent fallowing of farm land, prevent the buying of farmland, prevent the reduction of economic activity and the lay off of farm workers! I hope this plan is accepted! [ref. You Tube video "Deep Soil Ripping for Water Conservation" by Megan Clayton]

The advantages of subsoil plowing to a depth of at least 24 inches in order to capture rainwater will achieve these goals: It will deliver water close to the individual wells in order to raise well water levels. It will be a yearly constant supply of water. It is cheaper than spending over $500,000,000.00 for all the plans presented to all of the sub-basins. It will incentivize the farmer to subsoil, if Monterey County or SVBGSA will reimburse him for the subsoiling. It may substantially raise the water aquifer levels and groundwater levels. Even all unirrigated lands may also be subsoiled in order to raise aquifer levels.

I want to address another issue. Land Watch presented a plan to stop the drilling of new wells in the deep aquifers. The Advisory Committee voted no and decided to do some more studies. George Fontes who represents the Salinas Valley Water Coalition, a group of growers of 80,000 acres in the Salinas Valley does not want this. I want to present a compromise . I think that we can allow them to drill new wells, but they have to agree to harvesting the rainwater at the method , that I suggested for The Eastside sub-basin. This will help replenish any water that will be pumped out of the deep aquifers.

Thanks to all for reading this!

James Sang sangjames@yahoo.com

Gmail

Emily Gardner <gardnere@svbgsa.org>

Upper Valley General Comments

Grant Cremers <Grant.Cremers@delicato.com> Tue, Aug 3, 2021 at 3:58 PM
To: Emily Gardner <gardnere@svbgsa.org>, Donna Meyers <meyersd@svbgsa.org>

Dear Emily and Donna,

I want to thank both of you for your work on the GSA/GSP process. You have listened and been open to the thoughts and ideas of the stakeholders whom this process is to serve. Many of the points that we covered in our committee were focused on the philosophy of how to develop our GSP and how to word our GSP. We are close, some improvements can still be made. These two points are the important foundation to how we will move forward for the next 40 years. I have tried to listen and encourage other stakeholders in the process. The more people we hear from, the better product we will develop.

I understand the scope of what has been under taken and appreciate the amount of progress that was made in such a short time. This process will continue for years to come, so to improve on how we move forward I would like to point out two missteps that were made at the beginning of the process. The first was that we went straight to Water Charges, Pumping Allocations, and Projects before we even discussed how much water was needed and where it was needed. By starting in this order many stakeholders got the feeling that this was just an attempt to charge for water and then tax for projects whether needed or not. The result would be one more bureaucracy. This perception was shared early in public comment. By continuing down the same path a lot of good will was lost.

My second criticism was that a baseline of our historical water uses and development along with our current water totals and infrastructure was never outlined on a Basin wide basis. There was not a common minimum that everyone could agree to. I personally asked for it on more than one meeting. This left many with their own thoughts and ideas from past water arguments. A common starting point could have erased some of those misconceptions.

In the Upper Valley we have been discussing water monthly. The water resources in the Basin are numerous, our issue is distribution. From our combined knowledge of the Salinas Valley Basin the following summary outlines a good starting point for water discussions. If we look at the total picture in the entire Basin you can see that it is a long stretch to talk about multiple $200,000,000 plus projects. Honestly the need has not been defined.

The Salinas Valley uses about 480,000 Aft of water a year. The General Plan update of 2000, which was accepted by voters recognizes this and states that we have the water resources to be sustainable until 2030.

To account for that water, the native natural and enhanced water resources of our basin needs to be understood. The Basin receives about 300,000 Aft of native natural ground water recharge each year. With the creation of the reservoirs and the catch and release operations of the past an additional enhanced ground water recharge of 140,000 Aft annually was produced. This water stacks up in the Gonzales to Chualar area and is substantiated in the Historical Benefit Analysis Report of 1998. Additionally, the Basin receives up to 18,000 Aft of tertiary water for the CSIP program (actual value much lower than original design). Then the SVWP was added, and Nacimiento Dam was modified to release more flood water, creating a larger flood pool, and changing the storage curve. This added 29,000 Aft of water.

The total of this is 487,000 Aft about in balance with what we use overall.

The discussions happening today about the need for projects should be backdropped against this historical information. There is a concern that what is referred to in the GSP as “current reservoir operations” is a temporary condition due to deferred maintenance. The operations of only filling the reservoir to 787 feet as opposed to the 800 feet that we have all agreed to and paid for is creating most of the additional water that the Interlake Tunnel would catch. With the new data that suggests that up to 39,000 Aft of recharge is available it looks like most of that water is double counted. Either way we already catch it without building more projects. We just need to do the proper deferred maintenance on the dams. Lastly as part of the tunnel project an increase in dam height at San Antonio is needed. It is very questionable if this is even possible given the dam design and construction. All of this makes it impossible for many to support the tunnel and it makes it premature to print have the Tunnel as a project and state the benefits in the Upper Valley GSP.

Please consider this public comment to the GSA.

Sincerely,

Grant Cremers

DELICATO Family Wines

Grant Cremers General Manager Coastal Operations

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Emily Gardner <gardnere@svbgsa.org>

Comments from the August 2 Meeting

Grant Cremers <Grant.Cremers@delicato.com> Tue, Aug 3, 2021 at 4:05 PM
To: Emily Gardner <gardnere@svbgsa.org>, Donna Meyers <meyersd@svbgsa.org>

Emily and Donna,

I did not have my comments organized by meeting time yesterday, but want to share them now as a few comments in follow up to yesterday's meeting. The first items pertain to the SMC TAC. As we talked about in the meeting the SMC TAC is set up to support the Sub-basin Committee in making decisions about the sub-basin. The SMC TAC will not directly report to the SVBSA Board, but the Upper Valley Sub-basin Representative will.

9.4.1 Paragraph 2, 5th line reads "management actions and projects". This should have and "or" not an "and".

Same paragraph, 9th line "SVBGSA" should be changed to "Upper Valley Sub-Basin Committee". The SMC TAC should first report to the committee.

4th paragraph, "The SMC TAC will consider and recommend SVBGSA management actions and projects" should read "The SMC TAC will consider and make recommendations to the Upper Valley Sub-Basin Committee on management actions and projects"

9.4.1.4 Second sentence should read if the "Upper Valley Sub-Basin Committee recommends". The SMC TAC is a peer review that consults with the Sub-basin Committee and the Sub-basin Committee works through their representatives to make recommendations to the SVBGSA Board.

The next comments that I have are just around the order of the Management Actions and Projects. If I look at the table 9-1 it seems logical. When I go to the text of the chapter Project B1 Multi-Benefit Stream Channel Improvements wound up in the future projects area. We have talked about this project in the past. It is an ongoing project with another agency and should be described as such. Currently it sounds like a project for the future. It needs to be described as a current project and we need to get full credit for its impact.

Last comments are on the "ILT and Spillway Modification" and the "Winter Releases with ASR or Direct Diversion". The ILT should describe the theory behind the project and hold off on the detail until it has been fully developed with public input and understanding. The term "Winter Release" could be improved to "Native, Natural Flow Simulation". This way we are not bound to a season but react to the given conditions and natural triggers described in the SVWP EIR. As part of this a simpler project of improving the outflow of Nacimiento at all water levels could be a better option that any of the other projects. By doing this Nacimiento could play a larger role in delivering need fish flows and recharge and San Antonio could be left to fill higher for a true emergency need.

Thanks again for all your work throughout the sub-basins. If you need more explanation on any of these items feel free to reach out. Please consider these public comment to the 8/2/21 Upper Valley Sub-Basin Committee Meeting.

Sincerely,

Grant Cremers

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TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Board of Directors

12 August, 2021

Dear Board Members;

This letter is submitted on behalf of the Salinas Valley Water Coalition ("Coalition") and is in response to preliminary comments to the Groundwater Sustainability Plans ("GSPs") for the Eastside, Forebay, Langley, Monterey and Upper Valley Subbasins made by members of the public. Said public comments suggest an immediate implementation of the 180/400 Foot Aquifer GSP specific to the proposed Integrated Plan. Should the Salinas Valley Basin Groundwater Sustainability Agency ("SVBGSA") elect to begin implementation of the 180/400 Foot Aquifer GSP, shouldn't the SVBGSA implement *all* of the management actions proposed therein? This recommendation is particularly in light of the existing legal question on whether continuing to pump from sea-water intruded, overdrafted areas is considered reasonable and beneficial use of water.

As to the proposed Integrated Plan, the Coalition has previously stated, and is now again stating, that the SVBGSA does not have the proper tools to develop that plan. The Salinas Valley Integrated Hydrologic Model ("SVIHM") is not only provisional and not available for public vetting, but it has significant calibration issues causing it to be unreliable. Thus, the modeling performed using the SVIHM is not "sufficient to calibrate and reduce [its] uncertainty" (23 CCR §354.18) and is not likely to be properly calibrated for public vetting before these GSPs are due to the Department of Water Resources and thus, cannot be relied upon to make any decision, including taking any regulatory action or for developing the Integrated Plan.

That is, because the results from the SVIHM are provisional and uncertain and are subject to change in future GSP updates after the SVIHM is released by the USGS and unless and until (1) the SVIHM has been made publicly available and publicly vetted; (2) its inputs reflect the current operations of the reservoirs, including the operations of the Salinas Valley Water Project as reflected in its Engineer's Report and the MCWRA water right permits and other water rights; and (3) its calibration results meet industry standard of five percent (5%) to ten percent (10%), the model results cannot be used as basis to develop the Integrated Plan or to determine the flows between subbasins within the Salinas Valley Groundwater Basin because the results are only orders of magnitude approximates and not best available science.

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

That said, these subbasins have been the subject of many decades of studies and these studies are considered the best available science for reliance by the SVBGSA for inclusion in the GSPs. These studies include the 1988 USGS Water-Resources Investigation Report 87-4066, Simulated Effects of Ground-Water Management Alternatives for the Salinas Valley, California; and the Brown-Caldwell's State of the Salinas River Groundwater Basin Report, dated January 16, 2015. The executive summary of the Brown Caldwell Report and a USGS abstract summary are included as Exhibits A, Exhibit B respectively and the entire reports are included herein by reference and can be found at the following links: **https://www.co.monterey.ca.us/home/showpublisheddocument/61920/636547362391570000** and **https://doi.org/10.3133/wri874066** . Both studies placed "a specific focus on the effect of pumping changes on seawater intrusion" and found that "seawater intrusion could be cut by more than half (from about 18,000 to 8,000 afy) over a 20 year period by decreasing pumping in the Pressure and East Side Subareas by 30%; whereas reducing pumping the Forebay and Upper Valley Subareas had *minimal to no effect on seawater intrusion."* (Emphasis added.) The best available science concludes minimal impacts by Forebay and Upper Valley subbasins on seawater intrusion in the northern subbasin, which must be relied upon by the SVBGSA.

Finally, the Coalition has supported, and continues to support, projects to address the sea water intrusion and overdraft facing the northern subbasins. The Coalition has offered several solutions including using the Monterey County Water Resources Agency ("MCWRA") 11043 permit to develop excess surface water for the Pressure and East Side Subareas. The Coalition also supports the consideration of an extraction barrier in the Pressure Area that could provide an alternate water supply not only to agriculture but also to the urban areas in that subarea. Developing and implementing management actions and a project or projects should be the primary focus rather than more modeling using a known erroneous model that does not fall within SGMA standards.

Thank you for your consideration of the foregoing comments.

Sincerely,

Nancy Isakson, President
Keith Roberts, Chair
Roger Moitoso, Vice- Chair
Rodney Braga, Director
Lawrence Hinkle, Director
Bill Lipe, Director
David Gill, Director
Steve McIntyre, Director
Brad Rice, Director
Jerry Rava, Director
Grant Cremers, Director
Allan Panziera, Director
Michael Griva, Past-Chair

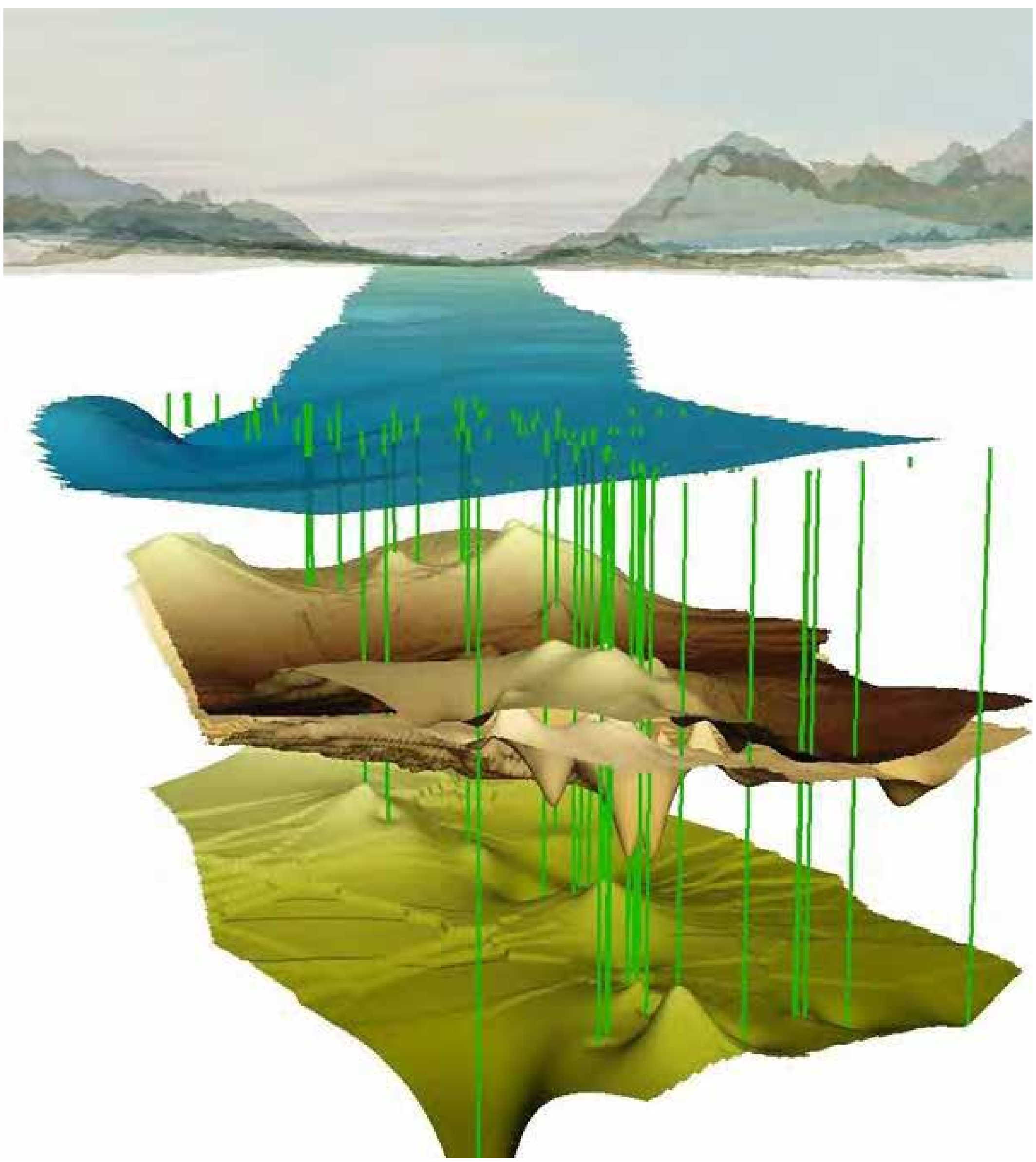
EXHIBIT 'A'

Brown AND Caldwell

Prepared for Monterey County Resource Management Agency
Salinias, CA

State of the Salinas River Groundwater Basin

January 16, 2015



FINAL

State of the Salinas River Groundwater Basin

Prepared for

Monterey County Resource Management Agency

Salinas, CA

January 26, 2015

FINAL

State of the Salinas River Groundwater Basin

Prepared for

Monterey County Resource Management Agency
Carl P. Holm, AICP
Interim Director
168 W. Alisal, 2nd Floor
Salinas, CA 93901

January 26, 2015

Prepared by:

Matthew Baillie, Brown and Caldwell
Principal Hydrogeologist, California P.G.# 8811, C.H.G.#977

Les Chau, Brown and Caldwell
Project Manager, Geologist

Geologist of Record

PROFESSIONAL GEOLOGIST
JOSEPH TURNER
NO. 5125
EXPIRES 10/31/15
STATE OF CALIFORNIA

Joseph Turner, Brown and Caldwell
Chief Hydrogeologist, California P.G.# 5125, C.H.G.# 484

This document was prepared solely for Monterey County Resource Management Agency (County) in accordance with professional standards at the time the services were performed and in accordance with the Professional Services Agreement between the County and Brown and Caldwell. This document is governed by the specific scope of work authorized. We have relied on information or instructions provided by the County, the only intended beneficiary of this work. Except as expressly agreed to between Brown and Caldwell and County, no other party should rely on the information presented herein.

The findings, recommendations, specification, or professional opinions are presented within the limits described by the County, in accordance with generally accepted professional engineering and geologic practice. No warranty is expressed or implied.

Brown AND Caldwell

201 North Civic Drive, Suite 115
Walnut Creek, CA 94596

Acknowledgements

Brown and Caldwell acknowledges the valuable contributions made by the Monterey County Water Resources Agency (MCWRA) in conducting this near-term assessment of the health and status of Zone 2C of the Salinas River Groundwater Basin.

Specifically, the project team recognizes the following MCWRA technical staff for their efforts:

Howard Franklin	Senior Hydrologist
Peter Kwiek	Hydrologist
German Criollo	Associate Hydrologist
Tamara Voss	Hydrologist
Amy Woodrow	Hydrologist

The Brown and Caldwell project team members include:

Les Chau	Project Manager, Geologist
Joe Turner	Chief Hydrogeologist
Tim Godwin	Principal Hydrogeologist
Matt Baillie	Principal Hydrogeologist
Alex Johnson	Environmental Engineer
Kelsi Oshiro	Engineer-In-Training
Tina Crawford	Geographer
Kim Stubblefield	Project Analyst

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List of Abbreviations

af	acre-feet
afy	acre-feet per year
BC	Brown and Caldwell
Cl	chloride
CSIP	Castroville Seawater Intrusion Project
DWR	California Department of Water Resources
ft/yr	feet per year
gpm	gallons per minute
MCWRA	Monterey County Water Resources Agency
mg/L	milligrams per liter
MSL	mean sea level
MTBE	Methyl Tertiary Butyl Ether
Na	sodium
P-180	Pressure 180-Foot
P-400	Pressure 400-Foot
PERC	perchlorate
SRDF	Salinas River Diversion Facility
SVA	Salinas Valley Aquitard
SVIGSM	Salinas Valley Integrated Groundwater Surface Water Model
SVWP	Salinas Valley Water Project
SWI	seawater intrusion
TCE	trichloroethylene
TDS	total dissolved solids
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	volatile organic compound

Executive Summary

An examination of the state of the Salinas River Groundwater Basin (Basin) was conducted by Brown and Caldwell in the last half of 2014 as part of the larger Basin Investigation requested by the County of Monterey. This State of the Basin Report addresses the ramifications of prolonged drought by considering likely changes in groundwater head elevations, groundwater storage, and seawater intrusion in the event that the current drought continues. In addition, some steps are presented that could be taken to help alleviate the consequences of further depleting groundwater storage.

This study was conducted for Monterey County under County Professional Agreement 14-714, dated 1 July 2014, in response to the Monterey County Board of Supervisors Referral No. 2014.01. The work was carried out with oversight provided by the Monterey County Water Resources Agency (MCWRA).

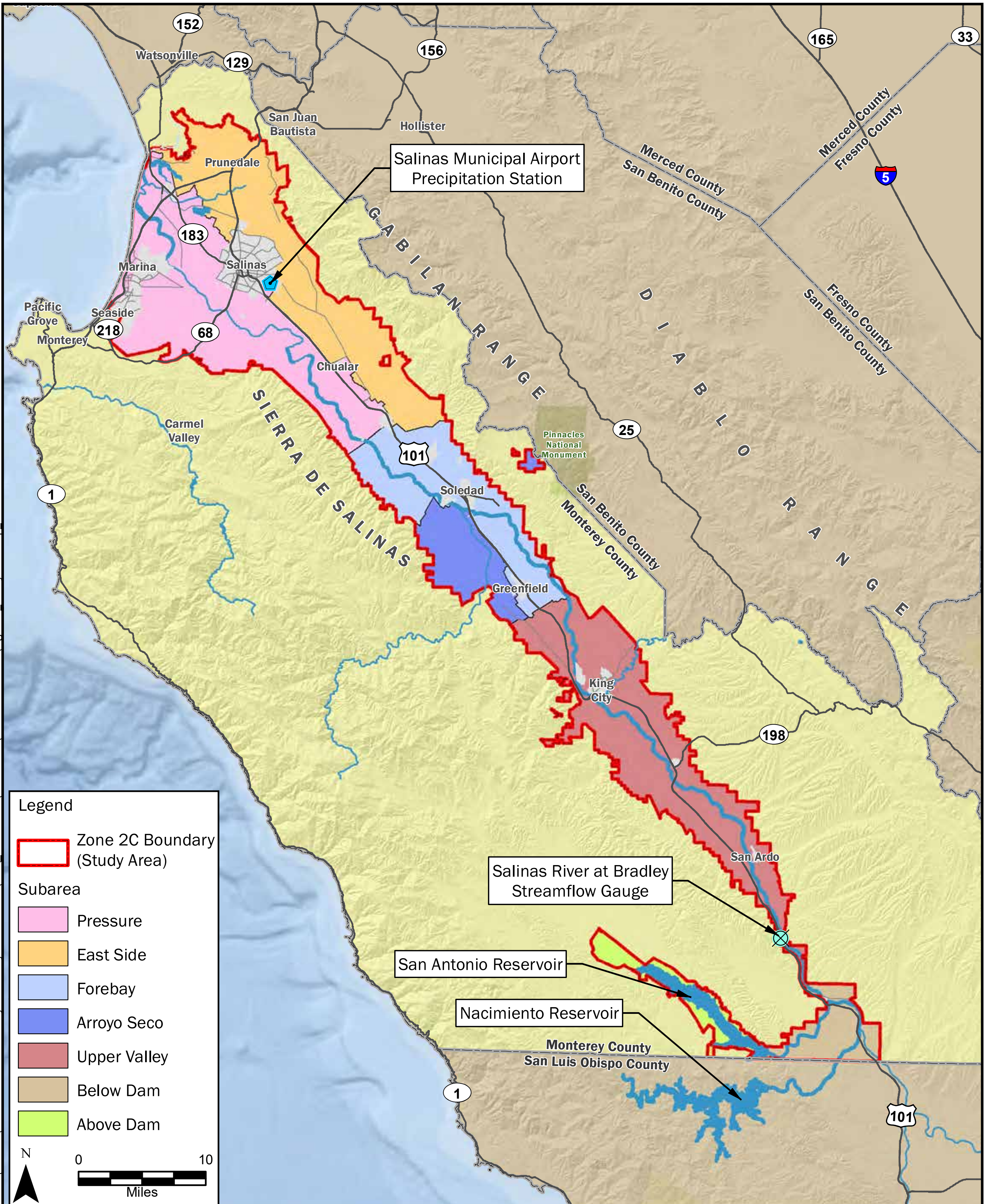
Study Area

The study area for this report is MCWRA Benefit Zone 2C (Zone 2C), which largely straddles the Salinas River within Monterey County (Figure ES-1). Zone 2C consists of 7 subareas named as follows: Above Dam, Below Dam, Upper Valley, Arroyo Seco, Forebay, East Side, and Pressure. The analyses detailed in this report cover the four primary water-producing subareas, the Pressure, East Side, Forebay (including the Arroyo Seco), and Upper Valley Subareas. These four subareas include most of the land area and account for nearly all of the reported groundwater usage within Zone 2C.

The Salinas River Groundwater Basin is the largest coastal groundwater basin in Central California. It lies within the southern Coast Ranges between the San Joaquin Valley and the Pacific Ocean, and is drained by the Salinas River. The valley extends approximately 150 miles from the La Panza Range north-northwest to its mouth at Monterey Bay, draining approximately 5,000 square miles in Monterey and San Luis Obispo Counties. The valley is bounded on the west by the Santa Lucia Range and Sierra de Salinas and on the east by the Gabilan and Diablo Ranges. The Monterey Bay acts as the northwestern boundary of the Basin.

The Salinas Valley has a Mediterranean climate. Summers are generally mild, and winters are cool. Precipitation is almost entirely rain, with approximately 90 percent falling during the six-month period from November to April. Rainfall is highest on the Santa Lucia Range (ranging from 30 to 60 inches per year) and lowest on the valley floor (about 14 inches per year). Very dry years are common and droughts can extend over several years, such as the eight-year drought of Water Years (WY) 1984 to 1991.

Major land uses in the Salinas Valley include agriculture, rangeland, forest, and urban development. Mixed forest and chaparral shrub cover the mountain upland areas surrounding the valley, while the rolling hills are covered with coastal scrub and rangeland. Agricultural and urban land uses are predominant on the valley floor.



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DATE	PROJECT	SITE	
01/16/15	146430	**Salinas River Groundwater Basin Investigation**	**Figure ES-1**
Brown AND Caldwell		TITLE **Study Area Map**	

Historically, irrigated agriculture began with surface water diversions in 1773 on Mission Creek, and diversions from the Salinas River were first recorded in 1797. Groundwater pumping began as early as 1890, and expanded greatly through about 1920 as enabled by several developments such as widespread electrical lines, the development of better well pumps, and the replacement of grain crops with vegetable crops. Groundwater is currently the source of nearly all agricultural and municipal water demands in the Salinas Valley, and agricultural use represents approximately 90 percent of all water used in the Basin. In addition to groundwater, other sources of water for agricultural production include surface water diverted from the Arroyo Seco, recycled municipal waste water supplied by the Monterey County Water Recycling Projects, and surface water diverted from the Salinas River north of Marina as part of the Salinas Valley Water Project.

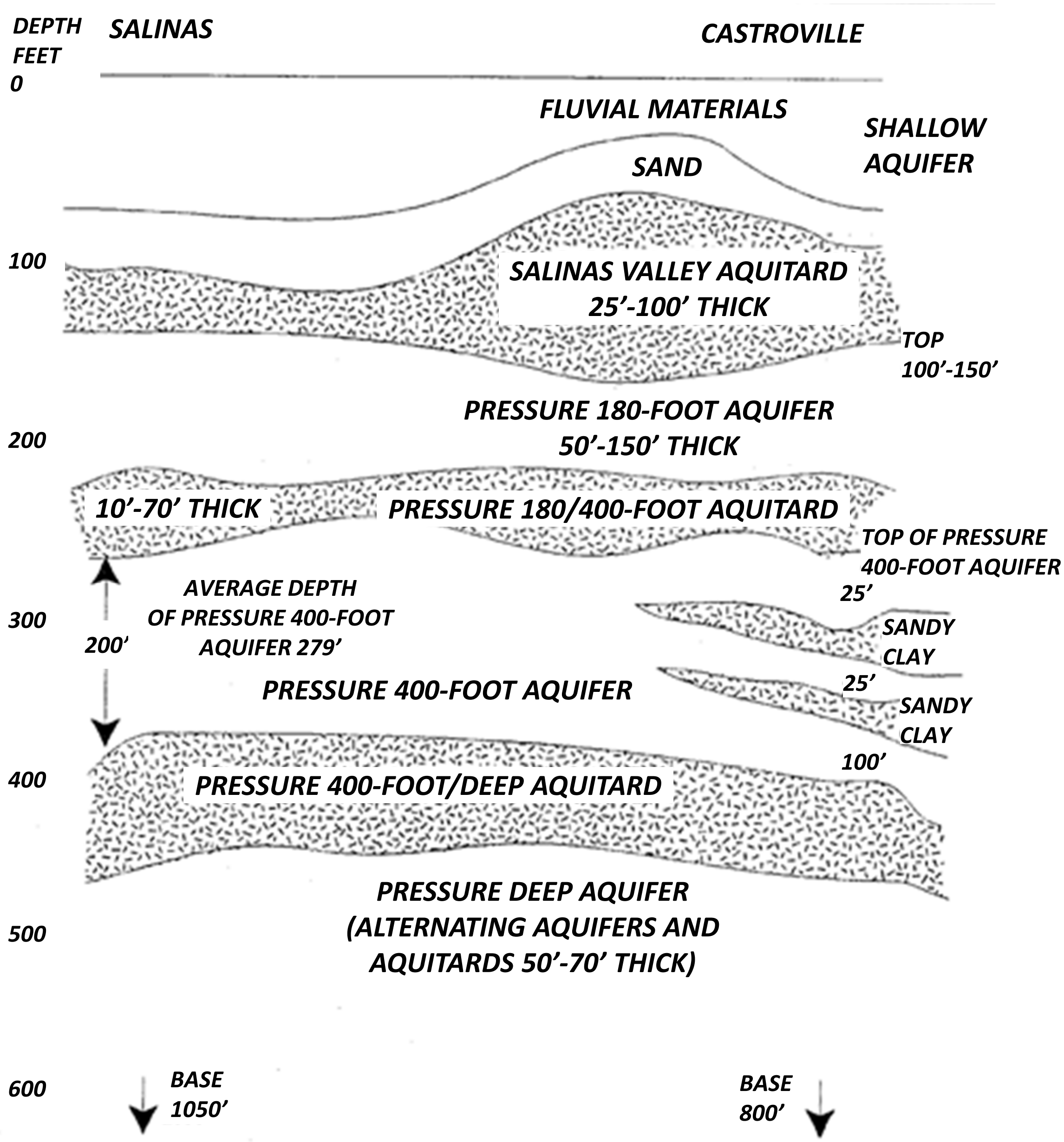
By 1944, groundwater pumping in the entire valley was estimated at about 350,000 acre-feet per year (afy), with about 30 percent of the pumping occurring within the Pressure Subarea, 10 percent in the East Side Subarea, 35 percent in the Forebay Subarea, and 25 percent in the Upper Valley Subarea. Groundwater use in the Salinas Valley peaked in the early 1970’s and then started declining, due primarily to changes in crop patterns, continued improvements in irrigation efficiency, and some conversion of agricultural lands to urban land uses.

Seawater intrusion was detected in coastal wells as early as the 1930’s, resulting from declining groundwater head elevations in the Pressure and East Side Subareas. Seawater intrusion has continued so that it now reaches as far as 8 miles inland within the Pressure Subarea. The declining head and intruding seawater helped lead to the construction of the Nacimiento and San Antonio Dams (releases beginning in 1957 and 1965, respectively), which are used for flood control, maintenance of groundwater head elevations, multi-year storage, and recreation. Today, as urbanization increases in the valley, alternative sources of urban water supplies and relocation of groundwater pumping are being evaluated and implemented by the Marina Coast Water District and various communities in the northern Salinas Valley.

Hydrogeology

The Salinas Valley Groundwater Basin is a structural basin (i.e., formed by tectonic processes) consisting of up to 10,000 to 15,000 feet of terrigenous and marine sediments overlying a basement of crystalline bedrock. The sediments are a combination of gravels, sands, silts, and clays that are organized into sequences of relatively coarse-grained and fine-grained materials. When layers within these sequences are spatially extensive and continuous, they form aquifers, which are relatively coarse-grained and are able to transmit significant quantities of groundwater to wells, and aquitards, which are relatively fine-grained and act to slow the movement of groundwater. Figure ES-2 is a generalized schematic cross-section across the Pressure Subarea illustrating its general hydrostratigraphy.

Groundwater flow in the Basin is generally down the valley, from the southern end of the Upper Valley Subarea toward Monterey Bay, up to about Chualar (Figure ES-3). North of Chualar, groundwater flows in a north to east direction toward a trough of depressed groundwater head on the northeastern side of Salinas. This trough is especially pronounced in August, the approximate time of the seasonal peak groundwater pumping.



Modified from Hall and Earthware of California, 1992.

Brown AND Caldwell	DATE 01/16/15	SITE Salinas River Groundwater Basin Investigation	Figure ES-2
	PROJECT 146430	TITLE Conceptual Hydrostratigraphic Section in the Pressure Subarea	

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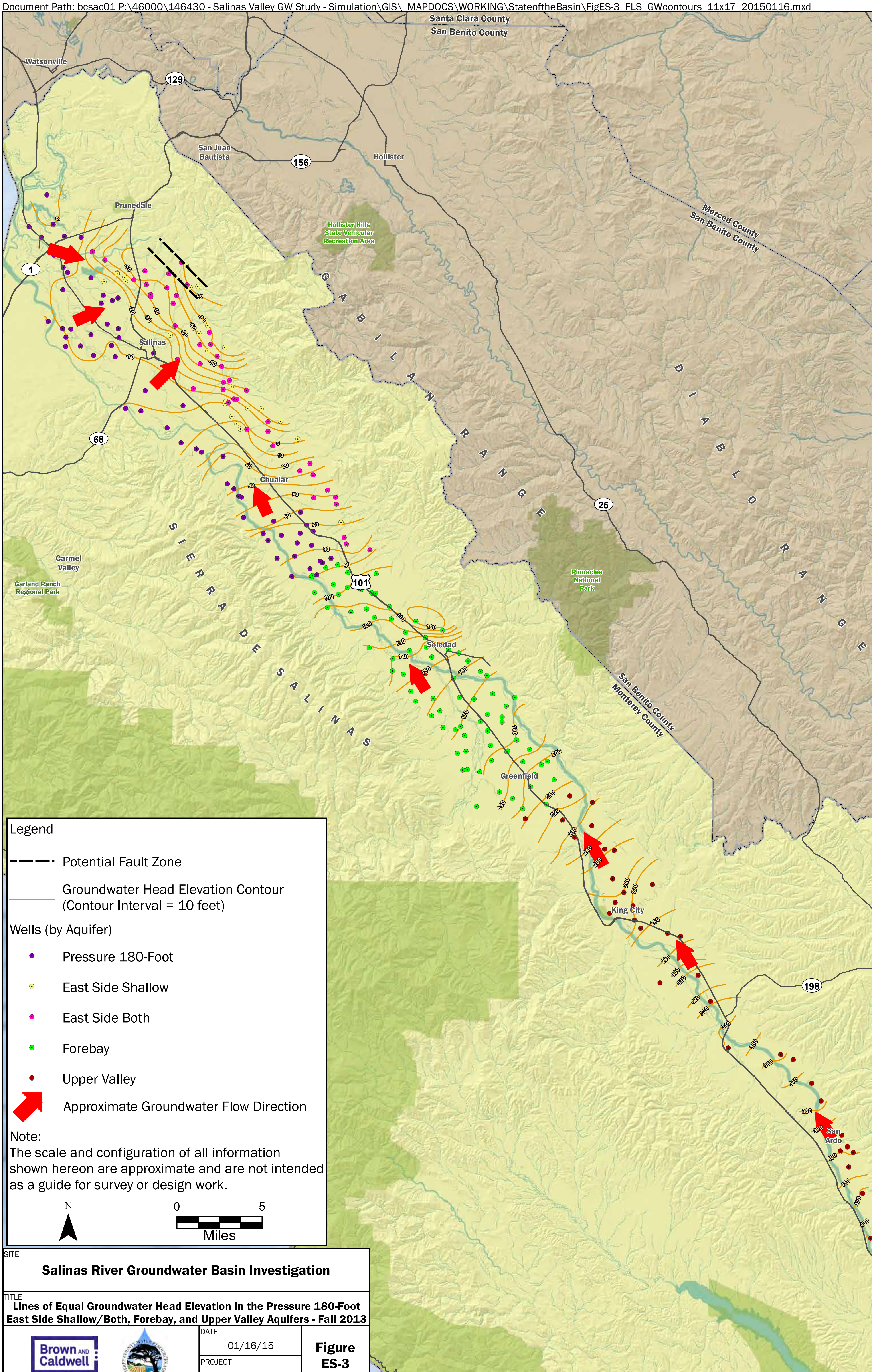


SITE

Salinas River Groundwater Basin Investigation

TITLE

Lines of Equal Groundwater Head Elevation in the Pressure 180-Foot East Side Shallow/Both, Forebay, and Upper Valley Aquifers - Fall 2013

Brown AND Caldwell

DATE 01/16/15

PROJECT 146430

Figure ES-3

Water Balance

A water balance is a quantitative accounting of the various components of flow entering and leaving a groundwater system. Typical outflows include evapotranspiration, surface runoff that leaves the system, groundwater pumping, and groundwater outflow to a neighboring groundwater system. Typical inflows include recharge from infiltration of precipitation, releases from reservoirs (which receive runoff from precipitation), recharge from leaky aquitards, and groundwater inflow. The difference between inflows and outflows represents the change in groundwater storage. Because precipitation constitutes the major input of water to the Basin, rainfall records from the Salinas Municipal Airport gauge from 1873 to the present were analyzed. Based on the mean precipitation of 13.4 inches and standard deviation of 4.8 inches, each year's precipitation total was assigned to one of seven, "wetness levels," as follows: Extremely Dry, Very Dry, Dry, Normal, Wet, Very Wet, or Extremely Wet. In general, dry years are more common than wet years, but Extremely Dry years are less common than Extremely Wet years. The drought period from WY 1984 to 1991 included three Very Dry years, four Dry years, and one Normal year; this period was used in this study as a comparative period for predicting future changes in groundwater head and storage. Based on provisional data, the WY 2014 precipitation of about 5.9 inches represents a Very Dry year and the third-driest water year on record. The current drought of WY 2012 to 2014 includes two Dry years and one Very Dry year; over this three-year period, the total rainfall was about 15 inches below the period of record average.

This study emphasizes the importance of cumulative precipitation surplus, which quantifies precipitation on timescales longer than a year to examine the impacts of multi-year dry and wet periods. The cumulative precipitation surplus reached a high of about 41 inches at the end of WY 1958, and declined to zero by the end of WY 2013. During the extended drought from WY 1984 to 1991, the cumulative precipitation surplus declined by about 36 inches, an average of about 4.5 inches per year. The major declines in cumulative precipitation surplus had and continue to have negative effects on groundwater storage in Basin aquifers (see Storage Change discussion below). Figure ES-4 shows a time series of annual and cumulative precipitation surplus.

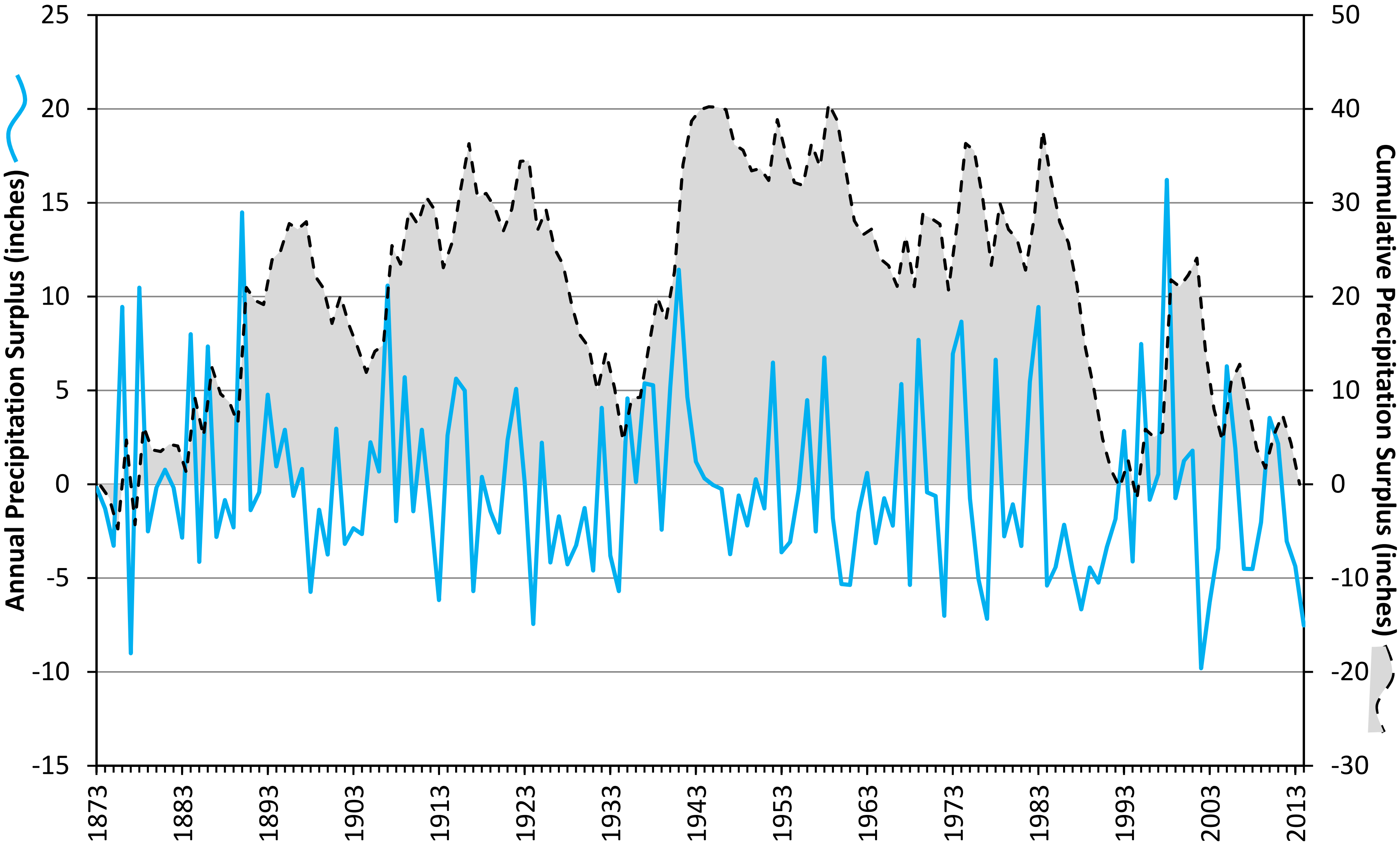
Inflows

Out of an estimated total of about 504,000 afy of inflow to the Basin, about 50 percent occurs as stream recharge, 44 percent occurs as deep percolation from agricultural return flows and precipitation, and 6 percent occurs as subsurface inflow from adjacent groundwater basins (MW, 1998). Table ES-1 summarizes the inflow components of the water budget, as reported by MW (1998).

Table ES-1. Water Budget Components by Subarea

Subarea	Average of WY 1958-1994 (from MW, 1998)				2013 Groundwater Pumping (reported by MCWRA)[c]
	Inflow		Outflow		
	Natural Recharge[a]	Subsurface Inflow	Groundwater Pumping[b]	Subsurface Outflow	
Pressure	117,000	17,000	130,000	8,000	118,000
East Side	41,000	17,000	86,000	0	98,000
Forebay	154,000	31,000	160,000	20,000	148,000
Upper Valley	165,000	7,000	153,000	17,000	145,000

Note: All estimates in acre-feet per year (afy).
[a] *Includes agricultural return flow, stream recharge, and precipitation.*
[b] *Groundwater pumping as reported by MW (1998) is presented to provide a complete water budget.*
[c] *The 2013 groundwater pumping totals are provided for comparison.*



Note: The annual precipitation surplus represents the difference between the annual precipitation and the long-term mean.

Brown AND Caldwell	DATE 01/16/15	SITE Salinas River Groundwater Basin Investigation	Figure ES-4
	PROJECT 146430	TITLE Annual and Cumulative Precipitation Surplus at Salinas Municipal Airport	

Within the Pressure Subarea, inflow is largely made up of subsurface inflow from the Forebay Subarea; prior to development, additional subsurface inflow occurred from the East Side Subarea, but this flow had been reversed by declining groundwater head elevations in the East Side Subarea. An additional inflow to the Pressure Subarea is seawater intrusion, which could account for between about 11,000 and 18,000 afy.

Inflow to the East Side Subarea is made up of a combination of infiltration along the small streams on the west side of the Gabilan Range, direct recharge of precipitation on the valley floor, and subsurface inflow from the Pressure and Forebay Subareas.

Inflow to the Forebay Subarea is made up of infiltration along Arroyo Seco, Reliz Creek, and the Salinas River as well as agricultural return flow, direct recharge of precipitation on the valley floor, subsurface inflow from the Upper Valley Subarea, and mountain front recharge along the eastern and western Subarea boundaries.

Inflow to the Upper Valley Subarea is made up of infiltration along the Salinas River and its tributaries, with lesser amounts entering the subarea via direct recharge of precipitation on the valley floor and agricultural return flow, plus minor quantities entering via subsurface inflow from the Panch Rico Formation to the east and along drainages tributary to the Salinas River.

Outflows

Groundwater pumping is, by far, the largest component of outflow from the Basin. Of an estimated total of 555,000 afy of outflow, about 90 percent is groundwater pumping, with the remainder occurring as evapotranspiration along riparian corridors (Ferriz, 2001). Table ES-1 summarizes the outflow components of the water budget, as reported by MW (1998).

In general, groundwater pumping in the study area increased over the first 14 years of the available period of record (1949 to 2013), from about 380,000 afy in 1949 to about 620,000 afy in 1962, the highest pumping year on record. Pumping began to decline after about 1972, when pumping was about 530,000 afy, and fell to about 430,000 afy by 1982 before averaging about 500,000 afy over the rest of the period of record. Reported pumping for 2013 totaled about 509,000, acre-feet (af).

While annual pumping totals were relatively steady in the Pressure and East Side Subareas after about 1962, pumping in the Forebay and Upper Valley Subareas continued to increase until the early 1970’s, then decreased slightly through the mid-1980’s. On average, from 1949 to 2013, about 25 percent of basinwide pumping occurred in the Pressure Subarea, 17 percent in the East Side Subarea, 30 percent in the Forebay Subarea, and 28 percent in the Upper Valley Subarea.

Within the Pressure Subarea, outflow occurs as a combination of groundwater pumping and subsurface outflow to the East Side Subarea. In the East Side Subarea, outflow is made up entirely of groundwater pumping, since the reversal of the groundwater head gradient curtailed the natural subsurface outflow to the Pressure Subarea. In the Forebay Subarea, outflow is dominated by groundwater pumping, with a small amount of subsurface outflow to the Pressure and East Side Subareas. Outflow from the Upper Valley Subarea is largely made up of groundwater pumping, with a small amount of subsurface outflow to the Forebay Subarea.

Groundwater Storage

Estimated Basin groundwater storage is summarized in Table ES-2. The reported total stored volume of groundwater in the Basin is about 16.4 million af, and the reported aquifer storage capacity is approximately 19.8 million af (DWR, 2003). These values suggest that there is an unfilled storage capacity of about 3.3 million af.

Storage Change

The estimation of groundwater storage changes in the Basin calculated for this project is a measure of aquifer response to the natural hydrologic cycle (e.g. precipitation) and human-induced effects (e.g. pumping). The analysis of storage change was accomplished by considering subarea-averaged annual groundwater head elevation changes reported by MCWRA from 1944 to 2013. The accuracy of this analysis relies directly on the accuracy of the estimates of head change and of the values of storage coefficient and land area used. For this analysis, the storage coefficients reported by DWR (2003) were used[1]. Figure ES-5 shows a time series of calculated storage change for the Basin, color-coded by subarea. When compared with Figure ES-4, it is clear that there is a strong correlation between the pattern of the cumulative precipitation surplus and that of storage change. The storage change analysis included a statistical comparison between subarea storage change and annual precipitation surplus, reservoir releases, streamflow (at the Salinas River gauge near Bradley), and groundwater pumping. In all four subareas, annual storage change was correlated most strongly to annual precipitation surplus. The results of the storage change analysis are summarized in Table ES-3.

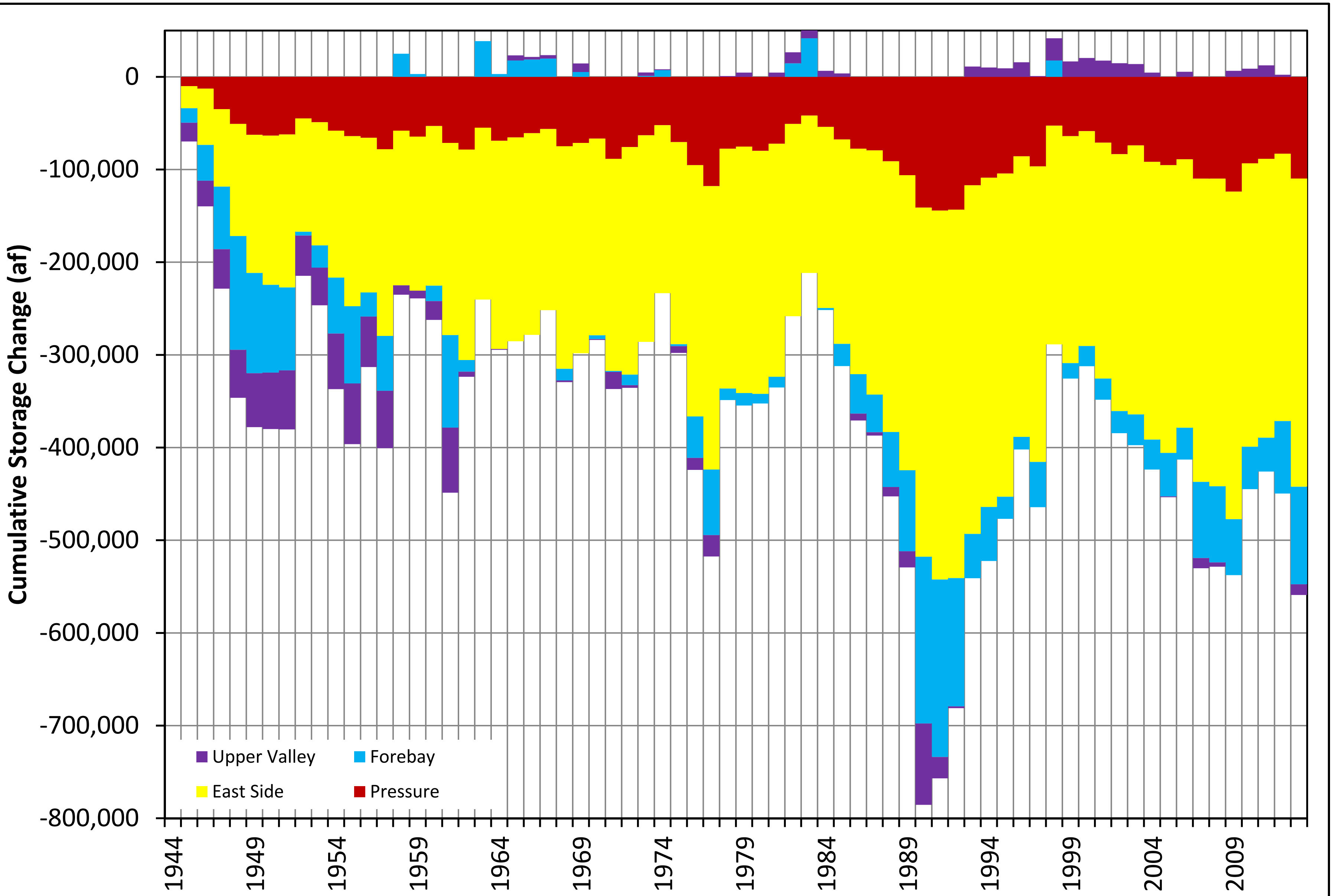
Table ES-2. Groundwater Storage

Subarea	Storage Coefficient (ft^3/ft^3)[a]	Land Area (acres)[b]	Storage Capacity (acre-feet)[a]	Groundwater in Storage (acre-feet)[a]	Available Storage (acre-feet)
Pressure	0.036	126,000	7,240,000	6,860,000	380,000
East Side	0.08	75,000	3,690,000	2,560,000	1,130,000
Forebay	0.12	87,000	5,720,000	4,530,000	1,190,000
Upper Valley	0.10	92,000	3,100,000	2,460,000	640,000
Total	--	380,000	19,750,000	16,410,000	3,340,000

[a] *From DWR (2003).*

[b] *From the Salinas Valley Integrated Ground and Surface Water Model (SVIGSM).*

1 The storage calculation presented in this Executive Summary is based on the storage coefficients published in DWR (2003). In the main body of the Report, the storage calculation is based on the DWR (2003) data and an additional and smaller storage coefficient that could be representative of the confined portions of the Pressure Subarea aquifer system.



Brown AND Caldwell

DATE	SITE	
01/16/15	Salinas River Groundwater Basin Investigation	Figure ES-5
PROJECT	TITLE	
146430	Cumulative Storage Change by Subarea	

Table ES-3. Calculated Storage1 Change by Subarea, 1944 to 2013						
Subarea	Minimum Annual (af)	Maximum Annual (af)	Annual Average (afy)	Minimum Cumulative (af)	2013 Cumulative (af)	Predicted Change If Drought Continues (afy)
Pressure	-35,000	+44,000	-2,000	-144,000 (1991)	-110,000	-10,000 to -20,000
East Side	-58,000	+83,000	-5,000	-398,000 (1991)	-333,000	-25,000 to -35,000
Forebay[a]	-93,000	+98,000	-2,000	-192,000 (1991)	-105,000	-10,000 to -15,000
Forebay[a]	-93,000	+98,000	-2,000	-192,000 (1991)	-105,000	-80,000 to -90,000
Upper Valley[a]	-70,000	+65,000	-200	-88,000 (1990)	-12,000	-5,000 to -15,000
Upper Valley[b]	-70,000	+65,000	-200	-88,000 (1990)	-12,000	-50,000 to -70,000
Zone 2C[a]	-256,000	+217,000	-8,000	-786,000 (1990)	-559,000	-50,000 to -85,000
Zone 2C[b]	-256,000	+217,000	-8,000	-786,000 (1990)	-559,000	-165,000 to -215,000

Note: af = acre-feet; afy = acre-feet per year

[a] Based on calculated storage changes over the extended drought of WY 1984 to 1991

[b] Based on calculated storage changes for years with very low reservoir release (WYs 1961 and 1990)

Pressure Subarea

Using the storage coefficient value of 0.036, as reported by DWR (2003), calculated storage change in the Pressure Subarea from 1944 to 2013 was about -110,000 af, averaging about -2,000 afy. Based on storage changes during the extended drought of WY 1984 to 1991, storage in the Pressure Subarea could be expected to decline by about 10,000 to 20,000 afy under continued dry conditions.

East Side Subarea

Calculated storage change in the East Side Subarea from 1944 to 2013 was about -333,000 af, averaging about -5,000 afy. Based on storage changes during the extended drought of WY 1984 to 1991, storage in the East Side Subarea could be expected to decline by about 25,000 to 35,000 afy under continued dry conditions.

Forebay Subarea

Calculated storage change in the Forebay Subarea from 1944 to 2013 was about -105,000 af, averaging about -2,000 afy. The pattern of storage change in the Forebay Subarea is quite dissimilar to that in the Pressure and East Side Subareas, being much closer to zero storage change over much of the period of record and appearing to be strongly affected by years of very low reservoir releases, which lead to very large storage declines in this Subarea. Based on storage changes during the extended drought of WY 1984 to 1991, storage in the Forebay Subarea could be expected to decline by about 10,000 to 15,000 afy under continued drought conditions. However, if reservoir releases are severely curtailed (as occurred in WYs 1961 and 1990), storage changes may be much greater in magnitude, on the order of 80,000 to 90,000 afy, or about 50 to 60 percent of annual pumping in the Forebay Subarea.

Upper Valley Subarea

Calculated storage change in the Upper Valley Subarea from 1944 to 2013 was about -12,000 af, averaging about -200 afy. The pattern of storage change is similar to that of the Forebay Subarea, with a similar apparent reliance on reservoir releases. Based on storage changes during the extended drought of WY 1984 to 1991, storage in the Upper Valley Subarea could be expected to decline by about 5,000 to 15,000 afy under continued drought conditions. However, if reservoir releases are severely curtailed, storage losses may be much larger, on the order of about 50,000 to 70,000 afy, or about 30 to 50 percent of annual pumping in the Upper Valley Subarea.

Zone 2C

Based on the numbers presented above, calculated storage change from 1944 to 2013 in all of Zone 2C was about -559,000 af, averaging about -8,000 afy. The pattern of storage change follows the pattern of the precipitation surplus, but is also affected by reservoir releases, which typically replenish approximately 35 percent of annual pumping as aquifer recharge. During years of exceptionally low reservoir releases, such as 1991, drought-related aquifer storage depletion is amplified.

Storage under continued dry conditions can be expected to decline by about 50,000 to 85,000 afy, comparable to past dry years. However, if reservoir releases are severely curtailed, as occurred in WYs 1961 and 1990, storage losses could be expected to be much larger, on the order of about 165,000 to 215,000 afy.

Over the period from 1959 to 2013 (the period for which groundwater pumping data are available and the reservoirs have been operating), the average reported annual pumping in Zone 2C was about 523,000 afy. During this same time period, the average annual storage change (calculated using groundwater head changes) was about -6,000 afy. An additional loss of storage due to seawater intrusion has occurred, and has been estimated at between 11,000 and 18,000 afy. This suggests that, overall, Zone 2C is out of groundwater balance by about 17,000 to 24,000 afy. The total calculated storage change over this period (not including seawater intrusion) was about -349,000 af, about 50 percent more than the storage change experienced prior to the beginning of operations of the reservoirs (about -210,000 af from 1944 to 1958), indicating that the reservoirs have greatly slowed storage losses in the Basin. However, the existing storage deficit has continued to grow over the period of record, and must be remedied before the deleterious effects of storage declines, such as seawater intrusion and the drying of wells, can be reversed. In addition, the volume of storage lost due to seawater intrusion must be better quantified.

State of the Basin – Water Supply in Zone 2C

Based on the calculations conducted for this project as discussed above, the Basin is currently out of hydrologic balance by approximately 17,000 to 24,000 afy. However, the estimated volume of groundwater in reserve (i.e. storage) is about 6.8 million acre-feet in the aquifers of the Pressure Subarea (Table ES-2), and the total volume of groundwater stored in Zone 2C is about 16.4 million acre-feet.

The goal of the water supply analyses presented in this report was to provide a postulation of how groundwater supply may change in the future should the current drought conditions continue. This was accomplished by assessing how and why groundwater head elevations and groundwater storage have changed in the past. Independent hydrologic variables (precipitation, groundwater pumping, reservoir releases, and streamflow) were compared with the groundwater head and storage changes to provide insight (or correlations) into which of these factors is driving these changes. Lastly, this study then provides professional opinions on the consequences of using more groundwater than the estimated yield on both the short-term Basin conditions and long-term sustainability.

An analysis of historical groundwater head elevation at a selected set of 25 locations indicated that, overall, groundwater head changes are correlated most strongly to the annual precipitation surplus in the Pressure, East Side, and Forebay Subareas. Head changes in the Upper Valley Subarea are not well-correlated to any independent variable, whereas the storage changes discussed above are statistically correlated to annual precipitation surplus.

Based on statistical correlations and comparison with the extended drought from WY 1984 to WY 1991, representative head changes at the Subarea scale could range from:

- -5.3 to -1.1 feet per year in the Pressure Subarea (for all three aquifers),
- -9.6 to -3.0 feet per year in the East Side Subarea,
- -5.6 to -1.8 feet per year in the Forebay Subarea, and
- -2.0 to +0.2 feet per year[2] in the Upper Valley Subarea.

Storage changes are also strongly affected by the occurrence of very low reservoir releases, which have historically resulted in storage declines. The cumulative storage loss over the period from 1944 to 2013, not including storage volume lost to seawater intrusion, was about 559,000 af for all of Zone 2C. About 40 percent of the storage loss occurred in the 14 years before Nacimiento Reservoir began releasing water, while about 60 percent occurred over the 55 years from 1959 to 2013. Estimates of storage decline in future dry years range from about 50,000 to 215,000 afy (Table ES-3), depending on the level of reservoir releases that occur. This storage loss, added to the existing storage deficit built up over the history of groundwater development in the study area, will exacerbate the problem of seawater intrusion in the Pressure Subarea.

State of the Basin – Seawater Intrusion

The water quality analysis in this study was undertaken to determine the extent of seawater intrusion into the coastal aquifers in 2013 and to analyze how it is likely to evolve in the future, should the current dry conditions continue into the coming years. The extent of seawater intrusion into the Pressure 180-Foot and Pressure 400-Foot Aquifers (Figures ES-6 and ES-7, respectively) in 2013 was not different from the extents mapped in 2011, indicating that the first two years of current drought did not have an apparent effect on the movement of the seawater intrusion front.

In assessing other markers of seawater intrusion, the sodium to chloride (Na/Cl) ratios[3] indicate that numerous wells on the landward side of the seawater intrusion front have likely been affected by seawater intrusion, even though the chloride concentration has not increased to the 500 mg/L level used by MCWRA to delineate seawater intrusion. Wells screened in the Pressure 400-Foot Aquifer that are several miles landward of the mapped seawater intrusion extent may have been impacted by seawater intrusion in the past. The landward seawater mixing with deeper groundwater can possibly be attributed to the vertical movement of groundwater from the Pressure 180-Foot Aquifer into the lower Pressure 400-Foot zone. Possible mechanisms include: a) natural leakage through areas of thin or absent aquitard between the two aquifers, b) via wells screened across both aquifers, and c) along faulty or compromised well casings acting as conduits.

The accelerated rate of seawater intrusion in 1984 can be attributed to the seven-year drought that started in 1984, the extent of which is depicted in Figures ES-6 and ES-7. The apparent rate of seawater intrusion in the period peaked from 1997 to 1999, despite the fact that the groundwater head elevations began to recover before this time from the declines experienced during the WY 1984 to 1991 drought. If this latent response to an extended drought is repeated in the Basin, water quality impacts stemming from the current drought may not manifest for several years. Chloride concentrations in affected wells increased by up to 100 mg/L from the beginning of the extended drought to 1999, and similar concentration changes may be expected in wells near the seawater intrusion front over the coming years.

2 Positive head changes in individual wells are reflective of increases in head that occurred in select wells during the WY 1984 to 1991 drought, and are not reflective of the average head change in the Upper Valley Subarea during the same period. It is considered unlikely that continued drought conditions will result in an overall increase in head in the Upper Valley Subarea, although individual wells may see head increases, depending on local conditions.

3 Calculated from historical water quality data at selected monitoring wells

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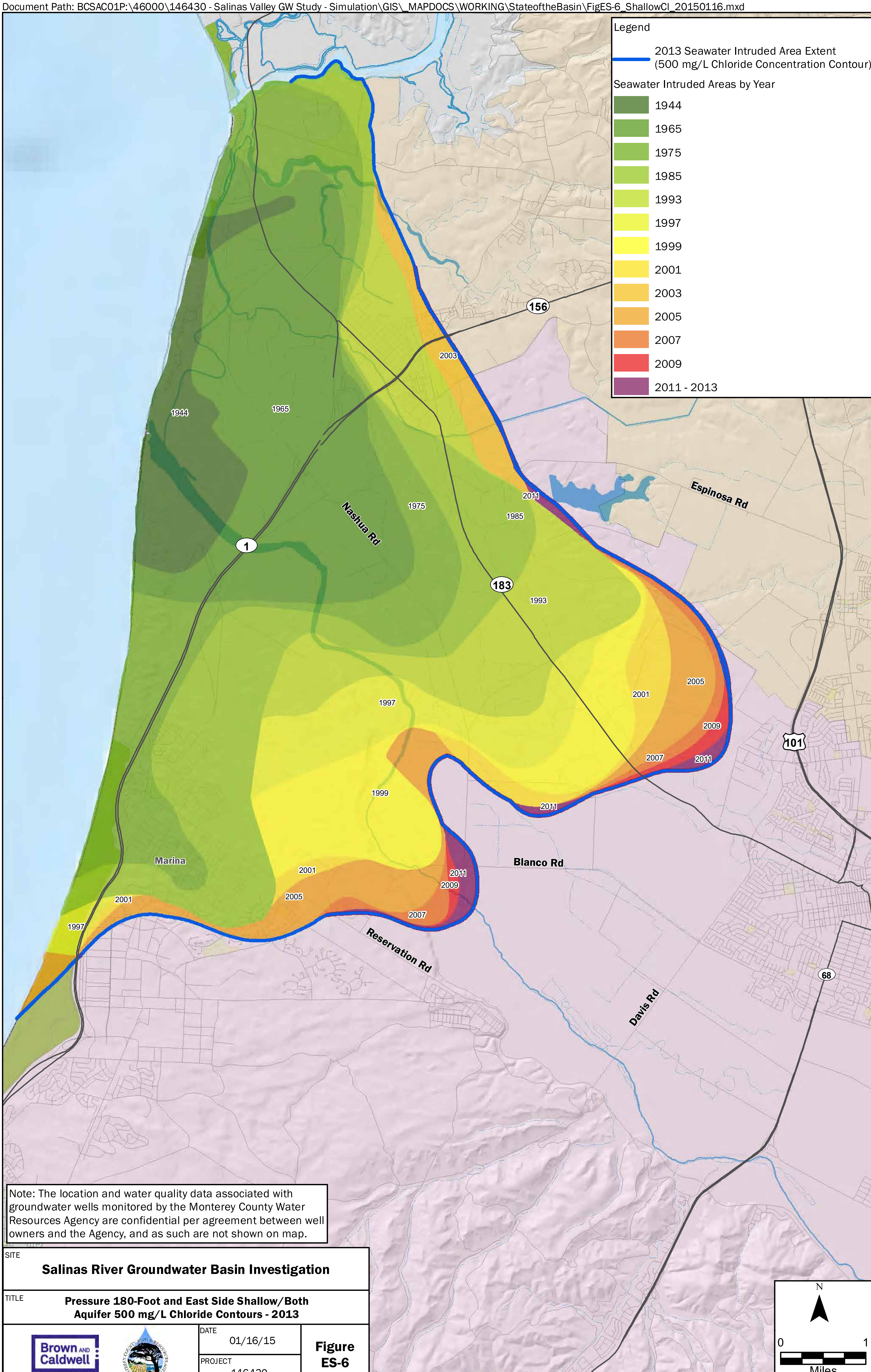

Note: The location and water quality data associated with groundwater wells monitored by the Monterey County Water Resources Agency are confidential per agreement between well owners and the Agency, and as such are not shown on map.

SITE
Salinas River Groundwater Basin Investigation

TITLE
Pressure 180-Foot and East Side Shallow/Both Aquifer 500 mg/L Chloride Contours - 2013

Brown AND Caldwell

DATE 01/16/15

PROJECT 146430

Figure ES-6

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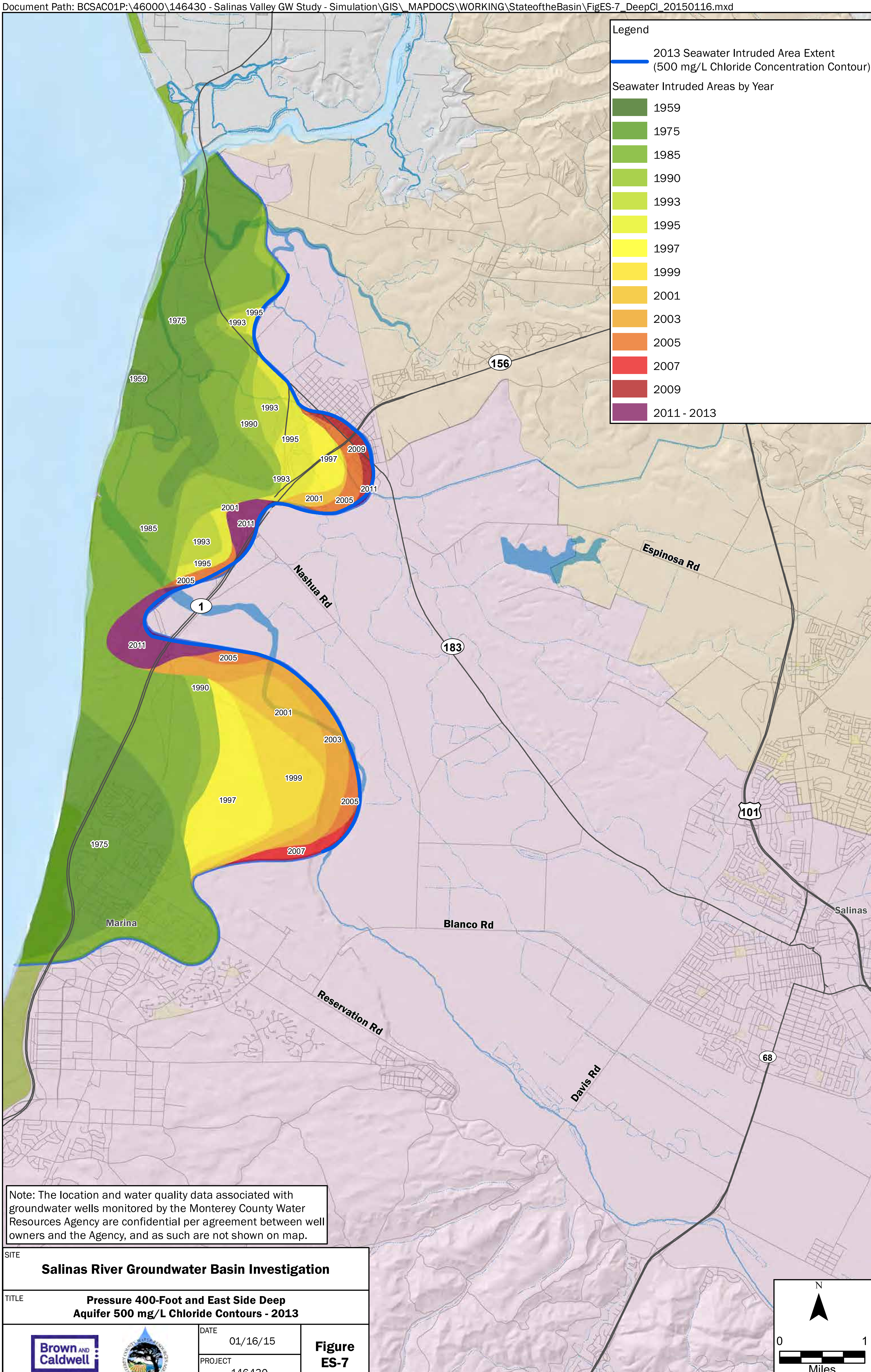

Note: The location and water quality data associated with groundwater wells monitored by the Monterey County Water Resources Agency are confidential per agreement between well owners and the Agency, and as such are not shown on map.

SITE
Salinas River Groundwater Basin Investigation

TITLE
Pressure 400-Foot and East Side Deep Aquifer 500 mg/L Chloride Contours - 2013

Brown AND Caldwell

DATE 01/16/15

PROJECT 146430

Figure ES-7

Options to Address Water Supply under Continued Drought Conditions

Based on the analyses discussed above, the Basin appears to be out of hydrologic balance. The average annual groundwater extraction for the four primary water-producing subareas that compose Zone 2C was about 523,000 afy from 1959 to 2013. The average annual change in storage was about -17,000 to -24,000 afy, including seawater intrusion. This implies that the yield for Zone 2C is on the order of about 501,000 to 508,000 afy; the deficit is essentially the storage change (loss) stated above. It is important to note that the Basin does have an estimated volume of groundwater in storage of about 16 million af (Table ES-2), which could represent a significant groundwater reserve – as compared to the current estimated storage loss of 17,000 to 24,000 afy – and could be used to offset temporary overdraft conditions in the future.

Based on the continued large storage declines in the East Side and Pressure Subareas (and resulting groundwater head declines and seawater intrusion), the current distribution of groundwater extractions is not sustainable. Seawater intrusion can account for up to 18,000 afy of the total storage loss of 24,000 afy. Sustainable use of groundwater can only be achieved by aggressive and cooperative water resources planning to mitigate seawater intrusion and groundwater head declines.

The consequences of no-action under continued drought conditions will be the imminent advancement of seawater intrusion within the next few years and the continued decline of groundwater head. Both of these conditions would necessitate the drilling of deeper groundwater wells to produce the quantity and quality of water needed for consumptive use and irrigation. The installation of deeper wells may not be feasible in some areas because of lower groundwater yield and water quality in the Pressure Deep Aquifer. A more sustainable and long term management practice would encourage a Basin-wide redistribution and reduction of groundwater pumping, which would require cooperative and aggressive resource management. The unsustainability of the current distribution of groundwater extractions has long been recognized by various investigators, and Basin-wide redistribution and reduction of pumping have been recommended previously (e.g. DWR, 1946).

Technical Option 1

The large storage declines that have occurred in the Basin in the past, especially in the East Side Subarea, have created a significant landward groundwater head gradient that must be reversed before seawater intrusion can be halted. Reduction of pumping in the Pressure and East Side Subareas could help mitigate some of the anticipated effects of extended drought on groundwater storage and water quality in the study area. Shifting of pumping to areas farther away from the coast would also be helpful, as long as it is shifted south of the current head trough (Figure ES-3) that exists in the East Side Subarea. While not currently consistent with County Policy, shifting pumping to areas that are both south of the seawater intrusion zone and hydraulically connected to the Salinas River does represent a physical option for addressing seawater intrusion.

DWR (1946) recommended that pumping be curtailed in the Pressure and East Side Subareas and substituted with extraction in the Forebay and Upper Valley Subareas, which are strongly connected to (and interact with) the Salinas River. Yates (1988) performed a numerical modeling analysis of the Basin, with a specific focus on the effect of pumping changes on seawater intrusion, and calculated that seawater intrusion could be cut by more than half (from about 18,000 to 8,000 afy) over a 20-year period by decreasing pumping in the Pressure and East Side Subareas by 30 percent[4]; whereas, reducing pumping in the Forebay and Upper Valley Subareas had minimal to no effect on seawater intrusion.

4 Note that Yates (1988) assumed an agricultural pumping rate of 512,200 afy, based on the results of a land use survey performed in the Salinas Valley in 1976. Recent pumping rates are slightly lower (around 500,000 afy), in part due to the operation of the Monterey County Water Recycling Projects.

Technical Option 2

The shifting of some pumping from the Pressure 180-Foot and Pressure 400-Foot Aquifers to the Pressure Deep Aquifer would reduce the storage deficit in the shallower aquifers; however, this would necessarily lead to head declines in the Pressure Deep Aquifer. Unlike the Pressure 180-Foot and Pressure 400-Foot Aquifers, it is uncertain if the Pressure Deep Aquifer is hydraulically connected to the ocean in Monterey Bay, so it is not known whether this pumping shift would lead to the onset of seawater intrusion into the Pressure Deep Aquifer. Also unknown is the likelihood of localized interaquifer seawater mixing between the Pressure 400-Foot Aquifer and the Pressure Deep Aquifer. Hence, this Management Option requires more investigation to determine its feasibility.

Evaluation of Potential Solutions

The numerical modeling analysis to be performed as the second part of this Basin Investigation will consider the effects of various management decisions on the water supply and water quality in the study area. The primary questions to be assessed for each scenario are: 1) what will be the rate of groundwater head decline; and, 2) what will be the rate of increase in acreage with impaired water quality due to the advancement of the seawater intrusion front. Based on this analysis, an assessment of the economic effects of 1) and 2) due to water supply wells becoming inoperable (i.e. dry), and the further loss of aquifer storage capacity due to the advancement of seawater intrusion can be conducted.

The numerical model should be used to predict groundwater head declines under different management scenarios, including implementing targeted pumping rates and optimizing the distribution of pumping. Future declines in groundwater head must be evaluated by simulated groundwater conditions so that “trigger (groundwater) head levels” can be used as a measure of safe yield and an early alert system as part of Basin Management Objectives. That analysis will extend the discussions and conclusions presented in this report.

EXHIBIT 'B'

Simulated effects of ground-water management alternatives for the Salinas Valley, California

Water-Resources Investigations Report 87-4066

By: E.B. Yates

https://doi.org/10.3133/wri874066

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Abstract

A two-dimensional digital groundwater flow model was developed to analyze the geohydrology of the groundwater basin in the Salinas Valley. The model was calibrated for steady-state and transient simulations by comparing simulated with measured or estimated inflows, outflows, and water levels for 1970-81. Preliminary estimates of hydraulic properties and some inflows and outflows were adjusted during model calibration. The simulated mean annual water budget for the basin was 559,500 acre-ft/yr each of outflow and inflow. Inflow components consisted of Salinas River recharge (38.3%), percolation of irrigation water (34.0%), small stream and Arroyo Seco recharge (20.9%), seawater intrusion (3.4%), and other sources (3.4%). Outflow components consisted of agricultural pumpage (91.5%), municipal pumpage (4.0%), and riparian phreatophyte evapotranspiration (4.5%). For the steady-state calibration, 70% of the simulated water levels were within 9 ft of measured water levels for 1970-81. A sensitivity analysis determined the overall stability of the model results. The model input variable that probably contributes most to the uncertainty of the results is the quantity of groundwater recharge contributed by irrigation-return flow to the unconfined aquifer. A 15% change in the estimate of this variable causes an 11% change in the simulated river-seepage rate and a 6% change in the simulated seawater intrusion rate. The calibrated model was used to investigate several water resources management alternatives. Projected pumpage increase at a rate of 1%/yr for 20 yr caused declines in mean annual water levels of 10 to 20 ft in some areas and an increase in seawater intrusion from 18,900 to 23 ,600 acre-ft/yr. Pumpage decreases in the coastal area decreased seawater intrusion more effectively than pumpage decreases farther inland. When pumpage was decreased uniformly throughout the valley, the decrease in seawater intrusion was only one-fourteenth the decrease in pumpage. Simulations indicated that replacement of groundwater pumpage with imported surface water in a 9,000 acre service area near the coast would result in a decrease in seawater intrusion equaling nearly one-half the quantity of imported water. (Author 's abstract)

Additional publication details

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August 12, 2021

VIA E-MAIL – BOARD@SVBGSA.ORG

Board of Directors
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924

RE: Preliminary Comment on Draft GSPs for the Eastside, Forebay, Langley, Monterey and Upper Valley Subbasins of the Salinas Valley Basin

Dear Chair Pereira and Members of the Board of Directors:

This office represents the Salinas Basin Water Alliance ("Alliance"), a California nonprofit mutual benefit corporation formed to preserve the viability of agriculture and the agricultural community in the greater Salinas Valley. Alliance members include agricultural businesses and families that own and farm more than 80,000 acres within the Salinas Valley. Many Alliance members have been farming in the Salinas Valley for generations. As such, the Alliance has a significant interest in the long-term sustainability of the Salinas Valley Basin.

The Alliance greatly appreciates the difficult work this Board, together with the Salinas Valley Basin Groundwater Sustainability Agency (GSA) staff and consultant team, has undertaken to implement the Sustainable Groundwater Management Act (SGMA) in Monterey County, including the time-consuming but extremely beneficial engagement with all stakeholders. The Alliance applauds the Salinas Valley Basin GSA's recent success in obtaining approval of the Department of Water Resources (DWR) for the first groundwater sustainability plan (GSP) required to be prepared for the six Salinas Valley Subbasins within the jurisdiction of the Salinas Valley Basin GSA. Further, the Alliance acknowledges and wholeheartedly supports the Board's commitment to coordinate and implement all of the GSPs for the Salinas Valley Basin within its jurisdiction in an integrated manner pursuant to the proposed Integrated Sustainability Plan, or as it may otherwise be titled.[1] It is with this objective—integrated groundwater management—in mind that the

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[1] See Joint Exercise of Powers Agreement Establishing the Salinas Valley Basin GSA § 2.2 ("The purpose of Agency is to . . . develop[], adopt[], and implement[] a GSP that achieves groundwater sustainability in the Basin."); § 4.1(c) (The JPA has the power to "develop, adopt and implement a GSP for the Basin.); § 4.1(l) (The JPA has the power to "establish and administer projects and programs for the benefit of the Basin."); Salinas Valley Groundwater Basin 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan [180/400 GSP] at 9-10 ("This GSP is part of an integrated plan for managing groundwater in all six subbasins of the Salinas Valley Groundwater Basin that are managed by the SVBGSA. The projects and management actions described in this GSP constitute an integrated management program for the entire Valley."); 180/400 GSP at 10-14 ("The SVBGSA oversees all or part of six subbasins in the Salinas Valley Groundwater Basin. Implementing the 180/400-Foot Aquifer Subbasin GSP must be integrated with the implementation of the five other GSPs in the Salinas Valley Groundwater Basin . . . The implementation

Alliance offers these preliminary comments on the draft GSPs for the Eastside, Forebay, Langley, Monterey and Upper Valley Subbasins.[2]

As this Board well knows, SGMA not only requires the Salinas Valley Basin GSA to develop a GSP for each priority subbasin within its jurisdiction to ensure the long-term sustainability of those subbasins, but it also mandates that the GSA consider the impacts each GSP may have on the ability of adjacent subbasins to achieve their sustainability goal.[3] In enacting SGMA, the legislature intended to provide for the sustainable management of all groundwater basins and expressly provided for the coordination of management between and among basins.[4] Any GSP that interferes with an adjacent basin's sustainability goal cannot satisfy SGMA.[5] Moreover, in the event the GSPs for the subbasins disproportionately allocate the burden of sustainability across the Salinas Valley Basin, they could impair groundwater users' rights in and to the Salinas Valley Basin in violation of SGMA and common law water rights.[6]

The Alliance's preliminary review of the draft GSPs suggests that there are significant data gaps and uncertainty with respect to the quantification of flows between subbasins within the Salinas Valley Basin that should be addressed.[7] Specifically, the Alliance is concerned that the existing water budget analyses in the draft GSPs may not provide a complete picture of the downgradient impacts caused by groundwater pumping. Accordingly, the Alliance requests that the Salinas Valley Basin GSA conduct additional simulations with the Salinas Valley Integrated Hydrologic Model (SVIHM) that are specifically focused on the issue of inter-subbasin groundwater flows, as more specifically described in aquilogic's August 11, 2021 memorandum attached to this letter. In light of the fact that the Integrated Sustainability Plan appears to have been delayed until after completion of the subbasin GSPs, the requested additional simulations should be conducted prior to the Salinas Valley Basin GSA's adoption of the subbasin GSPs.

The requested additional model simulations are consistent with and support SGMA's and DWR's requirements that all GSPs be based on the best available science.[8] They will enable an understanding of

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schedule reflects the significant integration and coordination needed to implement all six GSPs in a unified manner."); see also Salinas Valley Groundwater Basin Draft Upper Valley Aquifer Subbasin Groundwater Sustainability Plan at 10-16; Salinas Valley Groundwater Basin Draft Eastside Aquifer Subbasin Groundwater Sustainability Plan at 9-1, 10-7, 10-8, 10-16; Salinas Valley Groundwater Basin Draft Forebay Aquifer Subbasin Groundwater Sustainability Plan at 2-4, 9-2, 9-4, 10-7, 10-9, 10-17; Salinas Valley Groundwater Basin Draft Langley Aquifer Subbasin Groundwater Sustainability Plan at 2-4, 9-1, 9-4, 10-8, 10-9, 10-16.

[2] Following publication of the final draft GSPs for these subbasins, the Alliance may have additional comments.

[3] Wat. Code § 10733(c).

[4] Wat. Code §§ 10720.1(a); 10727; 10727.6

[5] See Wat. Code § 10733(c); 23 Cal. Code Regs. §§ 350.4, 351(h), 354.8(d), 354.18(b)(3), (c)(2)(B), (e), 354.28(b)(3), 354.44(a)(6), (c), 355.4(b)(7), 356.4(j), 357.2(b)(3); DWR, Monitoring Networks and Identification of Data Gaps BMP at pp. 6, 8, 27; DWR, Water Budget BMP at pp. 7, 12, 16, 17, 36; DWR, Modeling BMP at pp. 21-22; DWR, Sustainable Management Criteria BMP at pp. 9, 31.

[6] Wat. Code 10720.1(b) (declaring legislature's intention to preserve the security of water rights in the state to the greatest extent possible consistent with the sustainable management of groundwater); see also Water Code §§ 10720.5(b).

[7] 23 Cal. Code Regs. § 351.

[8] See 23 CCR § 354.18 ("A quantitative assessment of the historical water budget, starting with the most recently available information and extending back a minimum of 10 years, ***or as is sufficient to calibrate and reduce the uncertainty of the tools and methods used*** to estimate and project future water budget information and future aquifer response to proposed sustainable groundwater management practices over the planning and implementation horizon." (emphasis added).)

the amount of Basin-wide groundwater discharge that is and has been captured by pumping, which, depending on the results, may require modification of each subbasin's proposed water budget. In the absence of this analysis, there is a significant level of uncertainty in the water budgets that has the potential to undermine the adequacy of the GSPs and also to impair the Salinas Valley Basin GSA's ability to achieve its sustainability goal in each subbasin and throughout the Salinas Valley Basin within its jurisdiction.[9]

The Alliance has endeavored to make this comment and request at the earliest opportunity to allow the Salinas Valley Basin GSA sufficient time to conduct the additional SVIHM simulations. The Alliance does not wish to delay the successful completion and adoption of the subbasin GSPs. Rather, the Alliance anticipates that the additional simulations can feasibly be accomplished and incorporated into the draft GSPs consistent with the Salinas Valley Basin GSA's goal of adopting the subbasin GSPs in accordance with SGMA's deadlines.

The Alliance appreciates the Board's careful consideration of this issue and urges the Board to direct the Salinas Valley Basin GSA staff and consultant team to undertake the requested further analyses and incorporate the results into the draft GSP for each of the subbasins. The Alliance strongly believes that removing existing uncertainties with respect to inter-subbasin flows is a critical component to ensuring both transparency in the GSP development process and equity in the resulting plans, both of which are essential to promoting healthy Basin-wide dialogue and collaboration in obtaining sustainable groundwater management of the Salinas Valley Basin within the Salinas Valley Basin GSA's jurisdiction.

As the Board may direct, the Alliance would welcome the opportunity to discuss the requested additional consideration of inter-subbasin flows in more detail with the Salinas Valley Basin GSA's staff and consultant team.

Respectfully submitted,

Stephanie Osler Hastings

Attachment: August 11, 2021 aquilogic, inc. memorandum

cc: Donna Meyers, Senior Consultant / General Manager (meyersd@svbgsa.org)
Emily Gardner, Senior Advisor / Deputy General Manager (gardnere@svbgsa.org)
Derrik Williams, Montgomery & Assoc. (dwilliams@elmontgomery.com)
Leslie Girard, Monterey County Counsel (GirardLJ@co.monterey.ca.us)

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[9] DWR's June 3, 2021 determination that it does not appear that the GSP for the 180-400 Aquifer Subbasin will adversely affect the ability of an adjacent basin to implement its GSP or impede achievement of sustainability goals in an adjacent basin does not mean that the Salinas Valley GSA should assume that DWR will reach the same conclusion with respect to the remaining subbasin GSPs.

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August 11, 2021

MEMORANDUM

To: Stephanie Hastings, Brownstein Hyatt Farber Schreck (BHFS)
Sent via email: SHastings@bhfs.com
From: Robert H. Abrams, PhD, PG, CHg, Principal Hydrogeologist, aquilogic, Inc.
Anthony Brown, CEO & Principal Hydrologist, aquilogic, Inc.

Subject: Assessment of Groundwater Flows between Subbasins of the Salinas Valley Groundwater Basin (SVGB)
Project No.: 018-09

Aquilogic, Inc. (**aquilogic**) is pleased to provide this memorandum on behalf of our mutual client, the Salinas Basin Water Alliance (SBWA), outlining the justification and necessity for conducting additional simulations with the Salinas Valley Integrated Hydrologic Model (SVIHM),[1] which is being used by the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) for groundwater sustainability plan (GSP) development.

Aquilogic hypothesizes that pumping has captured significant portions of groundwater discharge that would otherwise migrate as underflow from the Upper Valley Subbasin to the Forebay Subbasin, from the Forebay Subbasin to the 180/400-Ft Aquifer Subbasin and East Side Subbasin, and potentially from the 180/400-Ft Aquifer Subbasin to the Monterey Subbasin and the Salinas River. Our primary concern is that the existing water budget analyses in at least three of the SVBGSA's draft GSPs may not provide a complete picture of the downgradient impacts caused by groundwater pumping.[2]

It should be noted that groundwater sustainability was a pertinent issue for water managers long before the advent of California's Sustainable Groundwater Management Act. There is

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[1] The SVIHM is a provisional, unpublished model not currently available to the general public.
[2] Bredehoeft, J.D., Papadopulos, S.S., and Cooper, H.H. Jr. (1982). The water budget myth. *In* Scientific Basis of Water Resource Management, Studies in Geophysics, 51-57. Washington, D.C. National Academy Press;
Bredehoeft, J.D. (1997). Safe yield and the water budget myth. Ground Water, Vol. 35, No. 6, p. 929;
Bredehoeft, J.D. (2002). The water budget myth revisited: why hydrogeologists model. Ground Water, Vol. 40, No. 4, p. 340-345;
Bredehoeft, J.D. and Durbin, T. (2009). Groundwater development: the time to full capture problem. Ground Water, Vol. 47, No. 4, p. 506-514;
Bredehoeft, J.D. (2011). Monitoring regional groundwater extraction: the problem. Ground Water, Vol. 49, No. 6, p. 808-814.

ample support in the groundwater literature for considering multiple aspects of sustainability and undesirable results, including economic and social impacts and the contravention of water rights.[3]

ADDITIONAL SIMULATIONS

As stated in "SVIHM Frequently Asked Questions,"[4] one of the many questions that can be addressed by a model is: How much groundwater flows between subareas? Clearly, the SVIHM developers recognized the importance of this question and anticipated that it would be asked. On behalf of the SBWA, **aquilogic** requests that the SVBGSA utilize the SVIHM to conduct additional simulations that are specifically focused on the issue of inter-subbasin groundwater flows. The requested simulations will enable an improved understanding of the amount of Valley-wide groundwater discharge that is and has been captured by pumping, which may be needed to ensure the adequacy of the GSPs for each of the subbasins and important to their implementation.

Aquilogic recommends a type of "superposition" analysis, in which the results of two simulations are compared. In such an analysis, the two simulations are identical except for the process under examination, in this case groundwater pumping. Pumping would be selectively turned off in one simulation and left as currently configured in the SVIHM in the other simulation. A similar superposition analysis was done to assess pumping-induced streamflow depletion, as described in Chapter 5 of the GSPs for the Forebay Subbasin and the East Side Subbasin.

The inter-subbasin flows would then be compared, which would semi-quantitatively estimate the impact of pumping, within the limiting assumptions and uncertainties associated with the SVIHM. Ideally, the analysis should be conducted with the initial conditions of the no-pumping scenario representing a "full" SVGB. The analysis would provide an estimate of the impact of pumping on inter-subbasin groundwater flows.

Specifically, using the calibrated SVIHM historical model, **aquilogic** recommends the following outline for conducting simulations, the details of which would be worked out in consultation with the SVBGSA:

1. Develop reasonable initial conditions for the hydraulic head distribution for the no-pumping simulation. This entails turning off all pumping in the model domain while

[3] Todd, D.K. (1959). Groundwater Hydrology. Wiley, New York, 336 p.;
Domenico, P. (1972). Concepts and Models in Groundwater Hydrology. McGraw-Hill, New York, 405 p.;
Freeze, R.A. and Cherry, J.A. (1979). Groundwater. Prentice-Hall, 604 p.;
Alley, W.M., Reilly, T.E., and Franke, O.L. (1999). Sustainability of ground-water resources. U.S. Geological Survey Circular 1186, 79 p.

[4] https://www.co.monterey.ca.us/home/showdocument?id=31292

leaving all other inflows and outflows unchanged. Because the time for simulated water levels to recover may be longer than the SVIHM simulation period of 51 years (1967-2018), the simulation may have to be run multiple times before an average steady-state condition can be achieved. In this case, the hydraulic head distribution at the last time step of the previous simulation would be used as the initial condition of the subsequent simulation. This process would be repeated until the hydraulic head distribution at the last time step of a subsequent simulation is substantially identical to the last time step of the previous simulation. This would indicate that an average steady-state condition is being simulated. We assume here that the surface water inflows and reservoir releases for the 1967-2018 period would be sufficient to eventually "refill" the SVGB after several model runs.

2. When the average, no-pumping steady-state condition has been achieved with the modified SVIHM, simulated groundwater flow should occur from the East Side Subbasin to the 180/400-Ft Subbasin, and from the 180/400-Ft Subbasin to Monterey Bay, conditions that are now reversed.

3. From the final results of the no-pumping simulation, in which average steady-state conditions have been achieved, compute the inter-subbasin groundwater flows between each adjoining subbasin. Compare these flows with the inter-subbasin flows from the historical, unmodified SVIHM. The differences in inter-subbasin flows and induced recharge from the surface water system represent a semi-quantitative estimate of the impact of Valley-wide pumping.

4. Additional superposition analyses can be conducted to assess the impact of one subbasin's pumping on basin-wide groundwater levels and inter-subbasin groundwater flows, by turning on pumping in one subbasin at a time in the modified SVIHM (and leaving pumping turned off in all other subbasins) and comparing the results to the scenario with no pumping throughout the SVGB. The differences in inter-subbasin flows and groundwater levels represent a semi-quantitative estimate of the impact of one subbasin's pumping on the other subbasins.

Tuesday, September 28, 2021

SVBGSA Public Comments Form

Salinas Valley Basin Groundwater Sustainability Agency

Name	Rick Rogers
Organization	National Marine Fisheries Service
Email Address	rick.rogers@noaa.gov
Subbasin	Upper Valley
Chapter	8

Comments

The following are comments by the National Marine Fisheries Service regarding the draft final GSP for the Salinas Upper Valley subbasin.

1) Section 8.10.1 -- As noted in previous comment letters, a minimum threshold or measurable objective for interconnected surface water depletion that is based upon groundwater elevations seen during the state's recent drought is inappropriate and likely to adversely impact CCC steelhead and its habitat (see attachment). Also, the draft GSP fails to explain how the minimum threshold is likely to avoid the undesirable result of significant and unreasonable impacts to beneficial uses of surface water (i.e., steelhead migration, cold freshwater habitat, and spawning).

2) Section 8.10.2.2 -- Using the approach outlined in EDF (2018) is inappropriate for avoiding impacts to surface water beneficial uses, since it has no connection between streamflow depletion rates and those impacts.

Also, the draft GSP assumes "that any depletions of surface water beyond the level of depletion that occurred prior to 2015, as evidenced by reduction in groundwater levels, represent depletions that do impact beneficial uses." There is no explanation of the analysis or reasoning for this assumption. As noted numerous times, NMFS has argued that any sustainable management criteria consistent with depletion rates observed during California's drought is inappropriate and likely to take threatened CCC steelhead listed under the Endangered Species Act.

Section 8.10.2.3 -- The draft GSP notes that the minimum threshold was developed using "public information about critical habitat", but does not explain how that information was considered or how it influenced the threshold.

Furthermore, the draft GSP continues to assert that the MCWRA operation of reservoirs on the Salinas River "considers ecological surface water users." This assertion is without merit and has been repeatedly debunked, most recently through our comment letter on DWR's acceptance of the 180/400 Foot subbasin GSP (see attachment).

Section 8.10.2.6 -- Under "Ecological land uses and users", the draft GSP argues that "by setting future groundwater levels at or above recent lows, there should be less impact to ecological users than has been seen to date." This rationalization is not consistent with SGMA regulations, which require GSPs to avoid undesirable results, not minimize undesirable results to a level not seen "to date."

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404-4731

September 15, 2021

Craig Altare
Supervising Engineering Geologist
California Department of Water Resources
901 P Street, Room 213
Sacramento, California 94236

Re: NOAA's National Marine Fisheries Service's Comments on the California Department of Water Resources' Acceptance of the Salinas Valley 180/400-foot Sub-basin Groundwater Sustainability Plan

Dear Mr. Altare:

NOAA's National Marine Fisheries Service (NMFS) is the federal agency responsible for managing, conserving, and protecting living marine resources in inland, coastal, and offshore waters of the United States. We derive our mandates from numerous statutes, including the federal Endangered Species Act (ESA). The purpose of the ESA is to conserve threatened and endangered species and their ecosystems.

On June 3, 2021, the California Department of Water Resources (DWR) approved a Groundwater Sustainability Plan (GSP) developed by the Salinas Valley Basin Groundwater Sustainability Agency (Salinas Valley GSA) for the 180/400 foot aquifer. The GSP was developed to comply with California's Sustainable Groundwater Management Act (SGMA), which went into effect on January 1, 2015, and required all GSAs in "critical" basins, such as the 180/400 sub-basin, to complete GSPs by January 2020. Throughout the GSP development process, NMFS has offered guidance and comments directly to the Salinas Valley GSA and DWR regarding the undesirable result of streamflow depletion and its likely impact on South-Central California Coast (SCCC) steelhead, listed as threatened under the federal ESA. Nonetheless, our guidance has generally been disregarded, and instead the GSA and DWR have inappropriately relied upon an outdated and incomplete analysis in NMFS's 2007 biological opinion for the Salinas Valley Water Project (SVWP).

In 2007, we initiated ESA section 7 consultation[1] with the U.S Army Corps of Engineers (Corps) on the Corps' proposed issuance of Section 404 Clean Water Act permit to the Monterey County Water Resources Agency (MCWRA) to construct the Salinas Valley Water Project (SVWP). On June 21, 2007, we issued our biological opinion to the Corps. The biological opinion analyzed the effects of the proposed construction and operation of the Salinas River Diversion Facility (SRDF) and Nacimiento Dam Spillway modification and the associated changes in flow releases from the

[1] Under section 7 of the ESA, federal agencies must consult with NOAA Fisheries (and or the U.S. Fish and Wildlife Service) when any action the agency carries out, funds, or authorizes may affect a species listed as threatened or endangered under the ESA, or any critical habitat designated for it. If there is no federal nexus between a proponent's project and the ESA, then section 10 of the ESA is the appropriate approach for the proponent to comply with the ESA.

Nacimiento and San Antonio dams from operation of the SVWP. MCWRA began operating the SVWP in 2010.

In June 2016, NMFS, the Corps, and MCWRA received a 60-day Notice of Intent (NOI) to sue from the Stanford Law Clinic alleging ongoing violations of sections 7 and 9 of the ESA in connection with the ongoing operation of the SVWP, as well as alleged ongoing violations of the Section 404 Clean Water Act permit issued by the Corps to MCWRA for the SVWP. In response to the NOI, we determined reinitiation of section 7 consultation with the Corps was appropriate because we believed there was new information that suggests the SVWP may affect steelhead or its designated critical habitat in a manner or extent that was not considered in our 2007 biological opinion. However, the Corps determined their action was completed, and therefore there was no longer a federal nexus in which to base a reinitiation of the section 7 consultation. For these reasons, we withdrew our biological opinion by letter on February 20, 2019. In that letter, we also encouraged MCWRA to obtain an exemption from the take prohibitions of section 9 of the ESA by expediting their ESA section 10(a)(1)(B) incidental take permit application process.

Unfortunately, the GSP and DWR's June 3, 2021 *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan* (Staff Report) include several mischaracterizations pertaining to NMFS' 2007 biological opinion governing reservoir operations on the Salinas River. Primarily, that the flow regime analyzed within the biological opinion ensures sustainable groundwater management, as defined by SGMA. Below we provide comments on the findings made in the Staff Report about the 2007 biological opinion that we believe are inaccurate or unfounded.

Comment 1:

> *The Plan includes the reasoning that the current depletion rates are already incorporated into the river management plan designed to protect environmental uses, particularly steelhead. The Plan states that "since flow requirements were being met under the 2007 biological opinion, surface water depletion rates were not unreasonable with regards to maintaining environmental flow requirements."* (Staff Report, Page 28)

The Salinas Valley GSA asserts in their GSP, and by accepting the GSP, DWR tacitly agreed, that significant and unreasonable depletions of interconnected surface water are avoided as long as MCWRA operates reservoir releases consistent with the flow prescription analyzed in NMFS' 2007 biological opinion. NMFS notified the Salinas Valley GSA and DWR on multiple occasions (see enclosures) that streamflow depletion impacts to steelhead and their habitat in the Salinas River are *not* avoided by reservoir releases consistent with the withdrawn biological opinion. We noted that relying on MCWRA's reservoir releases to mitigate groundwater use impacts within the Salinas Valley GSA's jurisdiction will simply perpetuate current groundwater pumping and adversely impact steelhead. In fact, we've recently received confirmation from MCWRA that lowering of the groundwater table has had a significant impact on their ability to operate their reservoirs to a controlled range of flows at the SRDF (Franklin 2019). As such, overdraft of the groundwater basin has reduced groundwater levels to an extent that has significantly impacted surface water flows and depleted the availability of surface water (Franklin 2019). Simply put, in the Salinas River Basin, groundwater and surface water are dependent on each other (Franklin 2019) and must be managed in concert.

<u>Comment 2</u>:

> *The Plan includes the reasoning that the current depletion rates are already incorporated into the river management plan designed to protect environmental uses, particularly steelhead.* (Staff Report, Page 28)

The "river management plan" appears to be a reference to the SVWP flow prescription analyzed in the 2007 withdrawn biological opinion described above. If so, we wish to clarify that the impact of groundwater pumping on Salinas River surface flow was not a part of the 2007 biological opinion's analysis, and, as mentioned above, lowering of the groundwater table has a significant impact on MCWRA's ability to operate their reservoirs to a controlled range of flows at the SRDF. Simply stated, as groundwater levels recede and streamflow depletion increases, MCWRA is forced to increase reservoir releases to achieve groundwater recharge. In turn, increased recharge releases reduce reservoir storage, and this reduction often carries over from year to year during dry periods, further exacerbating the storage deficit.

Under the "river management plan" (i.e., the SVWP flow prescription), migration flow releases for SCCC steelhead are triggered, in part, by reservoir storage thresholds. Therefore, managing groundwater elevations, and by extension streamflow depletion rates, at levels consistent with recent drought periods precludes migration flow releases, and thus limits migration opportunities within the mainstem Salinas River. With expected future climate change, the continued strain on reservoir storage and the corresponding impact to steelhead migration opportunities will likely worsen. Because there is new information that suggests the SVWP may affect steelhead or its designated critical habitat in a manner or extent that was not considered in our 2007 biological opinion, and the existing triggers in the SVWP likely do not adequately provide sufficient migration opportunities for steelhead, DWR's reliance on the 2007 biological opinion as the basis for concluding the undesirable result of streamflow depletion will likely be avoided under the GSP is untenable, and thus inappropriate.

<u>Comment 3</u>:

NMFS has repeatedly commented that maintaining streamflow depletion at current levels, or maintaining groundwater levels at least one foot above 2015 levels is unlikely to avoid significant and unreasonable impacts to surface water beneficial uses important to ESA-listed steelhead survival and recovery. This is because 2015 was the fifth year of California's recent historic drought, when groundwater depths were generally near the lowest on record. The following passage, excerpted from Salinas Valley GSA's Forebay sub-basin draft GSP, clearly explains the relationship between groundwater depth and streamflow depletion.

> *Basic hydraulic principles state that groundwater flow is proportional to the difference between groundwater elevations at different locations along a flow path. Using this basic principle, groundwater flow to a stream, or conversely seepage from a stream to the underlying aquifer, is proportional to the difference between water elevation in the stream and groundwater elevations at locations away from the stream.* (Salinas Valley Forebay sub-basin draft GSP, Page 8-43)

Thus, a minimum threshold consistent with historically low groundwater elevations (2015) would correlate with historically high streamflow depletion rates. During dry periods, surface water discharge is already compromised by high demand, increasing reliance on groundwater pumping to meet water needs. Adding the impact of historically high streamflow depletion rates to already compromised surface flows will likely result in aquatic habitat conditions that adversely affect ESA-listed steelhead and their designated critical habitat. For these reasons, NMFS does not agree with DWRs conclusion that the Salinas Valley 180/400 sub-basin GSP explained how the GSA determined minimum thresholds will avoid undesirable results for each of the sustainability indicators (23 CCR § 354.28). We recommend during the initial period of the GSP, the GSA follow guidance from California Department of Fish and Wildlife (2019) to develop conservative streamflow depletion thresholds that properly considers the precarious state of the S-CCC steelhead populations in the Salinas River watershed.

NMFS appreciates the opportunity to correct misunderstandings concerning our 2007 SVWP biological opinion and comment on DWRs acceptance of the Salinas Valley 180/400-foot sub-basin Final GSP. Addressing streamflow depletion through effective groundwater management is essential to ensuring the survival and recovery of federally threatened SCCC steelhead within the Salinas River and its tributaries. NMFS stands ready to engage with the Salinas Valley GSA, MCWRA, DWR, regulatory agencies, and interested stakeholders to craft solutions to groundwater and streamflow issues in the 180/400-foot sub-basin.

Thank you for considering our comments. If you have any questions, please do not hesitate to contact William Stevens (707-575-6066, or via email at William.Stevens@noaa.gov) or Rick Rogers (707-578-8552, or Rick.Rogers@noaa.gov) for further assistance.

Sincerely,

A. Ingham

Amanda E. Ingham
Central Coast Branch Chief
North-Central Coastal Office

Enclosures

cc: Mark Capelli, NOAA Fisheries Southern California Recovery Coordinator (mark.capelli@noaa.gov)
Angela Murvine, CDFW Statewide SGMA Coordinator (Angela.Murvine@wildlife.ca.gov)
Annee Ferranti, Environmental Program Manager - Central Region (Annee.Ferranti@wildlife.ca.gov)
Annette Tenneboe, CDFW Senior Environmental Scientist Specialist - Central Region (Annette.Tenneboe@wildlife.ca.gov)
Tom Berg, Salinas Area SGMA Point of Contact, South Central Region Office (Thomas.Berg@water.ca.gov)
Natalie Stork, SWRCB Chief -- Groundwater Management Program (Natalie.Stork@waterboards.ca.gov)
Efile ARN 151416WCR2019SR00162

References

California Department of Fish and Wildlife. 2019. Fish & Wildlife Groundwater Planning Considerations. 38 pp. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=170185&inline

Franklin, H. 2019. Memorandum to Gary Petersen, General Manager, Salinas Valley Basin Groundwater Sustainability Agency and Leslie J. Girard, General Counsel, Salinas Valley Basin Groundwater Sustainability Agency. Monterey County Water Resources Agency, Salinas, California. March 4, 2019. 2 pp.

ENCLOSURES

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404-4731

July 26, 2019

Gary Petersen
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, California 93924

Re: NOAA's National Marine Fisheries Service's comments on the April 25, 2019 Draft Chapter 8 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan

Dear Mr. Petersen:

NOAA's National Marine Fisheries Service (NMFS) is the federal agency responsible for managing, conserving, and protecting living marine resources in inland, coastal, and offshore waters of the United States. We derive our mandates from numerous statutes, including the Federal Endangered Species Act (ESA). The purpose of the ESA is to conserve threatened and endangered species and their ecosystems. The Salinas River watershed, including portions within the Salinas Valley Basin Groundwater Sustainability Agency's (SVBGSA) boundary, supports federally threatened South-Central California Coast steelhead (*Oncorhynchus mykiss*). Below are our comments on the SVBGSA's April 25, 2019 *Draft 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan* (GSP).

8.5.2.3 Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

Depletion of interconnected surface waters

The GSP states "*Because the groundwater elevation minimum thresholds are set to current elevations or higher, future groundwater elevations will not induce additional depletion of interconnected surface waters. Therefore, the groundwater elevation minimum thresholds will not result in a significant or unreasonable depletion of interconnected surface waters*." This statement assumes current groundwater elevations do not deplete interconnected surface waters to a level that harms threatened steelhead. The GSP should justify this statement by showing existing conditions avoid surface water depletion that has significant and unreasonable adverse impacts on beneficial uses of the surface water. As suggested by the California Department of Fish and Wildlife (CDFW), GSAs should analyze the following when defining significant and unreasonable impacts of groundwater pumping on steelhead habitat in the Salinas Basin: temporal water needs, spatial water needs, hydrologic variability, water availability, and water quality (CDFW 2019). By simply maintaining current conditions or by just slightly improving conditions, the SVBGSA's plan will likely fall short of avoiding adverse impacts to steelhead and their critical habitat resulting from surface water depletion.

8.6.2.2 Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

Depletion of interconnected surface waters

The GSP states, "*The reduction in storage minimum threshold is established to prevent further reduction in storage, and therefore prevent lowering of groundwater levels. Therefore, the change in storage minimum threshold will not induce additional depletion of interconnected surface waters and will not result in a significant or unreasonable depletion of interconnected surface waters*." The draft GSP does not document the basis of these findings. First, groundwater levels should not be used as a proxy for streamflow depletion thresholds unless a "significant correlation exists between groundwater elevations and streamflow depletion impacts" (23 CCR § 354.36(b)). Second, there is no explanation of groundwater/surface water relationships in the GSP that suggests current groundwater storage levels are *not* currently depleting interconnected surface waters in a significant or unreasonable way. SVBGSA should explain their findings, in part, by showing that existing conditions maintain interconnected surface waters to the extent that they preserve beneficial uses. Finally, in situations, such as the Salinas Valley, where groundwater/surface water dynamics are either unknown or in the process of being analyzed, GSAs should develop conservative thresholds and measurable objectives that err on the side of caution when protecting salmon or steelhead (CDFW 2019).

8.10.1 Locally Defined Significant and Unreasonable Conditions

NMFS has several concerns with the following paragraph from section 8.10.1 of the GSP: "[Monterey County Water Resources Agency (MCWRA)] *currently manages flows in the Salinas River to meet the requirements of the National Marine Fisheries Service biological opinion (National Marine Fisheries Service, 2007). The NMFS biological opinion was developed using measured streamflows between 1995 and 2005. The measured streamflow reflects current surface water depletion rates, and therefore current depletion rates are already incorporated into the river management plan. Furthermore, releases from Nacimiento Reservoir and San Antonio Reservoir have successfully maintained required environmental flows under current groundwater pumping and surface water depletion conditions. The Steelhead Trout flow prescriptions are described in Salinas Valley Water Project Flow Prescription for Steelhead Trout in the Salinas River (MCWRA, 2005). This document guides the operating rules for the San Antonio and Nacimiento reservoir releases. Therefore, steelhead flow requirements are being met and current surface water depletion rates are not unreasonable with regards to maintaining flow required in the biological opinion*."

Our foremost concern is the inaccuracy of this statement. We withdrew the referenced biological opinion and associated incidental take statement by letter to the U.S. Army Corps of Engineers and MCWRA on February 20, 2019. This means that MCWRA has no ESA take coverage for their ongoing releases. It is inappropriate for the GSP to rely on the moot flow prescriptions of the withdrawn biological opinion to suggest that steelhead flow requirements are being met or that current surface water depletion rates are not unreasonable. Regardless of the biological opinion's standing, relying on MCWRA's reservoir releases to mitigate groundwater use impacts within the SVBGSA's jurisdiction will simply perpetuate current management practices and their detrimental environmental outcomes. Such an approach has and will result in excessive groundwater pumping that has become reliant on reservoirs to replenish the resulting overdraft conditions. We strongly urge the SVBGSA to quantify the impacts of water diversions along the river (including permitted and any unpermitted wells), including assessing shallow alluvial extraction in and around the river, and develop a plan that independently mitigates these impacts. NMFS is hopeful the SVBGSA's GSP will result in a clear path to changing this paradigm.

Additionally, the GSP should explain if and how measured streamflows between 1995 and 2005 still "reflect current surface water depletion rates". We have reviewed Chapter 5 of the draft GSP (Section 5.5.2 Surface Water Depletion Rates) and have not found any analysis regarding a comparison of the 1995-2005 rates and the current surface water depletion rates. Moreover, we believe the 1995-2005 rates should be reconsidered in light of major intervening changes that have occurred in the watershed since this rate was developed. Namely, the Salinas Valley Water Project began operating in 2010 and a historic drought soon followed. In sum, NMFS questions the SVBGSA's assumption that the 1995-2005 surface water depletion rates accurately reflect current rates, and we strongly urge the SVBGSA to provide additional analysis to support this statement.

Thank you for considering our comments. If you have any questions, please do not hesitate to contact William Stevens, North-Central Coast Office in Santa Rosa, California at (707) 575-6066, or via email at William.Stevens@noaa.gov.

Sincerely,

Amanda E. Ingham
Central Coast Branch Chief
North-Central Coast Office

cc: Monica Oey, California Department of Fish and Wildlife (Monica.Oey@wildlife.ca.gov)
Benjamin Gooding, Department of Water Resources (Benjamin.Gooding@water.ca.gov)
Copy to ARN File # 151416WCR2019SR00162

Literature Cited

California Department of Fish and Wildlife (CDFW). 2019. Fish & Wildlife Groundwater Planning Considerations. California Department of Fish and Wildlife Groundwater Program. 28 pp. Found at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=170185&inline

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404-4731

May 8, 2020 **Refer to NMFS No:** 151416WCR2019SR00162

Craig Altare
Supervising Engineering Geologist
California Department of Water Resources
901 P Street, Room 213
Sacramento, California 94236

Re: NOAA's National Marine Fisheries Service's comments on the Final Groundwater Sustainability Plan for the Salinas Valley 180/400-Foot Sub-Basin

Dear Mr. Altare:

NOAA's National Marine Fisheries Service (NMFS) is the federal agency responsible for managing, conserving, and protecting living marine resources in inland, coastal, and offshore waters of the United States. We derive our mandates from numerous statutes, including the Federal Endangered Species Act (ESA). The purpose of the ESA is to conserve threatened and endangered species and their ecosystems.

The Salinas Valley Basin GSA recently released a Final Groundwater Sustainability Plan (Final GSP) for the 180/400-foot sub-basin, located in the southern San Joaquin Valley near the town of Salinas, California. The California Department of Water Resources (DWR) has designated the 180/400-foot sub-basin a "critical" priority for groundwater management, necessitating the development of a GSP by January 31, 2020, as required under California's Sustainable Groundwater Management Act of 2014 (SGMA). Waterways that overlie portions of the 180/400-foot sub-basin (e.g., Salinas River) support federally threatened South-Central California Coast (S-CCC) steelhead (*Oncorhynchus mykiss*). NMFS provided extensive comments on various chapters and components of the draft GSP by letters dated May 7, 2019, July 26, 2019, and December 12, 2019. Unfortunately, our comments were unaddressed in the Final GSP. Thus, this letter transmits many of those same comments with regard to the 180/400-foot sub-basin Final GSP.

Comments

Surface water and groundwater are hydraulically linked in the 180/400-foot sub-basin. Where the groundwater aquifer supplements streamflow, the influx of cold, clean water is critically important for maintaining optimal stream temperature and volume for S-CCC steelhead habitat. NMFS has concerns that groundwater extraction in the 180/400-foot sub-basin has the potential to affect steelhead habitat by lowering groundwater levels and interrupting the hyporheic flow between the aquifer and stream.

Pg. 3-26: In referencing the Water Quality Control Plan for the Central Coast Basin[1], the Final GSP presents an incomplete listing of "present and potential future beneficial uses for water in the basin." With respect to identified beneficial uses supportive of steelhead, the following were omitted: cold freshwater habitat (COLD) and migration of aquatic organisms (MIGR).

Pg. 4-13 and 4-17: The Final GSP admits the Holocene Alluvium unit is hydraulically connected to the Salinas River, but attempts to avoid managing the shallow aquifer by principally arguing it is not "considered a principal aquifer" because it does not provide significant quantities of water for agricultural or domestic uses, save for limited domestic pumping. However, the Final GSP, through its water budget and other analyses, clearly establishes significant groundwater accretion to the Salinas River from the Holocene Alluvium unit, which supports critical habitat for ESA-listed S-CCC steelhead as well as other imperiled plants and wildlife. Department of Water Resources Bulletin 118, in addition to other relevant studies cited in the Final GSP (e.g. Kennedy-Jenks 2004; Brown and Caldwell 2015) acknowledge the inclusion of this shallow, alluvial sub-aquifer within the 180/400 foot sub-basin. Furthermore, despite the presence of complex aquifer hydrogeology and the existence of various lenses of aquitard material, no studies or data support a conclusion that connectivity and water transmission between the various aquifer layers of the 180/400 foot sub-basin does not occur (including between the 180 aquifer and Holocene alluvium), or that that transmission lacks significance with regard to sustaining GDEs. Excluding the alluvial aquifer from management under the Final GSP is inappropriate, as well as inconsistent with SGMA regulations.

Pg. 4-25: Regarding flow restoration in the Salinas Valley, the Final GSP states:

> *Agricultural diversions and the construction of dams on the Salinas River and its tributaries have altered the river's hydrology, and the river no longer exhibits the seasonal variation in flows that were observed before the mid-20th century. The restoration of natural flows to the Salinas River is not within the scope of this GSP.*

The above reasoning seems to misinterpret the goal of SGMA, which is ensuring sustainable groundwater management defined by avoiding the six undesirable results identified within the act. One of those six undesirable results is depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water, with cold water habitat, spawning and migration being identified beneficial uses in the Salinas River. While the need to restore "natural flows" is not required by SGMA, avoiding significant and unreasonable impacts to identified beneficial uses of surface water caused by groundwater pumping certainly is. To the degree that groundwater pumping is currently causing these impacts and is likely to cause them in the future, restoring river flow to a level that avoids those impacts will be necessary. Such flow restoration will fall well short of restoring historical, unimpaired hydrology.

Pg. 5-56: Concerning interconnected surface water, the Final GSP states the following:

[1] Found at https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/docs2017/2017_basin_plan_r3_complete.pdf

> *If the groundwater elevation is below the streambed elevation, the stream and groundwater are considered to be disconnected. SGMA does not require that disconnected stream reaches be analyzed or managed.*

The statements above are inconsistent with SGMA regulation (*23 CCR §351)*, which defines "Interconnected surface water" as surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted. The Final GSP has not adequately detailed where, when, and to what degree groundwater is connected to surface flow throughout the basin, thus the statement in question is unsupported and premature. Furthermore, where water table elevations are below the streambed elevation, automatically identifying the hydraulic dynamic as "disconnected" misunderstands basic groundwater hydrology (Barlow and Leake 2012). As water tables drop, streams incrementally shift from gaining flow *from* groundwater (i.e., when water table is above the streambed) to losing flow *to* the groundwater aquifer, a dynamic termed "streamflow depletion" that can significantly and unreasonably impact beneficial uses of that surface water. Considering situations like this as representing "disconnected" conditions, without considering the more likely possibility that they instead represent "losing" stream reaches, is inappropriate.

This statement also overlooks the transient nature of surface water and groundwater connections, and the ecosystems that have evolved to depend on these seasonal fluctuations. For example, the life-cycle of steelhead and salmon often requires occupying seasonal habitat that may only have flowing water during wetter periods of the year (Quinn 2005), especially in more arid regions at the southern extent of their range (e.g., central and southern California). Changes in the water table and river flow can and do alter the state of connection (Cook et al. 2010; Brunner et al. 2011), thus interrupting the seasonal duration and quality of surface water and, by extension, instream habitat. Specifically, increasing the rate of streamflow depletion in stream reaches where surface water supplements the underlying groundwater aquifer can alter the timing when instream habitat becomes unsuitable for a given life-stage of steelhead.

Further data is required throughout the 180/400-foot sub-basin to establish localized relationships between streamflow depletion and instream habitat characteristics. The Final GSPs proposed plan to address data gaps (Chapter 10) does not include studies to understand the volume of streamflow depletion resulting from groundwater pumping and how it would affect habitat quality. The Final GSP should elaborate sufficiently as to when, where, and how this data will be collected during the first few years of GSP implementation, or at the very least, clearly commit to developing a detailed data collection plan with interested stakeholders at a later date. In the meantime, NMFS recommends the final GSP follow guidance from California Department of Fish and Wildlife (2019) and develop conservative streamflow depletion thresholds as a cautionary principle until the surface flow/groundwater dynamic in the 180/400 foot sub-basin is better understood.

<u>Page 5-58:</u> The Final GSP states:

> *An additional check on the potential locations of interconnected surface waters was conducted by reviewing depth to groundwater data. If the depth to groundwater is less than 20 feet, it is possible that groundwater and the surface water are interconnected.*

> *To document this relationship, groundwater elevations measured in the fall of 2013 in the 180-Foot Aquifer were compared to ground surface elevations to estimate the depth to groundwater. Fall 2013 was selected because it is a recent year with groundwater elevations mapped by MCWRA that does not represent the end of a drought period. For this analysis, any area with a depth to groundwater of less than 20 feet is assumed to be an area of potentially interconnected surface water. Figure 5-37 presents the results of that analysis and shows that groundwater in the 180-Foot Aquifer is greater than 20 feet below ground surface in most of the 180/400-Foot Subbasin.*

The Final GSP should explain the ecological significance of the 20-foot depth to groundwater metric, and why it was used as a proxy for groundwater/surface water interconnection. Furthermore, 2013 was the second year of historic drought, and fall is when groundwater levels are naturally lowest. Determining potential groundwater/surface flow interconnection by examining groundwater conditions during fall of a drought year does not represent normal conditions.

<u>Page 5-58:</u> The Final GSP states:

> *This identification of interconnected surface water is supported by previous numerical groundwater modeling conducted by Durbin et. al (1978). Figure 5-38 is a profile of the Salinas Valley Groundwater Basin showing simulated groundwater elevations in May 1971 and September 1970 relative to the thalweg, or lowest point, of the Salinas River. Although this profile is developed for the entire Valley, the left side of the profile is relevant to the 180/400-Foot Aquifer Subbasin. This profile shows that between the Arroyo Seco Confluence and Spreckels, groundwater elevations have historically been much deeper than the Salinas River, indicating that the surface water is disconnected from groundwater.*

It is inappropriate to conclude groundwater elevations have historically been much deeper than the Salinas River (in the 180/400-Foot Aquifer Subbasin), or surface water is disconnected from groundwater based on the state of surface water and groundwater connection on specific dates (May 1, 1971 and September 1, 1979). This is because the state of connection can be transient – changes in the water table and river flow can and do alter the state of connection (Cook et al. 2010, Brunner et al. 2011). A more comprehensive surface water analysis should be performed over a more appropriate historical time period. .

<u>Pg. 6-13:</u> Streamflow percolation (i.e., streamflow depletion) is estimated on an annual basis per three inflow paradigms, yet fish and GDEs experience depletion-related impacts to available habitat on a much finer time-scale (e.g., monthly, weekly, or even daily). Therefore, annual average values for streamflow depletion are of little use in analyzing and addressing significant and unreasonable impacts to beneficial uses of surface water caused by groundwater pumping.

<u>Pg. 8-17:</u> As highlighted throughout these comments, SGMA regulations are intended to avoid significant and unreasonable impacts to beneficial users of surface water. The Final GSP provides no evidence that current depletion rates avoid impacts to beneficial users of surface water. Rather, the Final GSP refers to a streamflow depletion threshold of avoiding depletion that is “in excess of current depletion rates”, which is inconsistent with SGMA regulations.

Pg. 8-57: The Final GSP concluded that operating upstream reservoirs in accordance with NMFS' June 21, 2007, biological opinion will prevent streamflow depletion impacts within the basin. As stated in our July 26 and December 19, 2019, comment letters on the draft GSP, we withdrew the referenced biological opinion and associated incidental take statement by letter to the U.S. Army Corps of Engineers and MCWRA on February 20, 2019. This means that MCWRA has no ESA take coverage for their ongoing releases. It is inappropriate for the Final GSP to rely on the flow prescriptions of the withdrawn biological opinion to suggest that steelhead flow requirements are being met or that current surface water depletion rates are not unreasonable.

Regardless of the biological opinion's standing, relying on MCWRA's reservoir releases to mitigate groundwater use impacts within the Salinas Valley Basin Groundwater Sustainability Agency's (SVBGSA) jurisdiction will simply perpetuate current management practices and their detrimental environmental outcomes. Such an approach has and will result in excessive groundwater pumping that has become reliant on reservoirs to replenish the resulting overdraft conditions. The SVBGSA should quantify the impacts of water diversions along the river (including permitted and any unpermitted wells), including assessing shallow alluvial extraction in and around the river, and develop measures to mitigate these impacts.

Pg. 8-58: Under Section 11.2 Minimum Thresholds, the Final GSP again concludes the current rate of stream depletion from pumping is not considered significant and unreasonable, yet provides no evidence to support this conclusion. Instead, the Final GSP refers to the definition of significant and unreasonable conditions, public information about critical habitat, public information about water rights, and the Subbasin water budget analysis as the basis for their conclusion. The Final GSP should fully elaborate as to what information was considered, and how it informed their conclusion that the current rate of stream depletion from pumping is not considered significant and unreasonable.

NMFS appreciates the opportunity to comment on the 180/400-foot sub-basin Final GSP. Addressing streamflow depletion through effective groundwater management is essential to recovering listed salmonids within the Salinas River and tributaries. NMFS is available to assist Monterey County, DWR, regulatory agencies, and interested stakeholders with crafting solutions to groundwater and streamflow issues in the 180/400-foot sub-basin.

Thank you for considering our comments. If you have any questions, please do not hesitate to contact William Stevens (707-575-6066, or via email at William.Stevens@noaa.gov) or Rick Rogers (707-578-8552, or Rick.Rogers@noaa.gov) within our Santa Rosa office for further assistance.

Sincerely,

A. Ingham

Amanda Ingham
Central Coast Branch Chief
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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
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May 7, 2021 **Refer to NMFS No:** 151416WCR2019SR00162

Emily Gardner
Deputy General Manager
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, California 93924

Re: NOAA's National Marine Fisheries Service's Comments on the Upper Valley Subbasin Draft Chapter 8 Rerelease

Dear Ms. Gardner:

NOAA's National Marine Fisheries Service (NMFS) is the federal agency responsible for managing, conserving, and protecting living marine resources in inland, coastal, and offshore waters of the United States. We derive our mandates from numerous statutes, including the Federal Endangered Species Act (ESA). The purpose of the ESA is to conserve threatened and endangered species and their ecosystems.

On April 26, 2021, the Salinas Valley Groundwater Sustainability Agency (SV GSA) rereleased their draft Chapter 8 of the Upper Valley Subbasin Groundwater Sustainability Plan (hereafter referred to as Rereleased Chapter 8). Waterways that overlie portions of the Upper Valley Aquifer Subbasin (e.g., Salinas River) support federally threatened South-Central California Coast (S-CCC) steelhead (*Oncorhynchus mykiss*). A detailed discussion of S-CCC steelhead status and habitat needs, including the importance of the Salinas River to their survival and recovery, is enclosed as Appendix A of this letter.

We conveyed some of the concerns expressed in this letter directly to SV GSA management and their consultant via a video conference call on March 30, 2021. Unfortunately, the Rereleased Chapter 8 does not appear to address many of the concerns previously raised. This letter transmits our comments on the Rereleased Chapter 8.

Comments

Page 8-3, last paragraph: The Rereleased Chapter 8 attempts to characterize and address undesirable results based upon average year conditions "under the reasonably anticipated climatic fluctuations that underpin the future water budget." The Rereleased Chapter 8 also states later in the document (page 8-53) that the undesirable result for streamflow depletion "is established for average year conditions, and as a long-term average over all hydraulic conditions." The focus on "average year conditions" appears to rely on guidance provided in the Department of Water Resources Draft Sustainable Management Criteria Best Management Practices (DWR 2017), which states the following:

> Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

However, how this statement supports the focus on "average conditions" is unclear, and the SV GSA should clarify the relationship between the two in the final Chapter 8. Furthermore, this guidance was only provided under the "Chronic Lowering of Groundwater Levels" sustainability indicator, and is not included under, and therefore does not pertain to, any other sustainability indicator, including depletions of interconnected surface water. Streamflow depletion impacts that are likely to result in significant effects to S-CCC steelhead and their critical habitat do not occur only during "average year conditions", but are instead most likely to occur during below average and dry water year conditions. Furthermore, central California climate is highly variable, and dry periods have routinely occurred throughout the historical period. In fact, climate change threatens to make those dry periods more frequent and severe. Suggesting dry periods are not a "reasonably anticipated climatic fluctuation" within the Upper Basin subbasin lacks scientific credibility and runs counter to recent research. For example, Diffenbaugh et al. (2015) strongly suggested that global warming is already increasing the probability of conditions that have historically created high-impact drought in California. The surface flow depletion undesirable result should be analyzed and addressed over the entire range of anticipated future climatic conditions, including dry periods.

Page 8-4, last paragraph: The Rereleased Chapter 8 should clarify what is meant by the following statement: "The groundwater elevation (Sustainable Management Criteria; SMC) do (sic) not hinder the interconnected surface water SMC, but also, they do (sic) not prevent unreasonable interconnected surface water depletion by themselves." To achieve sustainable groundwater management, the SV GSA must avoid all undesirable results by 2042, including depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. If the referenced statement is implying that depletions will be unreasonable, but not significant, and thus are not undesirable results, the Rereleased Chapter 8 should quantify those impacts as they relate to beneficial uses of surface water, and explain why they do not meet the as yet undefined significance threshold. Any such analysis and explanation should address the documented beneficial use of S-CCC steelhead spawning, migration, and cold-water habitat (Central Coast Regional Water Quality Control Board 2017).

Page 8-6: As stated within our previous correspondence on the subject, managing to a level of streamflow depletion consistent with conditions experienced during our recent historic drought (i.e., 2015) is likely to result in adverse impacts to S-CCC steelhead and its critical habitat, and is therefore is an inappropriate minimum threshold, measurable objective, or interim milestone. Furthermore, there is no explanation of how "exceeding the minimum threshold at more than 15 percent of future monitoring wells during average hydrologic conditions" was determined to be an appropriate metric for measuring an undesirable result. The GSP should include an explanation of how this will avoid significant and unreasonable adverse impacts on beneficial uses of the surface water, specifically steelhead spawning, rearing and migration.

Page 8-43: The draft document again alludes to 2015 surface flow depletion rates as being an appropriate definition of an undesirable result because it is "not unreasonable, although it may be significant." The Groundwater Sustainability Plan (GSP) must explain why 2015 groundwater levels will avoid significant and unreasonable adverse impacts on beneficial uses of surface water, including impacts to rearing, migration and cold-water habitat that supports ESA-listed steelhead.

Page 8-43: There are several issues with the second paragraph from the bottom, which reads as follows:

> The minimum threshold for depletion of interconnected surface water is set to the depletion rates observed in 2015, estimated by proxy using shallow groundwater elevations near rivers. These thresholds only apply to river reaches that are hydraulically connected to groundwater when flow in the river is due to either natural runoff, flood releases from a reservoir, or ecological releases from a reservoir. The locations of interconnected surface water should remain the same as 2015 conditions.

To begin with, managing to a streamflow depletion rate consistent with the height of our recent historic drought is inappropriate, and likely to take[1] ESA-listed S-CCC steelhead and its habitat. Second, SGMA regulations require the GSP demonstrate significant correlation between groundwater levels and the other metric (i.e., significant and unreasonable adverse impacts on beneficial uses of the surface water); the Chapter 8 Rerelease, nor any other draft chapter of the developing GSP, has demonstrated the required correlation, nor has a plan been proposed to establish correlation. Finally, locations of interconnected surface water can shift from year to year depending on climatic conditions and groundwater levels. Basing interconnected surface water locations on 2015 observations is inconsistent with hydrologic, geologic, and ecological principles, and would severely underestimate the extent of interconnected surface water during most years.

Page 8-44; Figure 8-5: The figure caption states that interconnected surface water is indicated where that interconnection occurs more than 50 percent of the model period. Per Sustainable Groundwater Management Act (SGMA) regulations, interconnected surface water means surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted. The Chapter 8 Rerelease should explain how the definition presented above is consistent with SGMA regulations.

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[1] Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102).

Page 8-49: Under "Ecological surface water users", the following statement appears: "Since the reservoir operations consider ecological surface water users and reflect reasonable existing surface water depletion rates, this GSP infers that stream depletion from existing groundwater pumping is not unreasonable." This inference is incorrect. As mentioned in a previous comment letter[2], we withdrew the NMFS's June 21, 2007, biological opinion and associated incidental take statement by letter to the U.S. Army Corp of Engineers and Monterey County Water Resources Agency dated February 20, 2019. Therefore, water releases from Nacimiento Reservoir (and San Antonio Reservoir) have not been analyzed within a valid biological opinion at this time, and assuming that the current flow regime adequately protects beneficial uses of surface water, especially steelhead migration, spawning and rearing, is inappropriate and not supported by any analysis or reasoning.

Page 8-52: Asserting that the proposed minimum thresholds "benefits ecological uses and users by preventing further degradation of ecological impacts from groundwater pumping" is ludicrous. Given that 2015 pumping levels, and the corresponding impact of surface water depletion on beneficial uses, were likely some of the highest on record due to California's historic drought, preventing those impacts from worsening in the future is hardly a "benefit" to ecological users of surface water, and akin to ensuring a dry river channel doesn't get any drier.

We hope these comments effectively clarify and reassert our concerns about potential significant impacts to S-CCC steelhead that are likely to result from the draft Sustainable Management Criteria outlined in the Rereleased Chapter 8 of the Upper Valley GSP. If you have any questions, please do not hesitate to contact William Stevens (707-575-6066, or via email at William.Stevens@noaa.gov) or Rick Rogers (707-578-8552, or Rick.Rogers@noaa.gov) within our Santa Rosa office for further assistance.

Sincerely,

A. Ingham

Amanda Ingham
Central Coast Branch Chief
California Coastal Office

Enclosure

cc: Mark Capelli, NOAA Fisheries Southern California Recovery Coordinator (mark.capelli@noaa.gov)
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Tom Berg, Salinas Valley SGMA Point of Contact South Central Region Office (Thomas.Berg@water.ca.gov)
Natalie Stork, SWRCB Chief -- Groundwater Management Program (Natalie.Stork@waterboards.ca.gov)
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[2] "NOAA's National Marine Fisheries Service's comments on the Final Groundwater Sustainability Plan for the Salinas Valley 180/400-Foot Sub-Basin" (May 8, 2020).

References

Central Coast Regional Water Quality Control Board. 2017. California Central Coast Basin Plan. Copy found at: https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan

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February 24, 2021

To: William L. Stevens, NMFS West-Coast Region, California Coastal Office, Santa Rosa, CA

From: Mark H. Capelli, NMFS South-Central/Southern California Steelhead Recovery Coordinator, California Coastal Office, Santa Barbara, CA

Re: Role of Salinas River in Meeting NMFS' South-Central California Coast Steelhead Viability/Recovery Criteria.

This is an updated response to the questions regarding the role of the tributaries to the Salinas River in meeting the viability/recovery criteria in the Salinas River watershed, and by extension the viability/recovery South-Central California Coast Steelhead Distinct Population Segment (DPS). The basic analysis conclusion remains the same but is supplemented by recently published research on the ecology and genetics of southern steelhead populations.

In summary, the tributaries to the Salinas River (including the Nacimiento and San Antonio) are essential to meeting the viability/recovery criteria (both the DPS-Wide and Population-Level viability criteria) set forth in NMFS' South Central Southern California Steelhead Recovery Plan (2013). Management of the surface and groundwater resources associated with these tributaries, as well as the mainstem Salinas River is critical to the recovery of this Core 1 population within the Interior Coast Range Biogeographic Population Group (BPG) of the threatened South-Central California Coast Steelhead DPS.

This role of the Salinas River tributaries in the recovery of the steelhead populations of the Salinas River raises a number of related issues and warrants a fuller response, which is provided below.

Introduction

NMFS' Technical Recovery Team (TRT) for the South-Central/Southern California Steelhead Recovery Planning Domain published a series of Technical Memoranda that provides the scientific framework for the recovery of the two listed species in this domain: the threatened South-Central California Coast DPS and the endangered Southern California Steelhead DPS. These Technical Memoranda provide information on:

- the historic distribution of native steelhead and the contraction of the southern range limit;
- a characterization of the ecology of southern steelhead populations;
- an assessment of the intrinsic habitat potential of individual watersheds;

- a suite of viability criteria (for the individual population and the DPS as a whole);

- a general strategy to achieve recovery; and

- a set of research questions to advance understanding of the species and further direct recovery activities.

See Boughton 2010a, 2010b, Boughton *et al*. 2007, 2006a, 2006b, and 2005.

Some of the TRT findings are directly pertinent to your question. These include:

- above artificial barrier *O. mykiss* populations are most closely related to below barrier populations;

- above artificial barrier populations (in a majority of the watersheds) are not descendent from planted hatchery rainbow trout;

- *O. mykiss* populations above artificial barriers have the potential to resume an anadromous life-history; and

- populations of *O. mykiss* above artificial barriers are an integral and important component of the anadromous populations.

See Boughton *et al.* 2006a, Girman and Garza 2006, Garza *et al.* 2004.

These findings have been further substantiated in more recent research: Arostegui *et al*. 2019, Adadia-Cardoza *et al.* 2016, Pearse 2016, Garza *et al.* 2014, Pearse *et al.* 2014, Clemento *et al*. 2009; see also Pearse 2016.

Pearse (2019) and others have further illuminated the genomic mechanisms by which both basic life-history forms of *O. mykiss* (anadromous and non-anadromous) mutually support the persistence of both forms. Pearse *et al.* (2019) and Kelson *et al*. (2019) looked at associations with migration behavior; and Leitwein *et al*. (2017) and Apgar *et al* (2017) examined environmental predictors for a high frequency of the "A" haplotype that is associated with the anadromous form of *O. mykiss*. These recent studies underscore the importance of the non-anadromous form of *O. mykiss* (including those currently land-locked above impassible barriers) and the importance of reestablishing connectivity between the various reaches of the watershed Salinas River watershed (including those reaches above the various dams within the watershed).

Some of their more pertinent findings are summarized below:

- Many of the genes in the inverted section of chromosome 5 of *O. mykiss* (Omy5) are associated with circadian rhythms, sensitivity to photosensory cues, the timing of age at maturity, and other traits associated with life-history variation. Genetic recombination among these different genes of the tightly linked Omy5 segment of the chromosome can occur during the generation of homozygous “RR” fish and “AA” fish, but not during the generation of heterozygous “AR” fish due to the inversion which prevents cross-over during meiosis. This feature allows the “A” and “R” haplotypes to adaptively diverge in response to selection for two distinct life-histories, while still being maintained together in the same population of *O. mykiss* within a watershed (Pearse 2016).

- The two Omy5 haplotypes appear to be associated with different expression of life-history forms (anadromous and resident). Pearse *et al*. (2019) found that in a small steelhead population, juvenile females with the homozygous “AA” and heterozygous “AR” genotypes were much more likely to migrate to the ocean than females with the homozygous “RR” genotype. Juvenile males with the homozygous “AA” and “RR” genotypes were similar to the females, but the male heterozygous “AR” genotype was much less likely to migrate than the female heterozygous “AR” genotype. This is consistent with adaptive evolution of contrasting life-history strategies in males and females: female fitness is more associated with large body size than is male fitness, because of the energetic demands of manufacturing eggs versus sperm. Thus, females should be more likely than males to pursue anadromy because *O. mykiss* can generally achieve larger size at maturity in the ocean than in freshwater, and this provides more of a fitness benefit to females than to males. Kelson *et al*. (2019) made similar observations, finding that the expression of the downstream-migrant phenotype was associated both with being female and with having the “A” haplotype. In their smaller sample, they did not detect a difference in the migration rate of heterozygous “AR” females versus “AR” males, but they did find that in general the migration frequency of the “heterozygous AR” genotype was intermediate between the “RR” and “AA” genotypes.

- This intermediate life-history expression of the heterozygous “AR” genotype provides a mechanism by which the steelhead life-history can disappear from an *O. mykiss* population when environmental conditions are adverse but rapidly reappear when conditions favor it. When conditions are adverse, the “A” haplotype may become rare enough that homozygous “AA” individuals are very unlikely and the haplotype is maintained by resident fish carrying the heterozygous “AR” genotype. Notably, some of the progeny of such fish are “AR” rainbow trout that perpetuate the “A” haplotype in the resident population, whereas other progeny would be heterozygous “AR” smolts that migrate to the ocean. These heterozygous “AR” smolts would likely be lost to mortality when conditions for anadromy are adverse (e.g., presence of anthropogenic barriers to fish passage, prolonged drought, debris flows degrading freshwater habitat, etc.), but could rapidly reconstitute steelhead runs when conditions for anadromy are favorable.

- When favorable conditions persist, adult steelhead would become common enough to start producing “A” individuals, and genetic recombination of the anadromous genome would resume and facilitate continuing adaptive evolution of the anadromous phenotype to changing conditions. A resident-only population may not sustain the A haplotype indefinitely because the “wasted” smolts produced by heterozygous “AR” parents represent a fitness cost, but the loss appears to be a slow process (Apgar *et al*. 2017). Significantly, a similar, reciprocal logic applies to the resident life-history, for example

> providing a mechanism by which heterozygous "AR steelhead could colonize vacant freshwater habitat that eventually transforms to a population of rainbow trout when conditions for anadromy are adverse; hence the emphasis placed on maintaining or restoring volitional access to coastal watersheds. Even when the "A" haplotype is rare in a population, so that homozygous "AA" individuals are unlikely to occur, anadromy is still subject to natural selection due to its partial expression in heterozygous "AR" individuals; and likewise for freshwater-residency and the "R" haplotype.

NMFS South-Central California Coast Steelhead Recovery Plan (2013) recognizes the interdependence of anadromous and non-anadromous life-history forms of native *O. mykiss*. As a result, the Recovery Plan concluded, "Recovery of the threatened SCCCS DPS will require a minimum number of viable populations within each of four Biogeographic Populations Groups (BPGs) within the SCCCS Recovery Planning Area. Recovery of these individual populations is necessary to conserve the natural diversity (genetic, phenotypic, and behavioral) spatial distribution, and abundance of the SCCCS DPS." (p. xiii) NMFS' Technical Review Team (Boughton *et al.* 2007) also identified "a need to maintain not just the fluvial-anadromous life-history form, but also lagoon-anadromous and freshwater-resident forms in each population" and noted, "Depending on the rate of transition, a group of resident and anadromous fish may function as a single population; two completely distinct populations; or something in between." (p. 8). Consequently, the resident form of *O. mykiss* is included in the viability criteria developed by the TRT and incorporated into NMFS South-Central California Coast Steelhead Recovery Plan. (p. 6-4).

Because of the close association of the two life-history forms (anadromous and nonanadromous), and the complex of factors controlling the expression of anadromous and resident life-histories, all native *O. mykiss* in anadromous waters (*i.e.*, waters within the geographic boundary of the listed DPS and that are accessible to fish migrating from the ocean) are generally considered anadromous and afforded the protections of the ESA.

New research has also documented dispersal of anadromous *O. mykiss* from their natal watershed to non-natal watersheds (Donohoe, *et al*. 2021) which have implications for steelhead recovery and management within the South-Central/Southern California Steelhead Recovery Planning Domain. A study of small coastal stream in the central portion of the SCCCS DPS (Big Creek) revealed that of seven fish opportunistically sampled, all seven had dispersed from their natural watersheds. Three adults had originated from nearby streams (<72 km) on the Big Sur coast, while three had originated from more distant rivers, including the Klamath River (680 km to the north). Significantly, of the seven dispersed individuals, one was the progeny of a nonanadromous female. The rate of dispersal from natal watersheds to non-natal watersheds could not be estimated based on the small sample size, but the study did demonstrate that steelhead can disperse considerable distances and nonanadromous females can produce anadromous progeny that can disperse (thus providing genetic connectivity among widely dispersed watersheds). This phenomenon could be an important mechanism for naturally re-colonizing habitats that have been de-populated as a result of either (or both) anthropomorphic modifications (*e.g.*, construction of artificial barriers such as dams or road crossings) or natural environmental perturbations (*e.g.*, debris flows, droughts, or catastrophic floods).

NMFS' TRT specifically examined the role of artificial impassible barriers in the extirpation of populations of anadromous *O. mykiss* and the contraction of the southern range limit of the anadromous form. One of the major conclusions of this study was that the majority (68%) of the documented extirpations of the anadromous form of *O. mykiss* were associated with artificial barriers (*e.g.*, dams, culverts, flood-control channels). As a corollary, the probability of occurrence of anadromous *O. mykiss* in a watershed was correlated with the size of the watershed and the amount of accessible spawning and rearing/refugia habitat. Put simply, artificial barriers that affectively impede the migration of anadromous *O. mykiss,* or reduce the amount of spawning and rearing habitat available to the species, increases the likelihood of extirpation of a population. Conversely, restoring access (and therefore the amount of habitat available) increases the viability of the population.

See Boughton *et al.* 2005.

Aside from reducing the amount of spawning and rearing habitat available to steelhead, barriers, such as dams without effective fish passage provisions, have the effect of restricting anadromous *O. mykiss* to below-barrier, lower elevation habitats that are often both hydrologically and thermally less reliable than above-barrier habitats; these adverse conditions are often exacerbated by the artificial flow regimes associated with dams such as San Antonio and Nacimiento dams.

Above-barrier habitats in headwater, tributaries are often spring-fed, which provides suitable year-round rearing habitat (including important refugia habitat during periods of drought).[1] Additionally, above barrier habitats are often characterized boulder pools, with well-developed riparian habitat. These features provides both an important sources of invertebrate food for rearing juvenile *O. mykiss* as well as help to maintain suitable water temperatures, particularly during hot summer months.

Conversely, below-barrier habitats, particularly mainstem habitats are impacted by variety of anthropogenic activities; these include, diversions, floodplain encroachment for agricultural and various urban developments, and related flood control structures and activities that adversely affect the suitability of spawning and rearing habitats. While some studies have shown that below-barrier habitats (including mainstems) can provide high-growth rate opportunities, which lead to larger juvenile size at ocean entry (and thus greater ocean survival), this growth pattern is often associated with the ability of rearing individuals to access the estuary during periods of descending flows. Under unimpaired conditions, many of those juveniles rearing in the mainstem had moved downstream from upstream tributary habitats; but this instream movement is inhibited, or in many completely blocked, as a result of the construction of dams (and diversions) without the inclusion of effective fish passage provisions (including associated flows).

See for example, Quinones, *et al.* 2014, Boughton, *et al.* 2009, Olden and Naiman, 2009, Boughton *et al.* 2007, 2005, Nilsson and Berggren 2000.

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[1] The TRT specifically identified the important role of refugia habitat in headwater tributaries, and recommended that the recovery strategy "identify and maintain sustainable refugia against severe droughts and heat waves". Boughton *et al*. 2007, p. 24.

Given the different advantages of above- and below-barrier habitats, both are necessary to support a viable anadromous population. Where the up and downstream migration of adults and juveniles have been interrupted by impassible barriers, these habitats need to be reconnected. This can be accomplished through either the removal or modification of the barrier, to allow up and downstream migration of both juvenile and adult *O. mykiss*, and the provision of an appropriate flow regime that will promote and facilitate volitional migratory behavior.[2] Where spawning and rearing occurs below the dam (or diversion), a flow release regime must also support these essential fish behaviors.[3]

Consistent with NMFS's TRT recommendations, NMFS' South-Central California Coast Steelhead Recovery Plan identifies recovery actions that address the issue of reconnecting steelhead habitats that have been blocked by fish passage barriers. The DPS-Wide Recovery Actions include the following:

> "Physically modify passage barriers (including dams and diversion facilities identified in Table 7-2 and the BPG [Biogeographic Population Group] recovery action tables) to allow natural rates of migration to upstream spawning and rearing habitats."

See NMFS 2013, p. 8-2, 8.1 "DPS-Wide Recovery Actions".

NMFS' South-Central California Coast Steelhead Recovery Plan also includes watershed-specific recovery actions dealing with barrier removal or modification and related fish passage flows (these are dealt with in more detail in a separate section below on the Salinas River). Additionally, NMFS' Recovery Plan sets forth viability criteria for the DPS, which includes DPS-Wide and Population-Level viability criteria. These criteria describe the characteristics of both the DPS and individual populations that, if met, would indicate that the DPS is viable, and therefore at a low risk of extinction, rendering the DPS eligible for delisting.

The DPS-Wide viability criteria identify a suite of watersheds (steelhead populations) distributed across the landscape in four geographically distinct BPGs, with a minimum number of watersheds[4] in each BPG, and that are intended to address two important elements of the DPS-Wide viability criteria: "Biographic Diversity" and "Life-History Diversity". The Population-Level viability criteria include a number of separate metrics that address various aspects of individual populations ("Mean Annual Run Size", "Ocean Conditions", "Spawner Density", and "Anadromous Faction").

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[2] To address this issue, NMFS' TRT recommended that the recovery strategy secure the extant parts of the inland populations, including the Salinas River in the Interior Coast Range Biogeographic Population Group. The TRT also noted, "The original inland populations were relatively few in number, large in spatial extent, and inhabited challenging environments." Boughton *et al*. 2007, p. 24

[3] The mainstem of the Salinas River is characterized by long alluvial stretches. NMFS' TRT noted that the mainstem of the Salinas River currently does not provide suitable spawning or rearing habitat for steelhead; however, the mainstem prior to Spanish settlement may have been quite different ecologically, and these conditions would have been more conducive to steelhead spawning and rearing. See Boughton, *et al*. 2006, pp. 12, 24, 29, and 98-99.

[4] While the TRT did not have sufficient information to assert that these individual populations were functionally independent (*i.e*., individually viable in an unimpaired stated), it believed that these populations were distinct enough to be considered as separate populations for the purposes of developing the DPS-Wide and Population-Level viability criteria

See NMFS's South-Central California Steelhead Recovery Plan, Chapter 6, Steelhead Recovery Goals, Objectives & Criteria, and Appendix C. Composition of South-Central California Coast Steelhead Recovery Planning Area BPGs.

These are discussed in more detail as they relate to the Salinas River watershed in the separate section below.

Salinas River

The Salinas River is situated within the Interior Coast Range BPG (along with the Pajaro River)[5] and is classified as a Core 1 population within the South-Central California Coast Steelhead Recovery Plan. Core 1 populations are populations identified as having the highest priority for recovery planning based on the following factors:

- intrinsic potential of the population to support a viable population in an unimpaired condition (based on the amount of spawning and rearing habitat);
- the role of the population in meeting the DPS-Wide population viability criteria (minimum number of population per BPG, including spatial distribution, "Biogeographic Diversity", and "Life-History Diversity");
- severity of the threats facing the populations (or current condition of the population;
- potential ecological or genetic diversity of the watershed that contributes to the species overall diversity; and
- capacity of the watershed and population to respond to critical recovery actions needed to address identified threats.

Core 1 populations form the foundation of the recovery implementation strategy and must meet the Population-Level viability criteria identified in NMFS' South-Central California Coast Steelhead Recovery Plan.

See NMFS 2013, Chapter 6, "Steelhead Recovery Goals, Objectives & Criteria" and discussion below for details.

To meet these Population-Level viability criteria NMFS' TRT specifically identified "securing extant inland populations in the Interior Coast Range BPG (Pajaro and Salinas Rivers) and the Carmel Basin BPG (Carmel River)" as a critical component of the recovery strategy for the South-Central California Coast Steelhead DPS.[6] NMFS' TRT further noted, "The populations of the

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[5] See map of Biogeographic Population Groups in the South-Central California Coast Steelhead Recovery Planning Area in NMFS 2013, p. 2-10.

[6] NMF's TRT also recognized the importance of other inland populations within the South-Central/Southern California Steelhead Recovery Planning Domain: "The extant habitat of these populations— especially the anadromous waters of the Pajaro River, Arroyo Seco, the southern Salinas Valley, the Sisquoc River, the Santa Ynez River, the Ventura River and the Santa Clara River—merit high priority for immediate protection and recovery so

Interior Coast Range are particularly important because they appear to have produced the largest run sizes in the SCCCS DPS during years of high rainfall and runoff (Boughton *et al*, 2006, Good *et al*. 2005)."

The Salinas River watershed is unique in several respects that are relevant to the question you have posed.

First, it is the largest watershed within the South-Central California Coast Steelhead Recovery Planning Area (and within the South-Central/Southern California Coast Recovery Planning Domain). Its watershed encompasses approximately 4,391 square miles and extends over almost two degrees of latitude; it is also distinctive in that it runs south to north. The major tributaries of the Salinas (*e.g*., Arroyo Seco, Nacimiento, and San Antonio) are themselves considerably larger than the other individual watersheds within the South-Central California Coast Steelhead Recovery Planning Area.

See Figure 1, map of "Salinas River Major Subbasins".

Second, because of its geographic location and physical features, the Salinas River watershed exhibits the most diverse range of habitat types of all the watersheds within the South-Central/Southern California Coast Recovery Planning Domain: coastal dunes, estuarine marsh, oak woodland, coniferous forest, chaparral, grassland savannah, desert-like scrub, and riparian woodland. This diversity is reflected in the diversity of the native *O. mykiss* populations that occupy and utilize the Salinas River watershed (including anadromous, non-anadromous, and lagoon anadromous forms of *O. mykiss*).

Third, the Salinas River is also unique in that is the only watershed within the South-Central California Coast Steelhead Recovery Planning Area (and within the South-Central/Southern California Steelhead Recovery Planning Domain) for which the TRT has identified multiple populations of anadromous *O. mykiss* in a single watershed.

Multiple Recovery Populations of the Salinas River Watershed

For recovery planning NMFS' TRT for the South-Central/Southern California Coast Steelhead Recovery Planning Domain adopted the one-basin = one population rule. The only exception to this one-watershed/one population rule is the Salinas River watershed[7]. In this watershed, the TRT posited three separate recovery populations. The reason and significance for this characterization of the population structure of the Salinas River is described below.

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that fish passage does not decline further (and should be improved whenever possible, though this is a longer-term effort)." Boughton *et al.* 2007, p. 24.

[7] The TRT identified several other potential situations that could deviate from this rule, but did not have adequate information to propose an alternative population structure: 1) sets of small neighboring basins, such as in Big Sur, the southern Santa Barbara coast, and the Santa Monica Mountains; and 2) neighboring basins with unreliable flow, such as those in the "South of Los Angeles" section of the study area. In these situations, rather than a single watershed supporting multiple discrete populations, individual populations may function as a metapopulations, utilizing multiple watersheds.

As noted, the Salinas River watershed is unusually large, with several significant tributaries (including the Arroyo Seco, Nacimiento, and San Antonio rivers) that join the mainstem of the Salinas River from the west, which are characterized by perennial flow within some reaches, particularly upper reaches and sub-tributaries. These western tributaries are distinctively different from those tributaries that enter the Salinas River from the east (*e.g.*, Estrella River, San Juan Creek) which are more like desert washes. The exception to the eastern tributaries is Gabilan Creek that enters the Salinas System on the extreme northern end of the system. For an overview of the Salinas River watershed See Casagrande, *et al*. 2003; also Hager 2001, Franklin 1999.

Because of the size of the Salinas River watershed, NMFS' TRT examined the possibility that the watershed supported more than one population of anadromous *O. mykiss*. The TRT found that the Salinas River watershed contained five distinct steelhead habitat areas – Gabilan Creek, Arroyo Seco, San Antonio River, Nacimiento River, and the Upper Salinas River system (which includes a number of tributaries, including the Santa Margarita River).

Within these five distinct steelhead habitat areas, the TRT identified three distinguishable populations of anadromous *O. mykiss* within the Salinas River watershed:

1) Gabilan Creek

2) Arroyo Seco

3) Nacimiento River *et al.* (which includes Santa Antonio River and the upper Salinas tributaries)

See Figure 3, map of "Salinas Recovery Populations".

This three-population structure is based on: a) the large size of the Salinas River watershed, b) the distance between the point of entry of anadromous *O. mykiss* into the estuary and the distances between the confluences of the various tributaries with the mainstem of the Salinas River, c) the ephemeral migratory flows within the mainstem, and d) the presumed migratory behavior of the steelhead within the watershed. While the direct evidence from documented fish movement is not sufficient to make a definitive determination regarding total number of distinguishable populations of in the Salinas River watershed, the preponderance of evidence indicates that the Salinas River is capable of supporting at least three discrete populations of anadromous *O. mykiss* within the five distinct steelhead habitat areas.

See Figure 1, map of "Salinas River Major Subbasins" for stream miles and Figure 2, map of "Salinas River Intrinsic Potential Steelhead Spawning and Rearing Habitat" for stream/river miles between confluences.

Gabilan Creek is considered a distinct population because of its unique connection with the ocean via the Temblaldero Slough and the Old Salinas River channel with is connected to the Salinas River Estuary via the Elkhorn Slough. The principal steelhead spawning and rearing habitat is in the upper reaches of Gabilan and has the shortest access route to the Pacific Ocean.

Arroyo Seco is considered a distinct population for several reasons. First, it is separated from the three other upstream steelhead habitat areas by an extended reach of the Salinas River mainstem as a result of naturally ephemeral flow (further exacerbated by dams, diversions, and extensive groundwater pumping). This situation presents significant challenges to juvenile steelhead movement, acting as a mechanism isolating this population from others within the Salinas River watershed. Second, under natural hydrologic conditions (*i.e*., unimpaired by groundwater extractions, surface water diversions, or dams), there is no evidence that natural low flows would have prevented returning adult steelhead from accessing Arroyo Seco (and thus *forcing* them to spawn in the other steelhead habitat areas of the Salinas River watershed). Third, from a recovery perspective, the adverse consequences of treating Arroyo Seco as indistinct and therefore lumping in it with the other steelhead habitat areas, are greater than splitting or distinguishing it from the other identified populations. (See additional comments below regarding lumping and splitting populations.)

Nacimiento, San Antonio, and Upper Salinas River together comprise a single, distinct population. The combination of the long distance between the point of entry of anadromous *O. mykiss* into the estuary and the confluences of the San Antonio, Nacimiento, and upper Salinas rivers (in conjunction with the ephemeral nature of migration flows, even under unimpaired conditions), frequently prevents adult steelhead from returning to these upper tributaries. As a result, anadromous *O. mykiss* entering the Salinas River are *forced* to spawn in one of the other four steelhead areas supporting the other two distinct recovery populations of the Salinas System (Gabilan Creek or Arroyo Seco), thus segregating the Nacimiento, *et al.* population from the other two recovery populations. Under natural flow conditions, the Nacimiento River exhibits the more reliable migration flows, and so fish natal to the San Antonio River (or Upper Salinas River) that would be forced by low flows in these waters to spawn in the Nacimiento River. NMFS' TRT noted that the Nacimiento and San Antonio rivers both have a high potential as steelhead spawning and rearing habitats, and that these habitats are concentrated in the upper reaches in each watershed above the Nacimiento Dam and San Antonio Dam, respectively.

Contributing to the habitat suitability of the upper reaches of both the Nacimiento and San Antonio rivers is the higher average annual rainfall in these two sub-watersheds. The Salinas River watershed has an overall average annual rainfall of 16.6 inches. By comparison, the Nacimiento River watershed has an average annual rainfall of 26.9 inches, and the San Antonio River watershed an average annual rainfall of 20.2 inches (a 38% and 18% higher average annual rainfall total than the Salinas River watershed, respectively).

See attached Figure 1, map of "Salinas River Major Subbasins" for average annual rainfall totals for the various subbasins of the Salinas River watershed.

In analyzing the population structure of the Salinas River watershed, NMFS' TRT discussed the relative risks, from a recovery perspective, of mistakenly lumping or splitting multiple populations in the Salinas River watershed. The TRT found that the more risky strategy would be to erroneously lump recovery populations. Applying the Population-Level viability criteria to a lumped pair, for example, would not necessarily be sufficient to protect either of the pair (*i.e.*, if neither of the lumped pair of populations met the Population-Viability-Level criteria). Conversely, the opposite strategy - of identifying (splitting) two populations when in reality there is only one functional population - only creates a margin of safety if both populations are recovered to the point that the they individually meet the Population-Level viability criteria. This approach is consistent with the general precautionary principle that the TRT adopted for the two listed species of steelhead at the southernmost end of their range. As the TRT noted, ". . . the bigger risk with respect to recovery appears to be erroneous lumping".

For a detailed analysis of this issue of multiple populations of *O. mykiss* in the Salinas River watershed see, Boughton *et al*. 2005, especially, Section 2.6. "Three Discrete Populations in the Salinas System", Part 4. "Distribution of Steelhead Habitat" and Part 10 Appendices, 10.1. "Evidence for Two or More Populations in the Salinas Basin".

To put this discussion of multiple steelhead populations in the Salinas River watershed in a broader context, it should be recognized that the Salinas River watershed contains approximately two-thirds of the total amount of stream mileage within the South-Central California Coast Steelhead Recovery Planning Area. See NMFS 2013, particularly Tables 9-1, 10-1, 11-1 and 12-1 for comparative stream mileages of the watersheds within the Interior Coast Range BPG and the three other BPGs comprising the South-Central California Coast Steelhead Recovery Planning Area.

Within the Salinas River watershed there are approximately 5,924 stream miles, with the major tributaries historically supporting *O. mykiss* containing 2,081 stream miles, distributed among the tributaries comprising the five steelhead areas, as follows:

Gabilan Creek: 175 miles

Arroyo Seco: 478 miles

San Antonio River: 578 miles

Nacimiento: 527 miles

Santa Margarita Creek: 153 miles

Upper Salinas and tributaries (above Salinas Dam): 170 miles

Of this 2,081 miles, approximately 694 stream miles have been identified has having high intrinsic potential over-summering rearing/refugia habitat (c. 33% of the total stream miles supporting *O. mykiss* within the Salinas River watershed). As noted above, a majority of this over-summering habitat is located in the upper reaches of the tributaries comprising the five steelhead habitat areas within the Salinas River watershed.

Of the three distinguishable recovery populations within the Salinas River, the Nacimiento *et al*. population (which includes the San Antonio River, Nacimiento River, Paso Robles Creek, Santa Margarita River, and Upper Salinas River and tributaries) contains 330 miles of identified high intrinsic potential over-summering rearing/refugia habitat; this represents approximately half (c. 48%) of the total amount of intrinsic potential over-summering habitat associated with the three distinct steelhead populations of the Salinas River watershed. Together, the San Antonio River and Nacimiento River watersheds contain approximately 157 miles of high intrinsic potential over-summering rearing/refugia habitat (74 and 83 miles respectively), and approximately half (c. 48%) of the over-summering habitat within the Nacimiento *et al*. population. Importantly, of the intrinsic potential habitat identified by the TRT in the San Antonio and Nacimiento watersheds, *all* of it is located above the San Antonio and Nacimiento dams.

For stream and intrinsic potential steelhead spawning and rearing habitat mileages, see Figure 1, maps of “Salinas River Major Subbasins”, and Figure 2, map of “Salinas River Intrinsic Potential Steelhead Spawning and Rearing Habitat”. Also, Boughton, *et al.* 2006 for a detailed discussion of the “envelope method” used to identify intrinsic potential steelhead over-summering habitat, and the associated intrinsic potential maps.

NMFS’ TRT Viability Criteria

The DPS-Wide viability criteria for South-Central/Southern California Coast Steelhead Recovery Planning Domain provides that each BPG be comprised of a suite of restored core watersheds, each of which must meet the Population-Level viability criteria. As noted above, individual watersheds were generally presumed to support a single population that would meet the Population-Level viability criteria. However, in the case of the Salinas River, NMFS’ TRT recognized multiple populations, each of which must meet the Population-Level viability criteria to address the “Geographic Diversity and “Biological Diversity” elements of the viability criteria. Failure to reconnect the upper and lower watersheds of the San Antonio River and Nacimiento River by providing fish passage around the San Antonio and Nacimiento dams for both juvenile and adult *O. mykiss* would effectively preclude meeting the Population-Level viability criteria for the Nacimiento *et al*. population of the Salinas Watershed, where all of the high intrinsic potential over-summering rearing/refugia habitats exists in the headwater tributaries above the two dams.

Thus, not providing effective fish passage over the Nacimiento and San Antonio dams effectively precludes the recovery of the South-Central California Coast Steelhead DPS because it would prelude meeting the DPS-Wide viability criteria that requires a suite of restored core watersheds. NMFS’ South-Central California Coast Steelhead Recovery Plan, specifically requires recovery of the Pajaro River, Gabilan Creek, Arroyo Seco, and Upper Salinas Basin in the Interior Coast Range BPG.

See NMFS 2013, Appendix C. “Composition of South-Central California Coast Steelhead Recovery Planning Area BPGs”.

Salinas River Recovery Actions

To meet both the DPS-Wide and Population-Level viability criteria identified by NMFS’ TRT for the South-Central California Coast Steelhead Recovery Planning Area, NMFS’ South-Central California Coast Steelhead Recovery Plan identified a suite of recovery actions, including those dealing with flows and fish passage at impassible barriers on the suite of Core 1 populations identified in the Recovery Plan.

The DPS-Wide Recovery Actions include a general recovery action involving the physical modification of fish passage barriers identified in Table 7-2 and the BPG recovery action tables. Table 7-1 identifies the Core 1, 2 and 3 *O. mykiss* populations within the South-Central California

Coast Steelhead Recovery Planning Area. Core 1 populations are highlighted in bold face, and include the "Salinas River Watershed (all populations)". See NMFS 2013, p. 7-7.

NMFS' South-Central California Coast Steelhead Recovery Plan also identifies critical recovery actions for each Core 1 population for each BPG. Table 9-3, "Critical recovery actions for Core 1 populations within the Interior Coast Range BPG" identified critical recovery actions for the Salinas River, including the Arroyo Seco, San Antonio, and Nacimiento rivers. These critical recovery actions include physically modifying the dams "to allow steelhead natural rates of migration to upstream spawning and rearing habitats, and passage of smolts, kelts downstream to the estuary and the ocean" for the San Antonio Dam, Nacimiento Dam, and Salinas Dam, on the San Antonio, and Nacimiento, and Salinas rivers, respectively. See NMFS 2013 p. 9-18.

In addition, NMFS' South-Central California Coast Steelhead Recovery Plan identifies watershed-specific recovery actions dealing with the provision of flows and fish passage at the San Antonio Dam, Nacimiento Dam, and Salinas Dam, as well as other fish passage barriers or impediments within the Salinas River watershed.

The most pertinent to the question of providing fish passage and related flows at the San Antonio and Nacimiento dams are:

- Recovery Actions: SAnt-SCCCS-4.1, SAnt-SCCCS-4.2, and SAnt-SCCCS-4.3 (San Antonio River Dams and Surface Water Diversions);

- Recovery Actions: Nac-SCCCS-4.1, Nac-SCCCS-4.2, and Nac-SCCCS-4.2 (Nacimiento Dams and Water Diversions).

There is also a comparable recovery action for the Salinas Dam.

- Recovery Actions: Sal-SCCCS-4.1, Sal-SCCCS-4.2, and Sal-SCCCS-3.3 (Salinas River Dams and Surface Water Diversions)

In addition, there are specific recovery actions dealing with other types of fish passage impediments within the Salinas River watershed; these include:

- Recovery Actions: Sal-SCCCS-3.1 and Sal-SCCCS-3.2 (Salinas River Culverts and Road Crossings);

- Recovery Actions: SAnt-SCCCS-3.1 and SAnt-SCCCS-3.2 (San Antonio River Culverts and Road Crossings);

- Recovery Actions: Nac-SCCCS-3.1 and Nac-SCCCs-3.2 (Nacimiento Culverts and Road Crossings).

See NMFS 2013, pp. 9-31 – 9-32; 9-45 – 9-46; and 9-50; also, NMFS 2016a.

These recovery actions are intended to provide appropriate flows below dams and diversions and related fish passage (for both adult and juvenile *O. mykiss*) around the and San Antonio, Nacimiento, and Salinas dams. The basic goal of these recovery actions is to reconnect up and downstream migratory, spawning and rearing habitats to accommodate the various life-history forms and migratory patterns of native *O. mykiss* within the Salinas River watershed. They are also intended to enable the Salinas River to meet the Population-Level viability criteria identified by NMFS' TRT, and incorporated into NMFS' South-Central California Coast Steelhead Recovery Plan (including the "Biogeographic Diversity" and "Life-History Diversity" elements of the viability criteria).

There are also other recovery actions that are pertinent to the management of San Antonio, Nacimiento, and Salinas dams and the steelhead populations within the Salinas River watershed; these include recovery actions dealing with flood control, non-native species, recreational facilities, and variety of up-slope activities. See NMFS 2013, particularly Table 9-5. "South-Central California Coast Steelhead DPS Recovery Action Table for Lower Salinas River and Sub-Watersheds (Interior Coast Range BPG)", pp. 9-31 – 9-53.

Summary and Conclusion

Failure to provide passage at the San Antonio and Nacimiento dams would result is separating 157 miles of high intrinsic potential over-summering rearing/refugia habitat from the anadromous waters of the Salinas River watershed. This represents c. 48%. of the total amount of high intrinsic potential over-summering spawning/refugia habitat within the Nacimiento *et al.* recovery population, and c. 23% of the total amount of high intrinsic potential over-summering rearing/refugia habitat within the Salinas River watershed. Importantly 100% of the total amount of high intrinsic potential over-summering rearing/refugia habitat (sustained by higher annual average rainfall) within the San Antonio River/Nacimiento River portion of the Nacimiento *et al.* recovery population is located above the San Antonio and Nacimiento dams.

In addition, failure to rectify the fish passage impediments (and related flows) at the San Antonio and Nacimiento dams would preclude meeting the "Geographic Diversity" and "Biological Diversity" elements of the Population-Level viability criteria within the Salinas River watershed, and within the South-Central California Coast Steelhead DPS as a whole.

As NMFS' South-Central California Coast Steelhead Recovery Plan noted:

> "Regarding the impacts of impassable anthropogenic barriers on threatened steelhead, the recovery objectives include restoring steelhead distribution to previously occupied areas and restoring genetic diversity and natural interchange within populations and metapopulations. One of the threats abatement criteria identified to meet these objectives is allowing sustainable effective access to historical spawning and rearing habitats."

NMFS South-Central California Coast Steelhead Recovery Plan includes the following critical recovery actions for the Salinas River:

> "Develop and implement operating criteria to ensure the pattern and magnitude of groundwater extractions and water releases from Salinas Dam[s] to provide the essential habitat functions to support the life history and habitat requirements of adult and juvenile steelhead. Physically modify all fish passage impediments, including the Salinas Dam[s],

> to allow steelhead natural rates of migration to upstream spawning and rearing habitats, and passage of smolts and kelts downstream to the estuary and ocean. Management of instream mining to minimize impacts to migration, spawning, and rearing habitat, and protect spawning and rearing habitat in major tributaries, including the Arroyo Seco. Identify, protect, and where necessary restore estuarine rearing habitats, including management of artificial breaching of the sandbar at the river's mouth."

Table 9-3. "Critical recovery actions for Core 1 populations within the Interior Coast Range BPG", p. 9-18.

The San Antonio and Nacimiento dams were specifically identified in NMFS' South-Central California Coast Steelhead Recovery Plan "Critical Recovery Actions":

> "Physically modify San Antonio Dam to allow steelhead natural rates of migration to upstream spawning and rearing habitats, and passage of smolts and kelts downstream to the estuary and the ocean."
>
> "Physically modify Nacimiento Dam to allow steelhead natural rates of migration to upstream spawning and rearing habitats, and passage of smolts and kelts downstream to the estuary and the ocean."

NMFS' 2013, Recovery Actions SAnt-SCCCS-4.1, SAnt-SCCCS-4.2, Sant-SCCCS-4.3 and Nac-SCCCS-4.1, Nac-SCCCS-4.2, Nac-SCCCS-4.3, pp 9-45 through 9-46, 9-50.

I hope that this analysis will provide a useful framework in which to consider NMFS' recovery actions for the Salinas River watershed identified in NMFS' South-Central California Coast Steelhead Recovery Plan.[8]

[8] For examples of the analyses of impacts and approaches to providing effective fish passage at other major dams within the South-Central/Southern California Steelhead Recovery Planning Domain, see, California State Water Resoruces Control Board 2019, and NMFS 2016b, 2008.

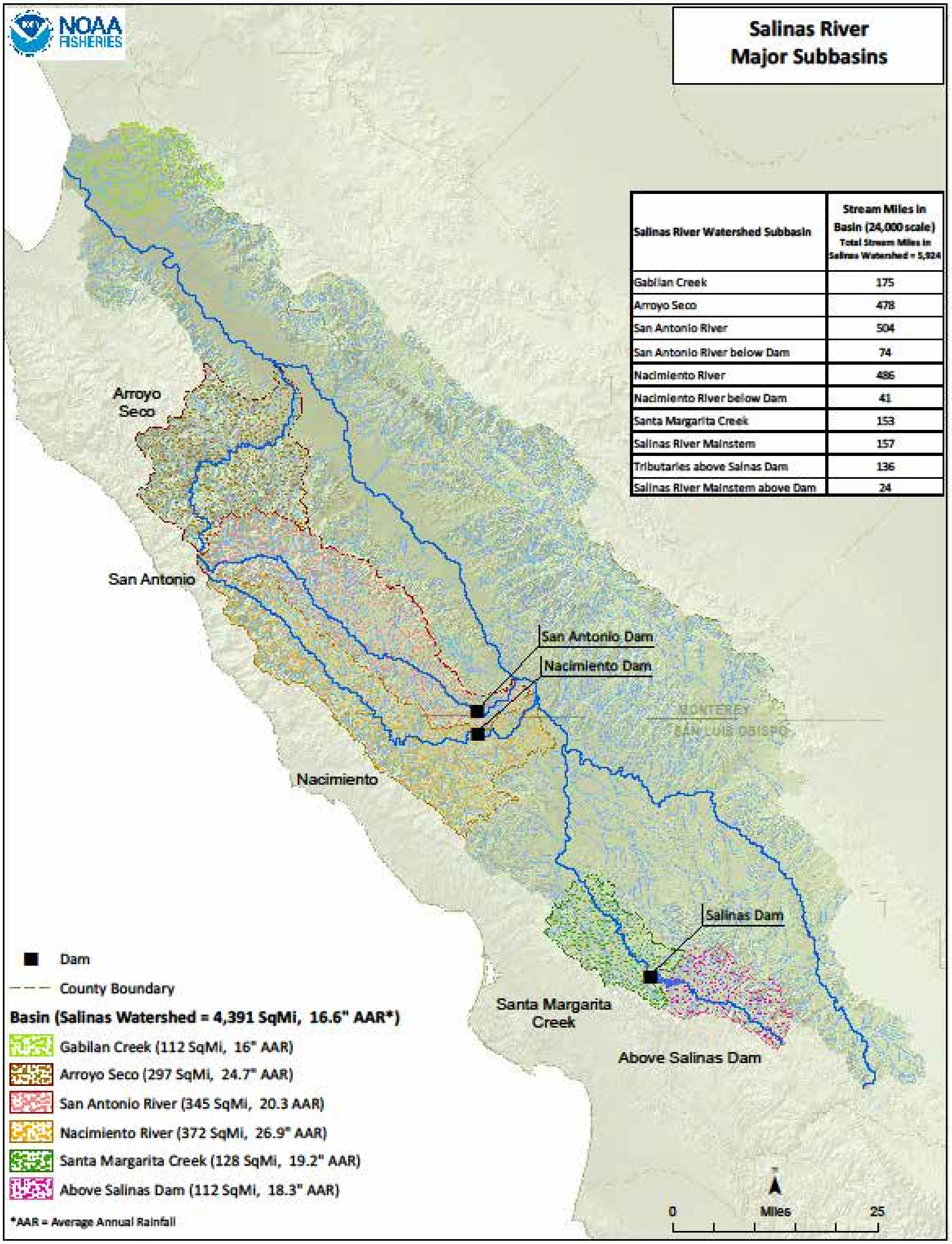
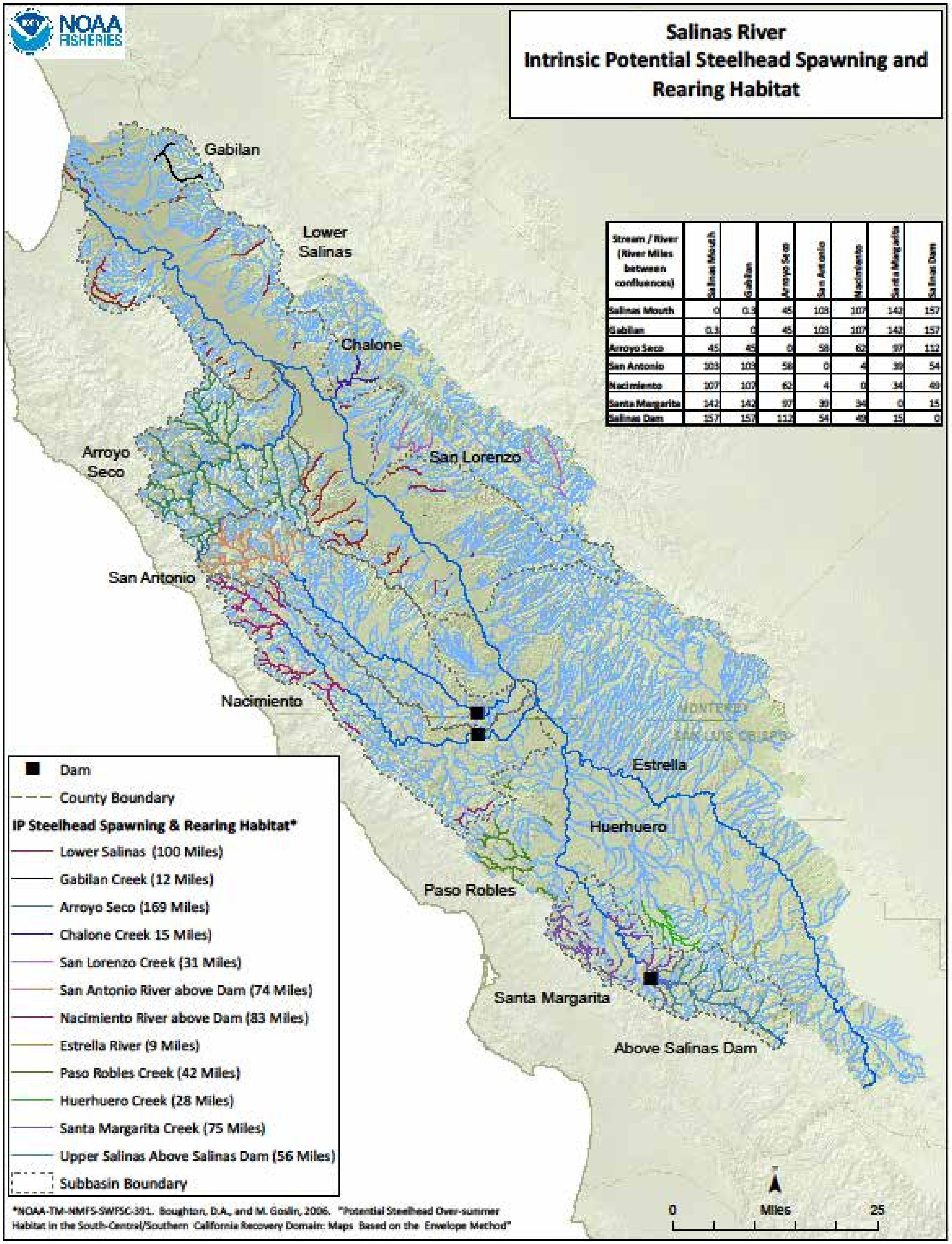


Figure 1. Salinas River Major Subbasins.



Stream / River (River Miles between confluences)	Salinas Mouth	Gabilan	Arroyo Seco	San Antonio	Nacimiento	Santa Margarita	Salinas Dam
Salinas Mouth	0	0.3	45	103	107	142	157
Gabilan	0.3	0	45	103	107	142	157
Arroyo Seco	45	45	0	58	62	97	112
San Antonio	103	103	58	0	4	39	54
Nacimiento	107	107	62	4	0	34	49
Santa Margarita	142	142	97	39	34	0	15
Salinas Dam	157	157	112	54	49	15	0

Figure 2. Salinas River Intrinsic Potential Steelhead Spawning and Rearing Habitat.

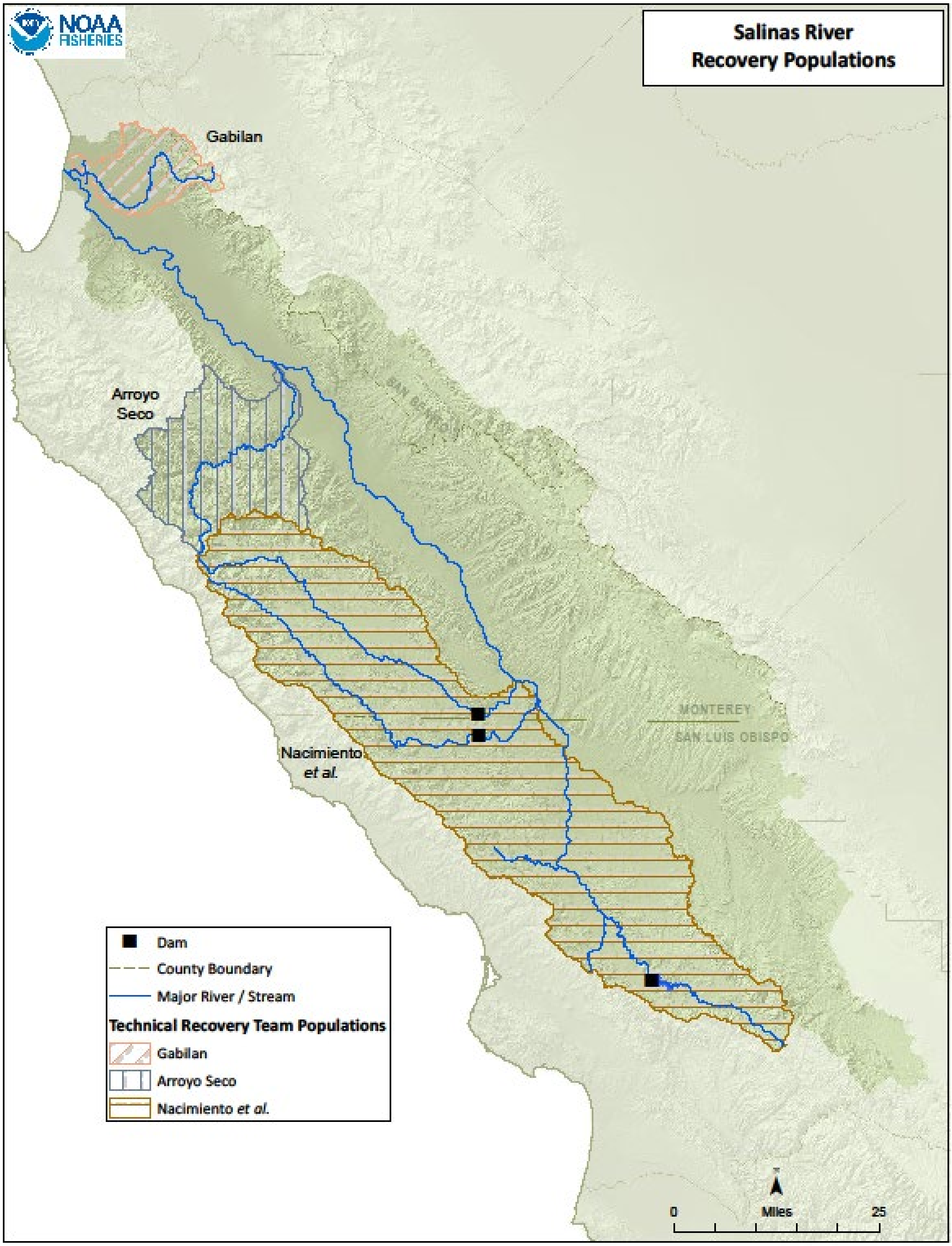


Figure 3. Salinas River Recovery Populations.

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October 8, 2021

Salinas Valley Basin Groundwater Sustainability Agency
Att: Emily Gardner, Deputy General Manager
P.O. Box 1385
Carmel Valley, CA 93924

VIA: E-Mail

RE: Groundwater Sustainability Plans

Dear Ms. Gardner:

On behalf of the Board of Directors of Monterey County Farm Bureau, we express our appreciation for the dedication and diligence of both the SVBGSA's staff and the consultants of Montgomery & Associates for the progress made on the draft groundwater sustainability plans for all sub-basins, due in January 2022. This has been a tremendous lift of a workload, and the transparency provided at all the sub-basin committee meetings has greatly aided in the drafting of these plan documents.

We are encouraged that the draft sustainability plans, in their present form with minor revisions for clarification to be considered as the comments submitted are processed and reviewed, represent a pathway forward for sustainability. While we are not expressing specific language or policy suggestions in this letter, our Board and Committee members have participated in numerous meetings and expressed their comments during those specific chapter reviews.

As the drafts move forward to the SVBGSA Board of final approval, and then submission the Department of Water Resources in January 2022, it is important to keep in mind that the integration of all the collective plan provisions, practices, and projects does not propel harm on neighboring or adjacent sub-basins of the Salinas Valley during long-term implementation. The plans should all work as a cohesive whole, working towards sustainability for the entire groundwater basin regardless of the individual characteristics or status of any individual sub-basin.

In other words, the entire Salinas Valley basin needs to work together through congruent integration of all sub-basin plans to achieve the full groundwater sustainability objectives. Only through this integrated approach can all water users of the basin achieve the success that the individual plans detail.

Indeed, the collective management practices and proposed projects of all the sub-basin plans are a comprehensive and cohesive program that serves to achieve the sustainability of the entire Salinas Valley Groundwater Basin.

Sincerely,

Norman C. Groot
Executive Director

Salinas Valley Water Coalition

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TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Atten: Ms. Emily Gardner, Deputy General Manager 14 October, 2021

Re: Upper Valley GSP V. 3

Dear Ms. Gardner;

The Salinas Valley Water Coalition offers the following comments for your consideration and ask that you distribute to the Upper Valley Subbasin Committee:

Chapter 1

- **Section 1.3, Page 1-14:** The following sentence should be stricken as shown below:

  ~~The projects and programs presented in this GSP are a part of a cohesive set of projects and programs designed to achieve sustainability throughout the entire Salinas Valley Groundwater Basin.~~

Each subbasin of the Salinas Valley Groundwater Basin is identified as a "Basin" subject to the Sustainable Groundwater Management Act (SGMA), and the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) is required to prepare a separate groundwater sustainability plan (GSP) for each Basin subject to SGMA in order to achieve the sustainability goal of that particular Basin. Because the Upper Valley Subbasin is sustainable, the GSP should focus on maintaining its sustainability rather than focusing on the entire Salinas Valley Groundwater Basin. Other than coordination, the Upper Valley GSP must not be burdened with projects and programs to achieve the sustainability of the entire Salinas Valley Groundwater Basin, and in fact, any such attempt may result in undesirable results of the Upper Valley Subbasin.

Chapter 2

- **Section 2.3, Page 2-4:** The following sentences must be clarified by adding the language shown as underlined:

  Subsequent to that SVBGSA will complete a Salinas Valley Basin-wide Integrated Sustainability Plan (ISP) that will <u>be consistent with the groundwater</u>

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

sustainability plans of the subbasins within the Salinas Valley Groundwater Basin and will detail project portfolios and groundwater sustainability programs to meet SGMA compliance for subbasins by 2040 and maintain sustainability through 2050. Under SGMA, groundwater sustainability plans are the primary legislative authority, akin to local agencies' general plans, and all other subsequent actions, including the ISP must be consistent with the SVBGSA's adopted groundwater sustainability plan.

Chapter 3

- **Section 3.10.4, Page 3-27:** The section needs to either include the specific language of the relevant policy of the Monterey County General Plan or mention that the policy includes a rebuttable presumption that there is sufficient water supply in the Salinas Valley Groundwater Basin to Year 2030.

Chapter 6

- **Overall Comment No. 1:** The Upper Valley Subbasin GSP, including this section and other sections, states that historical and current water budgets were developed using a provisional version of the Salinas Valley Integrated Hydrologic Model (SVIHM) developed by the USGS. It also states that future water budgets are being developed using an evaluation version of the Salinas Valley Operational Model (SVOM), developed by USGS and MCWRA. The GSP admits the model has not received final approval, and no warranty, expressed or implied, has been made by the USGS as to the functionality of the model and related material.

  Nevertheless, the GSP states the model is the best science available. This is simply not correct. There are other models and water balance calculation methods that have been shown to be more accurate and are available for use by the SVBGSA.

  The SVBGSA has stated in public forums that the USGS model has a recognized error of 30%+ for the model output for estimated groundwater pumping. This is unacceptable and until and unless the model calibration shows more accurate model runs, the outputs from such runs should not be published in any quasi-regulatory document, such as the GSPs, irrespective of the disclaimers included therein.

- **Overall Comment No. 2:** The discussions on groundwater inflows into the subbasin must be further clarified. For example, section 6.3.3, page 6-20 includes the following sentence:

  > *The main groundwater inflows into the subbasin are: (1) the percolation of precipitation and applied agricultural irrigation water and (2) streambed recharge.*

  Yet, the discussions on inflows fail to mention the primary factor that impacts the inflow numbers which are, in part, under the control of water releases from the Nacimiento and San Antonio reservoirs by the Monterey County Water Resources Agency that significantly impacts streambed recharge. There must be a recognition that the inflow numbers are "artificial" or "human controlled" particularly for the Upper Valley. Adding these recommended clarifying discussions and analysis to the GSP are essential for establishing proper reservoir operation management actions to ensure that the Upper Valley Subbasin remains sustainable.

Chapter 7

- **Section 7.6, Page 7-14:** As discussed above, because interconnected surface water takes place in three basic ways -- surface-water bodies gain water from inflow of groundwater through their bed, they lose water to groundwater by outflow through the bed, or they do both, gaining in some reaches and losing in other reaches – and thus is highly dependent on the MCWRA's water releases from the Nacimiento and San Antonio reservoirs, particularly for the Upper Valley, simply monitoring shallow wells next to Salinas River without accounting for how the MCWRA manages the reservoirs lacks scientific credibility. Adding these recommended clarifying discussions and analysis to the GSP are essential for establishing proper reservoir operation management actions to ensure that the Upper Valley Subbasin remains sustainable.

Chapter 8

- **Section 8.6.2.3, Page 8-13**: As discussed above, establishing groundwater level minimum thresholds by using shallow monitoring wells next to Salinas River to assess the undesirable results of significant or unreasonable depletion of interconnected surface waters without accounting for how the MCWRA manages the releases from the Nacimiento and San Antonio dams lacks scientific support. Accordingly, the following sentences (and other similar sentences in the GSP) should be changed to add that clarity. For example, please see the clarification as shown in the redline:

    Depletion of interconnected surface waters. *The chronic lowering of groundwater levels' minimum thresholds is identical to the interconnected surface water minimum thresholds, <u>and both are highly dependent on the management (i.e., water releases) of the Nacimiento and San Antonio reservoirs by the MCWRA in the Upper Valley Subbasin</u>. Therefore, the groundwater level minimum thresholds <u>using shallow wells next to the Salinas River</u> <u>must be evaluated in the context of the MCWRA's reservoir operations to determine if the Upper Valley Subbasin</u> will not result in a significant or unreasonable depletion of interconnected surface waters, including groundwater-dependent ecosystems*.

- **Section 8.6.4.1, Page 8-19:** Groundwater levels of areas in the Upper Valley Subbasin are also highly dependent on the management of the Nacimiento and San Antonio reservoirs by the MCWRA. Accordingly, the reservoir management impacts on groundwater level minimum threshold must be taken into account when establishing the minimum threshold. The following sentence should be added for clarity to the undesirable results standard:

    The 15% limit on minimum threshold exceedances in the undesirable result allows for 2 exceedances in the 18 existing representative monitoring wells. <u>No minimum threshold is established for times when the lowering of groundwater levels is determined to be the result of MCWRA operation of the reservoirs inconsistent with its standard operations and projects of 2015, which include the Salinas Valley Water Project.</u>

- **Section 8.7.2, Page 8-20:** Similar to prior discussions, groundwater storage of the Upper Valley Subbasin is also dependent on the management of the Nacimiento and San Antonio reservoirs by the MCWRA. Accordingly, the reservoir management impacts on groundwater storage minimum threshold must be taken into account when establishing the minimum threshold. The following sentence should also be revised to add clarity to the undesirable results standard:

  > *The minimum thresholds for reduction in groundwater storage are established by proxy using groundwater elevations. The reduction in groundwater storage minimum thresholds are identical to the chromic lowering of groundwater levels minimum thresholds. <u>No minimum threshold is established for times when the lowering of groundwater levels is determined to be the result of MCWRA operation of the reservoirs inconsistent with its standard operations and projects of 2015, which include the Salinas Valley Water Project.</u>*

Chapter 9

- **Section 9.2.1, page 9-2:** Projects for Developing Management Actions and Projects – It has been stated several times that the second paragraph needs to be deleted or at least corrected.

  "Projects developed for the entire Valley" which were part of the 2019 and 2020 180/400 foot Aquifer Subbasin GSP", were not approved or "refined" by the Upper Valley Subbasin committee. *<u>The 180/400 should not develop projects for the entire Valley since seawater intrusion and overdraft are not experienced in the southern subbasins. These projects have no relevance, and are not refined for their applicability, to the Upper Valley Subbasins GSP.</u>*

  The projects in the 180/400 GSP were developed with the goal of stopping seawater intrusion. Such projects are not needed in the Upper Valley and thus should not be referenced in the Upper Valley GSP.

Chapter 10

- **Section 10.3, #3 Management Actions, first paragraph, last sentence:** "Conservation and agricultural BMP's and fallowing, fallow bank, and agricultural land retirement will move forward if conditions warrant it ~~or if other subbasins initiate implementation of them."~~

Thank you for your consideration,

Nancy Isakson

Nancy Isakson, President

Salinas Valley Water Coalition

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& associates, p.c.
attorneys-at-law

October 14, 2021

Colby Pereira, Chairperson
Members of the Board of Directors
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924
Via email board@svbgsa.org

Subject: Draft Groundwater Sustainability Plans for the Upper Valley Aquifer Subbasin, Forebay Aquifer Subbasin, Eastside Aquifer Subbasin, Langley Aquifer Subbasin, and Monterey Subbasin

Dear Chair Pereira and Members of the Board of Directors:

LandWatch Monterey County offers the following comments on the draft Groundwater Sustainability Plans (GSPs) for the above referenced subbasins.

A. Selection and funding of proposed projects are not coordinated among subbasins, which is contrary to the 180/400 GSP and DWR's findings approving it. And the five new GSP's fail to provide the evidence SGMA requires that their proposed projects are financially feasible.

1. The GSA represented to DWR in the 180/400 GSP that it will identify a suite of Basin-wide projects needed to attain sustainability, which will be funded through the Basin-wide water charges framework based on pumping allowances, and that this system will be set up by June 30, 2023.

The 180/400-Foot Aquifer Subbasin GSP (180/400 GSP) that was approved by DWR identifies 13 projects that purport to "constitute an integrated management program for the entire Valley," 9 of which are identified as "priority projects." (180/400 GSP, p. 9-25.) The 180/400 GSP states that "[s]ome subset of these priority projects <u>will be implemented</u> as part of the six Salinas Valley Groundwater Subbasin GSPs," although some additional projects may be needed in some basins. (*Id.*) The 180/400 GSP found that the "projects and management actions identified in Chapter 9 are sufficient for attaining sustainability in the 180/400-Foot Aquifer Subbasin <u>as well as the other five subbasins in the Salinas Valley Groundwater Basin</u>." (*Id.* at 10-9.)

The 180/400-Foot Aquifer Subbasin GSP (180/400 GSP) provides that a "water charges framework" (WCF) will be implemented basin-wide in order to fund these projects and to deter pumping in excess of groundwater allowances. (180/400 GSP pp. 9-2 to 9-4.) The WCF is to be based on tiered charges for different levels of groundwater pumping. Tier one charges would be based on a "Sustainable Pumping Allowance," and its revenues would cover just the GSA administration. Tier 2 and 3 charges would be assessed for amounts in excess of a "Transitional Pumping Allowance" and, after the Transitional Pumping Allowances are phased out, for amounts in excess of the Sustainable Pumping Allowance. Tier two and three revenues would be used to fund the new water supply projects. The pumping allowances and fee structures were to be separately determined for each subbasin, so they would not be uniform for each subbasin; but each subbasins tiered charges would be included "in the final water charges framework agreement." (*Id.* at 9-4.)

In approving the 180/400 GSP, DWR relied on the feasibility and likelihood of the integrated set of Basin-wide projects funded by a Basin-wide WCF:

> The projects and management actions designed to eliminate overdraft and prevent seawater intrusion are reasonable and commensurate with the level of understanding of the basin setting, as described in the Plan. The water charges framework, at this time, appears feasible and reasonably likely to mitigate overdraft, which is an important management action to help prevent undesirable results and ensure that the 180/400 Foot Aquifer Subbasin is operated within its sustainable yield.

(DWR, Statement of Findings Regarding The Approval Of The 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan, June 3, 2021, p. 2.) DWR found:

> To achieve sustainability, the Plan proposes to assess fees for groundwater extraction and use these funds to implement other projects or management actions, as needed. The proposal to charge fees for extraction is called the water charges framework and involves a three-tiered system where groundwater users will be charged a series of fees based on the volume of annual groundwater extraction. The proposal includes exemptions for some groundwater pumpers, including de minimis users that will not be included in the fee program. The foundation of the water charges framework is a sustainable pumping allowance that each parcel will be allocated based on the calculated sustainable yield. Groundwater users will be allowed to pump more than their sustainable allocation; however, this additional pumping (supplemental pumping) will be subject to higher extraction fees. The proposed water charges framework is also proposed to be instituted in the other five groundwater subbasins overseen by the SVBGSA, representing a Salinas Valley Basin-wide management action.

(*Id.*, p. 5.) DWR concluded that the "fundamental structure of groundwater management in the Subbasin is a management action called the water charges framework." (*Id.* at 31, emphasis added; see also *id.* at 33.) DWR found that "implementation of projects will depend, fully or partially, on revenue generated by the proposed water charges framework." (*Id.* at 13; see also *id.* at 33, 6.)

The 180/400 GSP requires development of the WCF by January 31, 2023 for all six subbasins:

> Details of the water charges framework for all six subbasins will be developed during the first three years of this GSP's implementation through a facilitated, Valley-wide process. This process will be similar to the successful facilitated process that resulted in the SVBGSA serving as the GSA for some or all parts of all six subbasins. The result of this facilitated process will be an agreement on the financing method approved by the SVBGSA. The facilitation will be complete by January 31, 2023, and the financing method will be implemented in all six subbasins immediately following.

(180/400 GSP at 10-4.) The 180/400 GSP also requires refining the list of projects intended to support the integrated management of the entire Basin on the same schedule:

> An additional benefit of refining the projects during the first three years of implementation is that this approach complements the approach for refining the water charges framework, as outlined in Section 10.2. Refinement of the projects and actions will occur simultaneously with refinement of the funding mechanism that supports the projects and actions. By refining all of these plans simultaneously, the funding mechanism and the projects will all be in place by June 30, 2023. Projects and management actions will then be immediately implemented in a coordinated fashion across the entire Salinas Valley Groundwater Basin.

(*Id.* at 10-10.)

Since the WCF is based on pumping allowances, these allowances must be determined on the same schedule:

> This GSP proposes a water charges framework that provides incentives to constrain groundwater pumping to the sustainable yield while generating funds for project implementation. The framework creates sustainable pumping allowances, charging a Tier 1 Sustainable Pumping Charge for pro-rata shares of sustainable yield, Tier 2 Transitional Pumping Charge to help users transition to pumping allowances, and higher Tier 3 Supplementary Pumping Charge for using more water. Pumping allowances are not water rights, but would be established to incentivize pumping reductions.

(*Id.* at ES-14.) The Sustainable Pumping Allowance is the "base amount of groundwater pumping assigned to each non-exempt groundwater pumper. The sum of all sustainable pumping allowances and exempt groundwater pumping is the sustainable yield of the Subbasin." (*Id.* at 9-3.) Pumping allowances "are not water rights. Instead, they are pumping amounts that form the basis of a financial fee structure to both implement the regulatory functions of the SVBGSA and fund new water supply projects." (*Id.*)

In short, determining pumping allowances, setting the tiered rates for the WCF, and selecting the basin-wide projects to be financed is supposed to accomplished simultaneously by January 2023 for all six subbasins.

2. **The five draft GSPs are inconsistent with the 180/400 GSP because they do not rely on, assume, or identify a common set of Basin-wide projects and do not include participation in a Basin-wide Water Charges Framework.**

Each of the five GSPs identify a different set of projects than each other and different than the projects identified in the 180/400 GSP. (See Tables 9-1 in each GSP.) There is little overlap among the projects, and there are no projects that are common to all of the GSPs.

Furthermore, both the UVA and Forebay GSPs expressly reject the Water Charges Framework. (Forebay GSP at 10-15 to 10-16; UVA GSP at 10-15 to 10-16.) The Eastside, Monterey, and Langley GSP's do not mention the water charges framework in their discussions of funding options. (Eastside GSP at 10-15; Monterey GSP at 10-23; Langley GSP at 10-15.)

At this point, the "fundamental structure" on which DWR relied to approve the 180/400 GSP has been set aside because the five new draft GSP no longer propose a Basin-wide Water Charges Framework or a common set of Basin-wide projects to attain sustainability.

If the GSA approves the five new GSPs as written, it must fundamentally revise the 180/400 GSP, which no longer appears viable if other subbasins will not fund a common set of projects. The problem that the GSA must address squarely is that pumping reductions, not just capital projects, are needed to attain sustainability in the 180/400-Foot Aquifer Subbasin. For example, instead of investing in a permanent $100 million+ pumping barrier to hold back seawater intrusion, the GSA should consider investing in a finite period of pumping reductions that would be sufficient to restore groundwater levels to protective elevations. A finite period of pumping reductions that restores protective elevations would obviate and may be less expensive than financing and operating a permanent pumping barrier. Once the protective elevations are restored, the 180/400 could resume pumping the full sustainable yield of the subbasin, which is all that SGMA allows. (The pumping barrier would not allow any <u>more</u> pumping than the sustainable yield.) In any event, pumping reductions are at least feasible, and as discussed below, there is no evidence that a pumping barrier is financially feasible.

3. **The UVA and Forebay GSPs do not require, and presumably will not fund, common Basin-wide projects.**

The only project listed by the UVA GSP and Forebay GSP that is common to some of the other GSPs is the Multi-benefit Stream Channel Improvements, which is included in the

Eastside and Monterey GSPs and which contains as one component the Invasive Species Eradication project described by the 180/400 GSP. But the Multi-benefit Stream Channel Improvements projects are expected to benefit primarily the GSP's along the Salinas River, rather than the Langley or Eastside subbasins, and it is not even included in the Langley GSP. Indeed, the GSPs do not estimate any benefits to the Monterey, Eastside, and Langley Subbasins from this project.

Furthermore, neither the UVA GSP nor the Forebay GSP actually purport to require any projects to attain sustainability. (UVA GSP at 9-1 [projects not necessary to maintain sustainability]; Forebay GSP at 9-1 to 9-2 [subbasin sustainable; only management actions to be pursued].) Both GSPs anticipate ongoing maintenance of sustainability through management actions, not projects. They list projects only in case they might be needed in the future.

At this point, no GSP should assume that the Forebay and UVA water users would agree to provide funding for any large Basin-wide capital projects, either through a water charges framework or a Proposition 218 vote. To the extent that the Eastside, Langley, and Monterey GSPs assume funding contributions or project-participation from the Forebay and UVA subbasins, the five draft GSPs are inconsistent on their faces and cannot be approved. The project discussions in the Eastside, Langley, and Monterey GSPs should be revised to make clear that the proposed projects do not rely on funding contributions or project-participation from the Forebay and UVA subbasins.

4. **The Eastside, Langley, and Monterey GSPs do not propose a commons set of Basin-wide projects and do not provide the evidence required by SGMA that any large capital projects that benefit multiple subbasins are financially feasible.**

Contrary to the expectation set up by the 180/400 GSP, there is no common set of Basin-wide projects proposed by the GSPs. Although there are several large capital projects that are listed by more than one of the GSPs, the GSPs fail to provide evidence that these projects are financially feasible. This failure is because the GSPs do not address the critical question of the willingness to pay for the water these projects might deliver.

For agricultural uses, irrigation water is an input to production, so the maximum value of water is constrained by expected returns. There must be some price beyond which agricultural users will not pay for water projects. Is it $500 AF? $750 AF? $1,000 AF? $1,500 AF? And how much water would be demanded at each of these prices? What does the demand curve for agricultural water supply look line in the Valley? The GSP's simply fail to address these critical questions.

Water markets provide some evidence of willingness to pay. Although some farmers have reportedly paid as much as $2,200 per AF for some amounts of water for high value crops (e.g., on a short term basis to protect investments in permanent crops), the average NASDAQ Veles California Water Index water futures price is now only $686 AF, an extraordinarily high price attained only as a result of a long drought period[1] Agricultural water has reached market prices in the $500 to $1000 range only in times of water stress.[2] Salinas Valley farmers may be willing to pay more for water due to their higher productivity than the average California farmer, but obviously there is a limit.

The analysis of fallowing options in the Eastside GSP provides some indirect evidence of willingness to pay; and since it is based on local land prices, it should reflect the range of agricultural productivities in the Salinas Valley. The Eastside GSP concludes that land could be fallowed to make its water available to other users by paying farmers rent and cover crop expenses. (Eastside GSP, p. 9-67.) Based on these land rents and cover crop expenses, farmers would be willing to forego farming for payments that represent water values of from $590 to $1,730 per AF. If agricultural users would find it more profitable not to use water at all when it is worth more than these values to others, it is not reasonable to suppose that they would vote to assess themselves for a capital project that produces water at higher costs per acre foot.

Despite this, the GSPs propose large capital water projects with unit costs well in excess of $1,000 per AF.[3] For example, the Eastside GSP identifies the Chualar and Soledad diversion projects using the 11043 water rights as costing $55 million and $104 million respectively. The 6,000 AFY provided by these diversion projects would cost $1,280 and $2,110 per AF respectively. The projects would benefit Eastside and 180/400 water users, but there is no analysis in either the Eastside GSP or the 180/400 GSP that would support the assumption that agricultural users would be willing to pay that much for water.

Similarly, both the Monterey and Eastside GSP's identify winter reservoir releases with ASR as a potential project, costing $172 million to provide 12,900 AFY at a unit cost of $1,450 per AF. Both the Monterey and Eastside GSPs say that the distribution of benefits would be determined through a benefits assessment. But there is simply no analysis that supports the assumption that there is a willingness to pay $1,450 per AF for agricultural water, much less to do so through a long term commitment in a Proposition 218 vote or through adoption of a Water Charges Framework.

The Eastside and Monterey GSPs both identify a Regional Municipal Supply project that is based on desalinating brackish water pumped from a seawater intrusion barrier. The unit cost for desalinating this water would come to $2,900 per AF, to which must be

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1 Aquaoso, California Agricultural Water Prices by Water District, June 17, 2021, available at https://aquaoso.com/blog/california-agricultural-water-prices/.

2 *Id.*

3 By contrast, many of the projects that are proposed to benefit only one subbasin are more modest in scale and in price per AF.

added the $1,200 per AF to pump the source water from the seawater intrusion barrier. While municipal users are willing to pay more than agricultural users for water, there is no analysis in the Eastside and Monterey GSPs of how the costs would be allocated between agricultural and urban beneficiaries or whether either group would be willing to pay as much as $4,100 per AF for this water, which they now enjoy for the cost to pump it..

Some proposed large capital projects may make sense financially. The 3,500 acre CSIP expansion, identified in the Langley and Eastside GSPs, and already proposed in the 180/400 GSP, could proceed based on the existing CSIP model if the expanded benefit assessment district is willing to assess itself $630 per AF for this water. Similarly, the direct delivery (as opposed to the aquifer storage and recovery or ASR) of winter release water for MCWD's winter urban demand at $1,100 per AF may make sense given the likely willingness of new urban customers to pay higher rates.

Each of the GSPs should be revised to include a discussion of likely willingness to pay for the proposed capital projects and the likely financial feasibility of proposed projects. The discussion should reflect whether the large capital projects are scalable and whether sufficient numbers of water users would be willing to pay the average cost per AF to actually cover the minimum scale project's entire cost. The willingness of one water user to pay the average cost per AF is not evidence that the entire project can be funded.

Without an analysis of the willingness to pay for large capital projects, especially those projects for which the cost per AF is in excess of $500, the GSP's cannot be approved by DWR. SGMA requires that a GSP include both the estimated cost for each project and "a description of how the Agency plans to meet those costs." (23 CCR § 354.44(b)(8).) DWR must have substantial evidence to support a finding that the projects are "feasible" and that the GSA "has the financial resources necessary to implement the Plan." (23 CCR § 355.4(b)(5),(9).) The GSP's do not provide evidence that funding is actually feasible. Their discussions of project funding merely list the kinds of funding arrangements that are commonly used for large capital projects. (Eastside GSP at 10-15; Monterey GSP at 10-23; Langley GSP at 10-15; UVA GSP at 10-15; Forebay GSP at 10-15.) As noted, the UVA and Forebay GSPs do not propose to provide <u>any</u> project funding because they determine that no projects are actually needed, and they specifically reject participation in the Water Charges Framework. (Forebay GSP at 10-15 to 10-16; UVA GSP at 10-15 to 10-16.) Merely listing the kinds of arrangements that can <u>conceptually</u> be used to fund projects does not explain how the GSA could <u>actually</u> meet their costs, especially where there is substantial uncertainty about willingness to participate in these funding arrangements.

The findings that projects are financially feasible are particularly critical for the Eastside and Monterey Subbasins because they depend on the success of high capital, multi-subbasin projects to address overdraft conditions. (Eastside GSP at 9-103 to 9-104; Monterey GSP at 9-105.)

B. For the Monterey Subbasin GSP, the groundwater level sustainable management criteria and interim milestones fail to support the seawater intrusion criteria.

1. SGMA requires coordination of sustainable management criteria: groundwater level minimum thresholds must support the seawater intrusion minimum threshold.

SGMA requires that each minimum threshold must avoid *each* undesirable result because SGMA requires that "basin conditions at each minimum threshold will avoid undesirable results for *each of* the sustainability indicators." (23 CCR § 354.28(b)(2), emphasis added.) For example, the groundwater level minimum threshold must be "supported by" the "[p]otential effects on *other* sustainability indicators." (23 CCR 354.28(c)(1)(B), emphasis added.) This means that each minimum threshold, especially the groundwater level minimum threshold, must be coordinated to ensure that *all* undesirable results are avoided. Furthermore, a GSP must not "adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of its sustainability goal." (23 CCR § 355.4(b)(7).)

2. The Monterey Subbasin GSP's proposed seawater intrusion SMCs do not permit any additional intrusion.

The Monterey Subbasin GSP sets the MT and MO for seawater intrusion for the lower 180-Foot Aquifer and the 400-Foot Aquifer at the line of advancement as of 2015. (Monterey GSP, p. 8-51.) The Monterey GSP sets the MT and MO for seawater intrusion to the Deep Aquifers at Highway 1, based on the observation that there is limited intrusion in these aquifers. (*Id.*, pp. 8-51 to 8-52.) In effect, the Monterey GSP commits the GSA not to permit any additional seawater intrusion in these aquifers. This is a proper goal in light of the clear impacts to beneficial users.

3. The Monterey Subbasin GSP's groundwater level SMCs and groundwater level interim milestones are set based on their effects on seawater intrusion.

The Monterey GSP acknowledges that the MT and MO for groundwater levels must support attainment of the seawater intrusion MT and MO because it identifies the primary consideration in setting the groundwater level MT and MO as the effect on seawater intrusion:

> As discussed in Section 3.1.6, groundwater use within the Marina-Ord Area is almost exclusively limited to generation of municipal supplies by MCWD. Groundwater elevations are significantly higher than municipal production well screen elevations in all aquifers in the Marina-Ord Area, and there is limited concern regarding the potential dewatering of groundwater production wells. Therefore, *groundwater levels that could cause undesirable results associated with other locally relevant sustainability indicators, such as the lateral or vertical*

> *expansion of the existing seawater intrusion extent and/or eventual migration of saline water into Deep Aquifer wells, have been used to define groundwater level minimum thresholds in the Marina-Ord Area*.

(Monterey GSP, p. 8-16, emphasis added.) The Monterey GSP also provides that

> . . . undesirable results caused by chronic lowering of groundwater levels in the Marina-Ord Area are primarily associated with the expansion of seawater intrusion and other locally relevant sustainability indicators. *These sustainability indicators have been considered when defining groundwater level minimum thresholds in the Marina-Ord Area*.

(Monterey GSP, p. 8-19, emphasis added.)

4. Setting the Monterey Subbasin GSP's groundwater level SMCs at historic 1995-2015 conditions is purportedly justified by the stability of the lateral extent of seawater intrusion in the Monterey Subbasin during that historic period.

The Monterey GSP contends that setting the groundwater level MT and MO for the 180- and 400-Foot Aquifers on the basis of the 1995 to 2015 groundwater levels is justified because the lateral extent of seawater intrusion in the Monterey Subbasin has been "generally stable" in that period:

> As discussed in the preceding sections, the potential effects of undesirable results caused by chronic lowering of groundwater levels in the Marina-Ord Area are primarily associated with the expansion of seawater intrusion. *The observed lateral extent of seawater intrusion within the Subbasin appears to have been generally stable within the 180- and 400-Foot Aquifers between 1995 and 2015. As such, minimum thresholds have been set based upon minimum groundwater elevations observed between 1995 and 2015 in the 180- and 400 Foot aquifers*. Seawater intrusion is additionally monitored and managed pursuant to seawater intrusion SMCs (Section 8.9 below) to verify seawater intrusion does expand within the Subbasin due to sea-level rise and/or changes in the groundwater gradient.

(Monterey GSP, p. 8-30.) There are several problems with this contention, discussed below.

5. The "stability" rationale for setting the Monterey Subbasin GSP's groundwater level SMC's based on historic conditions is undercut by the Monterey GSP's projections that historic conditions will not continue: groundwater levels will actually continue to decline and remain below historic conditions and the interim milestones permit such declines.

First, the contention that groundwater level SMCs are justified by historic conditions ignores the GSP's own projection that groundwater levels will continue to decline until at least 2033 and will not attain the MO until 2042. The Monterey GSP documents and projects in its "Example Trajectory for Groundwater Elevation Interim Milestones" that groundwater levels for a Marina-Ord well fell below the MT in 2019, will continue to fall until 2033, will not rise above the MT until 2039, and will not attain the MO until 2042. (Monterey GSP, pp. 8-42, Figure 8-12.) The interim milestones for wells in the 400-Foot Aquifer and the Deep Aquifers assume and permit that groundwater levels will remain below historic levels and the MT for most of the next 20 years:

> Within the Monterey Subbasin, for wells in the 400-Foot Aquifer, Deep, and El Toro Primary Aquifer System Aquifers where groundwater levels have been declining, groundwater elevation interim milestones are defined based on a trajectory informed by current (fourth quarter of 2020) groundwater levels, historical groundwater elevation trends [footnote], and measurable objectives. This trajectory allows for and assumes a continuation of historical groundwater elevation trends during the first 5-year period of GSP implementation, a deviation from that trend over the second 5-year period, and a recovery towards the measurable objectives in the third and fourth (last) 5- year period.

(Monterey GSP, p. 8-41.) The proposed interim milestones for wells in the 180-Foot and Deep Aquifers permit substantial declines in groundwater levels from 2020 conditions in the years 2027 and 2032. (*Id.*, p. 8-43 to 8-44, Table 8-3.) For some wells, the interim milestones would not require that the minimum threshold be met until 2037 or later. In short, the Monterey GSP does not expect that groundwater levels will actually remain within historic levels.

Allowing groundwater levels to fall below historic levels is purportedly justified because "there are large volumes of freshwater in the Subbasin that provide additional time and flexibility to reach identified SMCs while projects and management actions are implemented." (*Id.,* p. 8-41.) However, the draft GSP provides no evidence to suggest that groundwater levels that fall and remain below the historic conditions for at least the next ten years in the Marina-Ord area will not induce further seawater intrusion, resulting in a failure to meet the seawater intrusion SMCs. The evidence is to the contrary: lower groundwater levels increase seawater intrusion.[4] Thus, declining groundwater levels

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4 Geoscience, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, 2013, available at https://www.co.monterey.ca.us/home/showdocument?id=19642.

will make it impossible to meet the seawater intrusion minimum threshold and measurable objective, which require a halt to the advancement of seawater intrusion.

In summary, the historic "stability" rationale cannot be extrapolated to claim that groundwater levels well below the historic record will continue to result in a stable areal extent of seawater intrusion. It makes no sense to contend that setting the MT and MO on the basis of historic conditions will halt seawater intrusion when the GSP would effectively fail to maintain those historic conditions.

The historic stability rationale also ignores the fact that Deep Aquifer groundwater levels began dropping in 2014, have continued to drop, and are projected to continue to drop due to increased levels of extractions. MCWRA reported in 2020 that Deep Aquifer groundwater levels have been falling since 2014, are well below sea-level, and that induced vertical migration of contaminated water to the Deep Aquifers themselves is in fact occurring:

> As is the case with the 180-Foot and 400-Foot Aquifers, groundwater levels in the Deep Aquifers are predominantly below sea level. Beginning around 2014, groundwater levels in the Deep Aquifers began declining and are presently at a deeper elevation than groundwater levels in the overlying 400-Foot Aquifer based on comparisons of multiple well sets at selected locations, meaning that there is a downward hydraulic gradient between the impaired 400-Foot Aquifer and the Deep Aquifers (Figure 16 and Figure 17). This decrease in groundwater levels coincides with a noticeable increase in groundwater extractions from the Deep Aquifers (Figure 16 and Figure 17). The potential for inducing additional leakage from overlying impaired aquifers is a legitimate concern documented by previous studies and is something that would be facilitated by the downward hydraulic gradient that has been observed between the 400-Foot Aquifer and Deep Aquifers.
>
> Seawater intrusion has not been observed in the Deep Aquifers. However, the Agency has documented the case of one well, screened in the Deep Aquifers, that is enabling vertical migration of impaired groundwater into the Deep Aquifers. The Agency is working with the well owner on destruction of this well.[5]

In addition to the threat to contaminate the Deep Aquifers, the induced vertical migration of upper aquifer groundwater to the Deep Aquifers aggravates seawater intrusion in those upper aquifers. A 2003 study for MCWD concluded that increasing pumping of the Deep Aquifers from the 2002 baseline level of 2,400 AFY to just 4,000 AFY would (1) induce

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[5] Monterey County Water Resources Agency (MCWRA), Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin: 2020 Update, May 2020, p. 31, https://www.co.monterey.ca.us/home/showdocument?id=90578

further seawater intrusion into the upper aquifers (the 180-Foot and 400-Foot Aquifers), which were vertically connected, and (2) risk contamination of the Deep Aquifers themselves.[6] Deep Aquifer pumping is now in excess of 10,000 AFY.[7]

And, in fact, the Monterey GSP admits that falling groundwater levels in the Deep Aquifer threatens to contaminate the Deep Aquifers and to induce seawater intrusion in the upper aquifers:

> Seawater intrusion has not been observed in the Deep Aquifer to date. However, groundwater elevations have been declining and are significantly below sea level. The declining groundwater elevations in the Deep Aquifer may be causing groundwater elevations to fall within the 400-Foot Aquifer in the southwestern portion of the Marina-Ord Area (i.e., near wells MPMWD#FO-10S and MPMWD#FO-11S). Although there is some uncertainty whether the Deep Aquifer is subject to seawater intrusion from the ocean, continued decline of groundwater elevations in the Deep Aquifers could increase the risk of seawater intrusion and may eventually cause vertical migration of saline water from overlying aquifers into the Deep Aquifers. As such, minimum thresholds for the Deep Aquifers are set to historically observed minimum groundwater elevations between 1995 and 2015, which is equivalent to the groundwater elevations observed in 2015 for most Deep Aquifer wells.

(Monterey GSP, p. 8-30.) Again, setting the groundwater level MT and MO to historic levels but then allowing another ten to twenty years to pass before the interim milestones actually require attainment of these historic levels cannot demonstrably ensure that there is no further advancement of seawater intrusion. However, no further advancement is precisely what is required by the seawater intrusion MT and MO.

In sum, interim milestones cannot be set at a level that permits continued declines in groundwater levels if the Monterey GSP is to find that the groundwater levels are consistent with the seawater intrusion SMCs.

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6 WRIME, Deep Aquifer Investigative Study, May 2003, pp. 4-7, 4-11 to 4-12, pdf available upon request.

7 Monterey County Water Resources Agency (MCWRA), Well Permit Application Activities Update, prepared for May 17, 2021 MCWRA Board of Directors meeting, https://monterey.legistar.com/View.ashx?M=F&ID=9381226&GUID=34ED34CD-3A39-4851-87A3-298BE70D383C

6. The Monterey Subbasin GSP fails to assess the effects on <u>other</u> subbasins of setting groundwater level SMCs based on historic conditions or allowing groundwater levels to decline further through relaxed interim milestones.

As the Monterey GSP acknowledges, the interconnectivity between the 180/400-Foot Aquifer Subbasin and the Monterey Subbasin requires coordination of the sustainable management criteria for both subbasins. (Monterey GSP, p. 8-35.) Coordination is required in order to meet SGMA's requirement that the SMC's for one subbasin do not prevent another subbasin from meeting its sustainability goal. (23 CCR § 355.4(b)(7).)

Setting the groundwater level MT and MO at historic levels and then effectively ignoring these criteria through use of relaxed interim guidelines for ten to twenty years may very well impair attainment of the seawater intrusion criteria for the 180/400-Foot Aquifer GSP, which are also set at a level that permits no further advancement of the seawater intrusion front.

However the Monterey GSP provides no analysis of that possibility. Instead, the Monterey GSP proposes to defer the assessment of the impact of the Monterey Subbasin's groundwater level MTs on the Deep Aquifers in the neighboring 180/400-foot Aquifer Subbasin until after completion of the long-delayed Deep Aquifers Study and the eventual establishment of Deep Aquifer SMCs for the 180/400-foot Aquifer Subbasin.

The Deep Aquifer Study, recommended four years ago, has not commenced.

Furthermore, there is no reason that an assessment of the effects of the Monterey Subbasin's groundwater level MTs should be limited to its effects on the Deep Aquifers in the 180/400-Foot Subbasin. The assessment should also include an assessment of the effects of the Monterey Subbasin's groundwater level MTs on seawater intrusion of <u>each</u> of the principal aquifers in that neighboring subbasin. The Monterey Subbasin GSP argues that pumping in the 180/400-Foot Aquifer Subbasin has caused seawater intrusion in the Monterey Subbasin. In turn, the Monterey Subbasin GSP must assess the reciprocal effects of its own pumping, SMCs, and interim milestones on the 180/400-Foot Aquifer Subbasin.

SGMA's mandate to use the best available science is not an invitation to let the perfect be an enemy of the good pending completion of the Deep Aquifer study. The Monterey GSP must use the whatever science is <u>now</u> available to provide <u>some</u> discussion and assessment of the effect on the neighboring subbasins of allowing continued reductions in Monterey Subbasin groundwater levels below historic conditions through relaxed interim thresholds.

Again, it is not reasonable to extrapolate beyond the historic data to assume that lower-than-historic groundwater levels in the Monterey Subbasin will not impair adjacent basins. The purported stability of the lateral extent of seawater intrusion in the Monterey Subbasin from 1995 to 2015 was certainly not matched in the 180/400-Foot Aquifer

Subbasin, where seawater intrusion rapidly advanced during that period. The Monterey GSP provides no evidence to justify the assumption that allowing lower-than-historic groundwater levels in the Monterey Subbasin will not contribute to the continuing seawater intrusion in the neighboring subbasin.

Finally, the Monterey Subbasin GSP must also evaluate and address the effects of reduced groundwater levels in the Corral de Tierra Subarea on the Seaside Subasin. Again, there is no evidence in the record that merely maintaining historic groundwater levels is sufficient to support groundwater levels in the Seaside Subbasin. To the contrary, comments by the Seaside Basin Watermaster indicate that chronic lowering of groundwater levels in the Laguna Seca Subarea of the Seaside Subbasin can only be corrected by <u>reducing</u> existing pumping in the Corral de Tierra, i.e., <u>increasing</u> groundwater levels <u>above</u> historic levels. (Robert Jacques, PE, email to Sarah Hardgrave, et al., March 22, 2021.) Setting Monterey Subbasin groundwater level SMC's at historic levels violates SGMA because it will prevent attainment of groundwater level objectives in the adjacent Seaside Subbasin.

C. For the Eastside Subbasin GSP, the groundwater level sustainable management criteria and interim milestones also fail to support the seawater intrusion criteria.

As discussed above, SGMA requires that each minimum threshold must avoid *each* undesirable result because SGMA requires that "basin conditions at each minimum threshold will avoid undesirable results for *each of* the sustainability indicators." (23 CCR § 354.28(b)(2), emphasis added.) For example, the groundwater level minimum threshold must be "supported by" the "[p]otential effects on *other* sustainability indicators." (23 CCR 354.28(c)(1)(B), emphasis added.) This means that each minimum threshold, especially the groundwater level minimum threshold, must be coordinated to ensure that *all* undesirable results are avoided.

However, the groundwater level SMCs for the Eastside Subbasin fail to support the seawater intrusion SMC. Although the Eastside Subbasins is not seawater intruded itself, its GSP sets its seawater intrusion minimum threshold to prevent any seawater intrusion over the 500 mg/l threshold in <u>any</u> subbasin, in effect acknowledging that conditions in the Eastside Subbasin can cause seawater intrusion in adjacent subbasins. (Eastside GSP, p. 8-29.) In its discussion of its sustainability indicators for groundwater levels, the Eastside GSP acknowledges that "interference with other sustainability indicators," e.g., the sustainability indicators for seawater intrusion, would be a significant an unreasonable condition. (*Id.*, p. 8-7.) The Eastside GSP states that that the groundwater level minimum threshold is "intended not to exacerbate the rate of seawater intrusion." (*Id.*, p. 8-15.)

Overdraft conditions in the Eastside Subbasin that lower groundwater levels create a gradient causing subsurface flows from the 180/400 Subbasin to the Eastside Subbasin. These subsurface outflows from the 180/400 Subbasin contribute to seawater intrusion by negatively affecting the water budget in the 180/400 Subbbasin. The Eastside GSP acknowledges that the historic groundwater levels in the Eastside Subbasin, including the pumping trough around Salinas, have resulted in net subsurface outflows from the 180/400 Subbasin to the Eastside Subbasin. (*Id.*, p. 6-19.) Figure 6-9 demonstrates that there have been increasing net subsurface outflows from the 180/400 Subbasin to the Eastside Subbain since 1980. (*Id.*) For example, there are substantial net subsurface outflows from the 180/400 Subbasin to the Eastside Subbasin in both 2011 and 2015, and all of the other years after 1980. (*Id.*) Despite this, the Eastside GSP sets the minimum threshold for groundwater levels at the historic 2015 levels and sets the measurable objective at the 2011 level.[8] (*Id.*, pp. 8-7, 8-18.) In short, the Eastside SMC's are set at levels that will continue to induce subsurface outflows from the seawater intruded 180/400 Subbasin.

The Eastside Subbasin GSP fails to analyze the possibility that its minimum thresholds for groundwater levels and storage depletion will contribute to seawater intrusion in the 180/400 Subbasin. Instead, the Eastside GSP simply punts this issue to the future:

> Minimum thresholds for the Eastside Subbasin will be reviewed relative to information developed for the neighboring subbasins' GSPs to ensure that these minimum thresholds will not prevent the neighboring subbasins from achieving sustainability.

(Eastside GSP, p. 8-16.) It is unclear when this review will occur, especially for the 180/400 Subbasin, for which a GSP has already been adopted. Regardless, deferral of the analysis is not sufficient. SGMA requires that the Eastside GSP squarely address whether it "will adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of its sustainability goal." (23 CCR § 355.4(b)(7).) The GSP must support its conclusions with substantial evidence after applying the best science that is available <u>now</u>. (23 CCR § 354.44(c).) It is clear that the groundwater level and storage depletion sustainability indicators for the Eastside Subbasin will continue to contribute to seawater intrusion in the 180/400 GSP by inducing subsurface flows out of the 180/400 Subbasin. Since the 180/400 Subbasin minimum threshold for seawater intrusion requires halting <u>any</u> further seawater intrusion, any further inducement of seawater intrusion will prevent the attainment of sustainability by the 180/400 Subbasin.

The Eastside GSP must be revised to provide minimum thresholds and measureable objectives for groundwater levels that will not prevent attainment of sustainability by the 180/400 Subbasin, and it must provide an analysis based on the best available science to explain why.

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[8] The Eastside GSP also sets the minimum threshold for storage reduction using the groundwater level minimum threshold as a proxy indicator. (Eastside GSP, p. 8-23.)

D. Water quality sustainable management criteria should not be limited to effects caused by "direct GSA action." The GSPs must also regulate extractions that cause undesirable results, and do so through a specific and enforceable management action.

The five new GSPs purport to limit significant and unreasonable conditions related to groundwater quality degradation to just those "[l]ocally defined significant and unreasonable changes in groundwater quality resulting from *direct GSA action*." (Monterey GSP, p. 8-56, italics added; see also, e.g., Eastside GSP, p. 8-34.) Thus, the GSPs claim that the GSA need only address water quality degradation that is a "direct result of projects or management actions conducted pursuant to GSP implementation:"

> For the Subbasin, any groundwater quality degradation that leads to an exceedance of MCLs or SMCLs in potable water supply wells or a reduction in crop production in agricultural wells that is a direct result of GSP implementation is unacceptable. Some groundwater quality changes are expected to occur independent of SGMA activities; because these changes are not related to SGMA activities they do not constitute an undesirable result. Therefore, the degradation of groundwater quality undesirable result is:
>
> > *Any exceedances of minimum thresholds during any one year as a direct result of projects or management actions conducted pursuant to GSP implementation is considered as an undesirable result.*

(Monterey GSP, p. 8-56, underlining added.)

This language does not define what constitutes a "direct result" of GSP implementation or "direct GSA action." However, elsewhere, the GSP's give three examples of conditions that may lead to an undesirable result and that the GSA is presumably prepared to address:

> • Required Changes to Subbasin Pumping. If the location and rates of groundwater pumping change *as a result of projects implemented under the GSP*, these changes could alter hydraulic gradients and associated flow directions, and cause movement of constituents of concern towards a supply well at concentrations that exceed relevant standards.
>
> • Groundwater Recharge. *Active recharge of imported water or captured runoff* could modify groundwater gradients and move constituents of concern towards a supply well in concentrations that exceed relevant limits.
>
> • Recharge of Poor-Quality Water. *Recharging the Subbasin* with water that exceeds an MCL, SMCL, or level that reduces crop production could lead to an undesirable result.

(Monterey GSP, p. 8-58; see also Eastside GSP, p. 8-42 [same].) Significantly, none of these three conditions that might trigger GSA action include excessive pumping or changes in pumping by other parties that may cause water quality degradation; each condition includes only the secondary effects of the GSA's own projects. But the GSA's failure to take management action to regulate other parties, e.g., its failure to restrict excessive extractions or changes in pumping by other parties, may also cause water quality degradation. For example, the Community Water Center (CWC) has documented that for the San Jerardo Cooperative, Inc., increasing levels of nitrate and arsenic correspond to lower groundwater levels.[9] CWC has documented that "contaminants like arsenic, uranium, and chromium (including hexavalent chromium) are more likely to be released under certain geochemical conditions influenced by pumping rates, geological materials, and water level fluctuations."[10] It is clear that pumping levels and pumping changes can mobilize, concentrate, or move existing contaminants so as to cause water quality degradation. The GSA has a duty under SGMA to prevent this.

The Monterey GSP contends that because other agencies have authority over groundwater quality, the GSA's role is somehow limited:

> The powers granted to GSAs to effect sustainable groundwater management under SGMA generally revolve around managing the quantity, location, and timing of groundwater pumping. SGMA does not empower GSAs to develop or enforce water quality standards; that authority rests with the SWRCB Division of Drinking Water and Monterey County. Because of the limited purview of GSAs with respect to water quality, and the rightful emphasis on those constituents that may be related to groundwater quantity management activities.
>
> Therefore, this GSP is designed to avoid taking any action that may inadvertently move groundwater constituents already in the Subbasin in such a way that the constituents have a significant and unreasonable impact that would not otherwise occur.

(Monterey GSP, pp. 8-60 to 8-61; see also Eastside GSP, p. 8-35.) The fact that the County *and* the RWQCB also have authority and responsibility to address water quality degradation demonstrates that the statutory scheme does not rely on the regulatory

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9 Community Water Center, letter to SVGBGSA, April 23, 2021, re Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins, p. 1.

10 *Id.*, pp. 1-2, citing Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/156 0371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

actions of any single agency. Nothing in SGMA's mandate that the GSP address water quality degradation permits the GSA to ignore water quality degradation that results from third party pumping or to ignore such third party degradation unless the GSA has affirmatively regulated pumping. The GSP must address the effects of its regulatory acts <u>or omissions</u>, including omissions that move, mobilize, or concentrate pollutants by permitting excessive extractions or changes in extractions by groundwater pumpers.

Indeed, DWR has made it clear in its imposition of corrective actions on the 180/400-Foot Aquifer Subbasin GSP that "groundwater management *and extraction*" mustg be addressed because it may result in degraded water quality:

> RECOMMENDED CORRECTIVE ACTION 5 Coordinate with the appropriate groundwater users, including drinking water, environmental, and irrigation users as identified in the Plan, and water quality regulatory agencies and programs in the Subbasin to understand and develop a process for determining if groundwater management *and extraction* is resulting in degraded water quality in the Subbasin.[11]

Accordingly, the GSP cannot limit its concern to the effects of its own projects without taking responsibility for the effects of unregulated, excessive, or changed extractions on water quality degradation.

For example, if there is evidence that arsenic contaminations are mobilized or concentrations increased by new or excessive extractions, then the GSP must manage extractions to avoid undesirable results from mobilized, moved, or concentrated arsenic. The GSP cannot simply state that there "is no clear correlation that can be established between groundwater levels and groundwater quality at this time" as if that disposes of the matter for the GSP planning horizon. (Monterey GSP, p. 8-58.) The GSA must adopt an effective program to investigate, apply the best available science, and manage the resource to prevent undesirable contaminant concentrations caused by excessive or changed extractions, whether those are due to changes the GSA requires in subbaasin pumping or due to the failure of the GSA to regulate existing pumping in the first instance.

In sum, the GSPs fail to propose a coordinated system of meaningful sustainable management criteria and a management action to address water quality degradation. The minimum threshold and measureable objectives should be based on zero exceedances of water quality standards, as in the Eastside GSP so that each and every instance of water quality degradation can be determined and action can be prompted. (Eastside GSP, pp. 8-34, 8-41.) The GSP's should provide for a more robust monitoring program <u>and a self-reporting program</u> so that any exceedance will actually be determined. It is not sufficient to monitor only a small sampling of domestic wells.

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[11] Department of Water Resources, GSP Assessment Staff Report Salinas Valley – 180/400 Foot Aquifer (Basin No. 3-004.01), June 3, 2021, p. 37, emphasis added available at https://sgma.water.ca.gov/portal/gsp/assessments/29.

Most importantly, the proposed "Water Quality Partnership" implementation action needs to be revised so that it is an effective, enforceable commitment to action by the agency with the most direct oversight of the cause of any exceedance. (See, e.g., Eastside GSP, pp. 9-100 to 9-101.) The proposed Water Quality Partnership contains only the flowing proposals for action:

> SVBGSA will coordinate with the appropriate water quality regulatory programs and agencies in the Subbasin to understand and develop a process for determining when groundwater management and extraction are resulting in degraded water quality in the Subbasin. . . . Under this implementation action, SVBGSA will play a convening role by developing and coordinating a water quality partnership (Partnership). . . . The Partnership will review water quality data, identify data gaps, and coordinate agency communication. The Partnership will include the Regional Water Quality Control Board, local agencies and organizations, water providers, domestic well owners, technical experts, and other stakeholders. The Partnership will convene at least annually. The goal of the Partnership will include documenting agency actions to address water quality concerns. An annual update to the SVBGSA Board of Directors will be provided regarding Partnership efforts and convenings.

(Eastside GSP, p. 9-101.) In effect, the Water Quality Partnership calls for holding an annual meeting and writing a report. This is not a sufficient basis to find that the GSA has met its statutory obligation to adopt a plan that will actually address water quality degradation.

At minimum, a management action that addresses water quality degradation should include the following specific steps, which should be negotiated and memorialized in an MOU with the CCRWQCB and the Monterey County Department of Environmental Health:

- The agencies should arrange to monitor a sufficiently representative sampling of domestic wells to reliably determine any instance of a domestic well's failure to meet water quality standards.
- The agencies should accept and verify self-reporting of instances of failures to meet water quality standards.
- For each instance of failure to meet water quality standards, the agencies should ascertain whether the cause includes (1) discharge of pollutants, as determined by the CCRWQCB or the County DEH, and/or (2) pumping activity that has concentrated, mobilized, or moved pollutants, as determined by SVBGSA or the County DEH.
- Where the cause includes pumping activity, the SVBGSA should take action to abate the pumping that is causing the failure to meet water quality standards.

Absent such a program, the GSPs do not meet the statutory obligation to adopt a plan that will actually address water quality degradation.

Yours sincerely,

M. R. WOLFE & ASSOCIATES, P.C.

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JHF:hs

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October 15, 2021

Salinas Valley Basin GSA
P.O. Box 1350
Carmel Valley, CA 93924

Submitted via web: https://form.jotform.com/201537036733047

Re: Public Comment Letter for Upper Valley Aquifer Subbasin Draft GSP

Dear Donna Meyers,

On behalf of the above-listed organizations, we appreciate the opportunity to comment on the Draft Groundwater Sustainability Plan (GSP) for the Upper Valley Aquifer Subbasin being prepared under the Sustainable Groundwater Management Act (SGMA). Our organizations are deeply engaged in and committed to the successful implementation of SGMA because we understand that groundwater is critical for the resilience of California's water portfolio, particularly in light of changing climate. Under the requirements of SGMA, Groundwater Sustainability Agencies (GSAs) must consider the interests of all beneficial uses and users of groundwater, such as domestic well owners, environmental users, surface water users, federal government, California Native American tribes and disadvantaged communities (Water Code 10723.2).

As stakeholder representatives for beneficial users of groundwater, our GSP review focuses on how well disadvantaged communities, drinking water users, tribes, climate change, and the environment were addressed in the GSP. While we appreciate that some basins have consulted us directly via focus groups, workshops, and working groups, we are providing public comment letters to all GSAs as a means to engage in the development of 2022 GSPs across the state. Recognizing that GSPs are complicated and resource intensive to develop, the intention of this letter is to provide constructive stakeholder feedback that can improve the GSP prior to submission to the State.

Based on our review, we have significant concerns regarding the treatment of key beneficial users in the Draft GSP and consider the GSP to be **insufficient** under SGMA. We highlight the following findings:

1. Beneficial uses and users **are not sufficiently** considered in GSP development.
    a. Human Right to Water considerations **are not sufficiently** incorporated.
    b. Public trust resources **are not sufficiently** considered.
    c. Impacts of Minimum Thresholds, Measurable Objectives and Undesirable Results on beneficial uses and users **are not sufficiently** analyzed.
2. Climate change **is not sufficiently** considered.
3. Data gaps **are not sufficiently** identified and the GSP **needs additional plans** to eliminate them.

4. Projects and Management Actions **do not sufficiently consider** potential impacts or benefits to beneficial uses and users.

Our specific comments related to the deficiencies of the Upper Valley Aquifer Subbasin Draft GSP along with recommendations on how to reconcile them, are provided in detail in **Attachment A.**

Please refer to the enclosed list of attachments for additional technical recommendations:

Attachment A	GSP Specific Comments
Attachment B	SGMA Tools to address DAC, drinking water, and environmental beneficial uses and users
Attachment C	Freshwater species located in the basin
Attachment D	The Nature Conservancy's "Identifying GDEs under SGMA: Best Practices for using the NC Dataset"
Attachment E	Maps of representative monitoring sites in relation to key beneficial users

Thank you for fully considering our comments as you finalize your GSP.

Best Regards,

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Attachment A

Specific Comments on the Upper Valley Aquifer Subbasin Groundwater Sustainability Plan

1. Consideration of Beneficial Uses and Users in GSP development

Consideration of beneficial uses and users in GSP development is contingent upon adequate identification and engagement of the appropriate stakeholders. The (A) identification, (B) engagement, and (C) consideration of disadvantaged communities, drinking water users, tribes, groundwater dependent ecosystems, streams, wetlands, and freshwater species are essential for ensuring the GSP integrates existing state policies on the Human Right to Water and the Public Trust Doctrine.

A. Identification of Key Beneficial Uses and Users

Disadvantaged Communities and Drinking Water Users

The identification of Disadvantaged Communities (DACs) and drinking water users is **incomplete**. The GSP provides information on DACs, including identification by name and location on a map (Figure 2-3), and identifying the water source for DAC members. However, the GSP fails to identify the population of each identified DAC.

The GSP provides a density map of domestic wells in the subbasin. However, the GSP fails to provide depth of these wells (such as minimum well depth, average well depth, or depth range) within the subbasin.

These missing elements are required for the GSA to fully understand the specific interests and water demands of these beneficial users, and to support the development of sustainable management criteria and projects and management actions that are protective of these users.

RECOMMENDATIONS
• Include a map showing domestic well locations and average well depth across the subbasin. • Provide the population of each identified DAC.

Interconnected Surface Waters

The identification of Interconnected Surface Waters (ISW) is **insufficient**, due to lack of supporting information provided for the ISW analysis. To assess ISWs, the GSP used the Salinas Valley Integrated Hydrologic Model (SVIHM). The GSP states (p. 4-25): *"Although seepage along the ISW reaches is based on assumed channel and aquifer parameters as model inputs, the preliminary SVIHM is the best available tool to estimate ISW locations. The model construction and uncertainty are described in Chapter 6 of this GSP."* However, Chapter 6 of the GSP, the water budget chapter, presents very little information on the model. No further information in the GSP was presented providing description of the location of groundwater wells or stream gauges used in the analysis, or description of temporal (seasonal and interannual) variability of the data used to calibrate the model.

The GSP states (p. 4-25): *"The blue cells [in Figure 4-11] indicate areas where surface water is connected to groundwater for more than 50 percent of the number of months in the model period and are designated as areas of ISW. The clear cells represent areas that have interconnection less than 50 percent of the model period and require further evaluation to determine whether the SMC, discussed in Chapter 8, apply."* Note the regulations [23 CCR §351(o)] define ISW as "surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted". "At any point" has both a spatial and temporal component. Even short durations of interconnections of groundwater and surface water can be crucial for surface water flow and supporting environmental users of groundwater and surface water.

RECOMMENDATIONS
• Describe available groundwater elevation data and stream flow data in the subbasin. ISWs are best analyzed using depth-to-groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought), to determine the range of depth and capture the variability in environmental conditions inherent in California's climate. • Overlay the stream reaches shown on Figure 4-11 with depth-to-groundwater contour maps to illustrate groundwater depths and the groundwater gradient near the stream reaches. Show the location of groundwater wells in the subbasin used to create the contour maps. • For the depth-to-groundwater contour maps, use the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a Digital Elevation Model (DEM) to estimate depth-to-groundwater contours across the landscape. This will provide accurate contours of depth to groundwater along streams and other land surface depressions where GDEs are commonly found. • On Figure 4-11 (Locations of Interconnected Surface Water), consider any modelled stream grid cells with >0% connection to groundwater as potential ISWs until more data is available. In other words, consider any stream cell with connection to groundwater for any length of time as a potential ISW. • Describe data gaps for the ISW analysis. Reconcile these data gaps with specific measures (shallow monitoring wells, stream gauges, and nested/clustered wells) along surface water features in the Monitoring Network section of the GSP.

Groundwater Dependent Ecosystems

The identification of Groundwater Dependent Ecosystems (GDEs) is **insufficient**, due to a lack of comprehensive, systematic analysis of the subbasin's GDEs.

The GSP took initial steps to identify and map GDEs using the Natural Communities Commonly Associated with Groundwater dataset (NC dataset) and other sources. The GSP does not discuss how the NC dataset was verified with the use of groundwater data, however. The GSP states (p. 4-29): *"The SVBGSA reviewed the NCCAG dataset and assessed each GDE's potential connection to groundwater by determining if the GDE was underlain by shallow groundwater that has been delineated as being part of a Bulletin 118 principal aquifer, and if depth to groundwater is less than 30 feet."* However, no further details are provided in the GSP. Based on the description provided in the GSP, it is unclear if Figure 4-12 (Groundwater Dependent Ecosystems) presents the entire NC dataset, or further analysis based on the 30 feet threshold as described in the text. Without an analysis of groundwater data to verify the NC dataset polygons, it will be difficult or impossible to adequately monitor and manage the subbasin's GDEs throughout GSP implementation.

We commend the GSA for listing the threatened and endangered species likely to depend on groundwater, as determined from several sources including the US Fish and Wildlife Service (USFWS) website, California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB), and TNC Critical Species LookBook (Table 4-1). Vegetation species present in the subbasin's potential GDEs were not included in the GSP, however.

RECOMMENDATIONS

- Develop and describe a systematic approach for analyzing the subbasin's GDEs. For example, provide a map of the NC Dataset. On the map, label polygons retained, removed, or added to/from the NC dataset (include the removal reason if polygons are not considered potential GDEs, or include the data source if polygons are added). Discuss how local groundwater data was used to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.

- Use depth-to-groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) to determine the range of depth to groundwater around NC dataset polygons. We recommend that a baseline period (10 years from 2005 to 2015) be established to characterize groundwater conditions over multiple water year types. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.

- Refer to Attachment B for more information on TNC's plant rooting depth database. Deeper thresholds are necessary for plants that have reported maximum root depths that exceed the averaged 30-ft threshold, such as valley oak (*Quercus lobata*). We recommend that the reported max rooting depth for these deeper-rooted plants be used. For example, a depth-to-groundwater threshold of 80 feet should be used instead of the 30-ft threshold, when verifying whether valley oak polygons from the NC Dataset are connected to groundwater. It is important to re-emphasize that actual rooting depth data are limited and will depend on the plant species and site-specific conditions such as soil and aquifer types, and availability to other water sources.

- Provide depth-to-groundwater contour maps, noting the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a digital elevation model (DEM) to estimate depth-to-groundwater contours across the landscape.

- If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons as "Potential GDEs" in the GSP until data gaps are reconciled in the monitoring network.

- Please provide a complete inventory, map, or description of fauna (e.g., birds, fish, amphibian) and flora (e.g., plants) species in the subbasin (see Attachment C of this letter for a list of freshwater species located in the Upper Valley Subbasin).

Native Vegetation and Managed Wetlands

Native vegetation and managed wetlands are water use sectors that are required[1,2] to be included in the water budget. The integration of native vegetation into the water budget is **insufficient**. The water budget includes a separate item for evapotranspiration, but based on the text it is unclear whether the values shown in the budget tables apply to riparian evapotranspiration only or contain crop evapotranspiration as well. The omission of explicit water demands for native vegetation is problematic because key environmental uses of groundwater are not being accounted for as water supply decisions are made using this budget, nor will they likely be considered in project and management actions. The GSP states that managed wetlands are not present in the subbasin.

RECOMMENDATION

- Quantify and present all water use sector demands in the historical, current, and projected water budgets with individual line items for each water use sector, including native vegetation.

B. Engaging Stakeholders

Stakeholder Engagement during GSP development

Stakeholder engagement during GSP development is **incomplete**. SGMA's requirement for public notice and engagement of stakeholders[3] is not fully met by the description in the Communication and Public Engagement section of the GSP (Chapter 2).

The GSA's outreach activities include conducting interviews with DAC community leaders to identify strategies to work together during GSP planning and implementation; conducting workshops with partners on water and groundwater sustainability; identifying concerns from DACs and underrepresented communities; planning listening sessions around GSA milestones; developing a resource hub with partner organizations; identifying community allies to partner with in reducing barriers to participation from DACs; and planning to convene a working group on domestic water that includes DACs and underrepresented communities. However, there is no specific pathway for feedback from DAC residents and representatives to be considered and included in the GSP and its implementation.

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[1] "'Water use sector' refers to categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation." [23 CCR §351(al)]

[2] "The water budget shall quantify the following, either through direct measurements or estimates based on data: (3) Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow." [23 CCR §354.18]

[3] "A communication section of the Plan shall include a requirement that the GSP identify how it encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin." [23 CCR §354.10(d)(3)]

We note additional deficiencies with the overall stakeholder engagement process. While environmental organizations have a representative serving on the board of directors and are listed as stakeholders and as members of the GSP Advisory Committee, there is no specific outreach described that is directly targeted to environmental stakeholders during the GSP development and implementation processes.

RECOMMENDATIONS
• In the Communication and Public Engagement Plan, describe active and targeted outreach to engage environmental stakeholders during the remainder of the GSP development process and throughout the GSP implementation phase. Refer to Attachment B for specific recommendations on how to actively engage stakeholders during all phases of the GSP process. • DAC and environmental stakeholder engagement should be improved by incorporating feedback and recommendations from DAC and environmental stakeholders engaged in the GSP process.

C. Considering Beneficial Uses and Users When Establishing Sustainable Management Criteria and Analyzing Impacts on Beneficial Uses and Users

The consideration of beneficial uses and users when establishing sustainable management criteria (SMC) is **insufficient**. The consideration of potential impacts on all beneficial users of groundwater in the basin are required when defining undesirable results[4] and establishing minimum thresholds.[5,6]

Disadvantaged Communities and Drinking Water Users

For chronic lowering of groundwater levels, the GSP discusses minimum thresholds impact on domestic wells (Section 8.6.2.2). Unlike other GSPs for Salinas Valley subbasin, the GSP does not analyze the impact on domestic wells due to lack of data. The GSP states (p. 8-13): *"In the Upper Valley, only 4 of the 145 domestic wells from the OSWCR database had accurate locations. Without an accurate location, whether a well would be negatively impacted when groundwater elevations are at the minimum threshold cannot be determined."* The GSP states (p. 8-7): *"The minimum thresholds for chronic lowering of groundwater levels are set to 5 feet below the lowest groundwater elevation between 2012 and 2016 at each representative monitoring well."* The GSP does not describe or analyze the impact on DACs and domestic well owners to minimum thresholds that are set to levels even lower than drought-level groundwater elevations.

Section 8.6.4 defines undesirable results for the chronic lowering of groundwater level SMC. The GSP states (p. 8-19): *"The chronic lowering of groundwater levels undesirable result is: more than 15% of the groundwater elevation minimum thresholds are exceeded."* However, undesirable results should inform the development of minimum thresholds, not the other way around. The

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[4] "The description of undesirable results shall include [...] potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results." [23 CCR §354.26(b)(3)]

[5] "The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests." [23 CCR §354.28(b)(4)]

[6] "The description of minimum thresholds shall include [...] how state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the agency shall explain the nature of and the basis for the difference." [23 CCR §354.28(b)(5)]

GSP should establish minimum thresholds at the representative monitoring wells that account for the specific undesirable results the GSA has determined for the subbasin.

For degraded water quality, the GSP identifies constituents of concern (COCs) within the subbasin. The GSP states (p. 5-20): *"The SVBGSA does not have regulatory authority over groundwater quality and is not charged with improving groundwater quality in the Salinas Valley Groundwater Basin."* Table 8-4 provides a list of constituents and number of wells that must exceed regulatory standards in order to trigger minimum thresholds but fails to provide justification for how those numbers were selected. The GSP also sets measurable objectives identical to minimum thresholds; the exceedance of minimum thresholds is supposed to trigger additional actions but since minimum thresholds in this plan are identified as measurable objectives, it is unclear what action is triggered. Furthermore, the regulatory standards are not explicitly provided in the GSP.

RECOMMENDATIONS

Chronic Lowering of Groundwater Levels

- Describe direct and indirect impacts on DACs and drinking water users when defining undesirable results for chronic lowering of groundwater levels. For the analysis of minimum threshold impact on domestic wells, use best available information such as Public Land Survey System (PLSS) section location data.

- Establish minimum thresholds at the representative monitoring wells that account for the specific undesirable results the GSA would like to avoid.

Degraded Water Quality

- Describe direct and indirect impacts on DACs and drinking water users when defining undesirable results for degraded water quality. For specific guidance on how to consider these users, refer to "Guide to Protecting Water Quality Under the Sustainable Groundwater Management Act."[7]

- Set measurable objectives at lower levels than minimum thresholds (i.e., indicative of better water quality).

- Set concentration-based minimum thresholds and measurable objectives for COCs in the subbasin that are impacted by groundwater use and/or management. Ensure they align with drinking water standards[8].

- Evaluate the cumulative or indirect impacts of proposed minimum thresholds for degraded water quality on DACs and drinking water users.

[7] Guide to Protecting Water Quality under the Sustainable Groundwater Management Act https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.

[8] "Degraded Water Quality [...] collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues." [23 CCR §354.34(c)(4)]

Groundwater Dependent Ecosystems and Interconnected Surface Waters

Sustainable management criteria for chronic lowering of groundwater levels provided in the GSP do not consider potential impacts to environmental beneficial users. The GSP neither describes nor analyzes direct or indirect impacts on environmental users of groundwater when defining undesirable results. This is problematic because without identifying potential impacts to GDEs, minimum thresholds may compromise, or even destroy, these environmental beneficial users. Since GDEs are present in the subbasin, they must be considered when developing SMC.

Sustainable management criteria for depletion of interconnected surface water are established by proxy using shallow groundwater elevations observed in 2016 near locations of interconnected surface water. To describe impacts to ecological surface water users, the GSP states (p. 8-42): *"Review of MCWRA's Nacimiento Dam Operation Policy and MCWRA's water rights indicates MCWRA operates the Dam in a manner that meets downstream demands and considers ecological surface water users. Since the reservoir operations consider ecological surface water users and reflect reasonable existing surface water depletion rates, this GSP infers that stream depletion from existing groundwater pumping is not unreasonable."* The GSP makes no attempt to evaluate the impacts of the proposed minimum threshold on environmental beneficial users of surface water. The GSP does not explain how the chosen minimum thresholds and measurable objectives avoid significant and unreasonable effects on surface water beneficial users in the subbasin, such as increased mortality and inability to perform key life processes (e.g., reproduction, migration).

RECOMMENDATIONS

- When defining undesirable results for chronic lowering of groundwater levels, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to GDEs. Undesirable results to environmental users occur when 'significant and unreasonable' effects on beneficial users are caused by one of the sustainability indicators (i.e., chronic lowering of groundwater levels, degraded water quality, or depletion of interconnected surface water). Thus, potential impacts on environmental beneficial uses and users need to be considered when defining undesirable results[9] in the subbasin. Defining undesirable results is the crucial first step before the minimum thresholds[10] can be determined.

- When defining undesirable results for depletion of interconnected surface water, include a description of potential impacts on instream habitats within ISWs when minimum thresholds in the subbasin are reached[11]. The GSP should confirm that minimum thresholds for ISWs avoid adverse impacts to environmental beneficial users of interconnected surface waters as these environmental users could be left

[9] "The description of undesirable results shall include [...] potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results". [23 CCR §354.26(b)(3)]

[10] The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests." [23 CCR §354.28(b)(4)]

[11] "The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." [23 CCR §354.28(c)(6)]

unprotected by the GSP. These recommendations apply especially to environmental beneficial users that are already protected under pre-existing state or federal law[6,12].

2. Climate Change

The SGMA statute identifies climate change as a significant threat to groundwater resources and one that must be examined and incorporated in the GSPs. The GSP Regulations[13] require integration of climate change into the projected water budget to ensure that projects and management actions sufficiently account for the range of potential climate futures.

The integration of climate change into the projected water budget is **insufficient**. The GSP does incorporate climate change into the projected water budget using DWR change factors for 2030 and 2070. However, the GSP does not consider multiple climate scenarios (e.g., the 2070 extremely wet and extremely dry climate scenarios) in the projected water budget. The GSP should clearly and transparently incorporate the extremely wet and dry scenarios provided by DWR into projected water budgets or select more appropriate extreme scenarios for their basins. While these extreme scenarios may have a lower likelihood of occurring, their consequences could be significant, therefore they should be included in groundwater planning.

We acknowledge and commend the inclusion of climate change into key inputs (e.g., precipitation, evapotranspiration, surface water flow, and sea level) of the projected water budget. However, the GSP does not calculate a sustainable yield based on the projected water budget with climate change incorporated. If the water budgets are incomplete, including the omission of extremely wet and dry scenarios, and sustainable yield is not calculated based on climate change projections, then there is increased uncertainty in virtually every subsequent calculation used to plan for projects, derive measurable objectives, and set minimum thresholds. Plans that do not adequately include climate change projections may underestimate future impacts on vulnerable beneficial users of groundwater such as ecosystems, DACs, and domestic well owners.

RECOMMENDATIONS

- Integrate climate change, including extremely wet and dry scenarios, into all elements of the projected water budget to form the basis for development of sustainable management criteria and projects and management actions.
- Calculate sustainable yield based on the projected water budget with climate change incorporated.
- Incorporate climate change scenarios into projects and management actions.

[12] Rohde MM, Seapy B, Rogers R, Castañeda X, editors. 2019. Critical Species LookBook: A compendium of California's threatened and endangered species for sustainable groundwater management. The Nature Conservancy, San Francisco, California. Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/Critical_Species_LookBook_91819.pdf
[13] "Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow." [23 CCR §354.18(e)]

3. Data Gaps

The consideration of beneficial users when establishing monitoring networks is **insufficient**, due to lack of specific plans to increase the Representative Monitoring Sites (RMSs) in the monitoring network that represent shallow groundwater elevations and water quality conditions around DACs and domestic wells in the subbasin.

Figure 7-2 (Upper Valley Aquifer Representative Monitoring Network for Groundwater Levels) and Figure 7-4 (Locations of DDW Public Water System Supply Wells in the Groundwater Quality Monitoring Network) show that no monitoring wells are located across portions of the subbasin near DACs and domestic wells. Beneficial users of groundwater may remain unprotected by the GSP without adequate monitoring and identification of data gaps in the shallow aquifer. The Plan therefore fails to meet SGMA's requirements for the monitoring network[14].

The GSP provides discussion of data gaps for GDEs and ISWs in Section 7.6.2 (Interconnected Surface Water Data Gaps) and Section 10.1.2 (Improving Monitoring Networks) of the GSP. The GSP could be improved by describing biological monitoring that could be used to assess the potential for significant and unreasonable impacts to GDEs or ISWs due to groundwater conditions in the subbasin.

RECOMMENDATIONS

- Provide maps that overlay monitoring well locations with the locations of DACs and domestic wells to clearly identify potentially impacted areas. Increase the number of representative monitoring sites (RMSs) in the shallow aquifer across the subbasin for the groundwater elevation and groundwater quality condition indicators. Prioritize proximity to DACs and drinking water users when identifying new RMSs.

- Describe biological monitoring that can be used to assess the potential for significant and unreasonable impacts to GDEs or ISWs due to groundwater conditions in the subbasin.

- Ensure groundwater elevation and water quality RMSs are tracking groundwater conditions spatially and at the correct depth for *all* beneficial users - especially DACs, domestic wells, GDEs, and ISWs. Groundwater elevation and quality RMS data gaps (spatial and depth) in relation to key beneficial users in the subbasin are provided in Attachment E.

4. Addressing Beneficial Users in Projects and Management Actions

The consideration of beneficial users when developing projects and management actions is **insufficient**, due to the failure to completely identify benefits or impacts of identified projects and management actions to key beneficial users of groundwater such as GDEs, aquatic habitats, surface water users, DACs, and drinking water users. Therefore, potential project and management actions may not protect these

[14] "The monitoring network objectives shall be implemented to accomplish the following: [...] (2) Monitor impacts to the beneficial uses or users of groundwater." [23 CCR §354.34(b)(2)]

beneficial users. Groundwater sustainability under SGMA is defined not just by sustainable yield, but by the avoidance of undesirable results for *all* beneficial users.

In Section 9.6.3 (Implementation Action C3: Dry Well Notification System), the GSP states (p. 9-42): *"The GSA could develop or support the development of a program to assist well owners (domestic or state small and local small water systems) whose wells go dry due to declining groundwater elevations."* The GSP states that the program could involve a notification system, monitoring triggered by lowered groundwater elevations, public outreach, *"...referral to assistance with short-term supply solutions, technical assistance to assess why it went dry, and/or long-term supply solutions."* No further specifics on a drinking water well impact mitigation program are provided, however.

RECOMMENDATIONS

- For DACs and domestic well owners, provide specific plans for implementation of a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation. Refer to Attachment B for specific recommendations on how to implement a drinking water well mitigation program.

- For DACs and domestic well owners, include a discussion of whether potential impacts to water quality from projects and management actions could occur and how the GSA plans to mitigate such impacts.

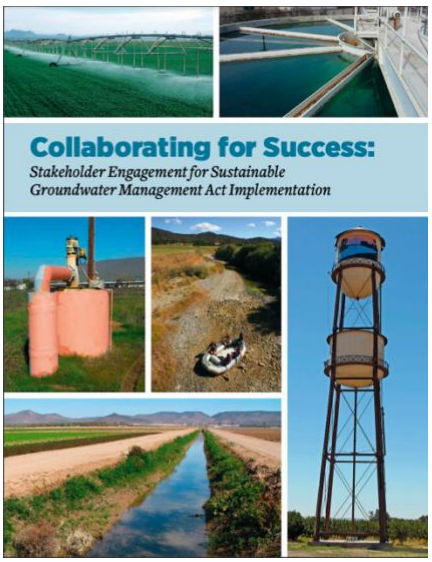
- Recharge ponds, reservoirs, and facilities for managed stormwater recharge can be designed as multiple-benefit projects to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. For guidance on how to integrate multi-benefit recharge projects into your GSP, refer to the "Multi-Benefit Recharge Project Methodology Guidance Document"[15].

- Develop management actions that incorporate climate and water delivery uncertainties to address future water demand and prevent future undesirable results.

[15] The Nature Conservancy. 2021. Multi-Benefit Recharge Project Methodology for Inclusion in Groundwater Sustainability Plans. Sacramento. Available at: https://groundwaterresourcehub.org/sgma-tools/multi-benefit-recharge-project-methodology-guidance/

Attachment B
SGMA Tools to address DAC, drinking water, and environmental beneficial uses and users

Stakeholder Engagement and Outreach



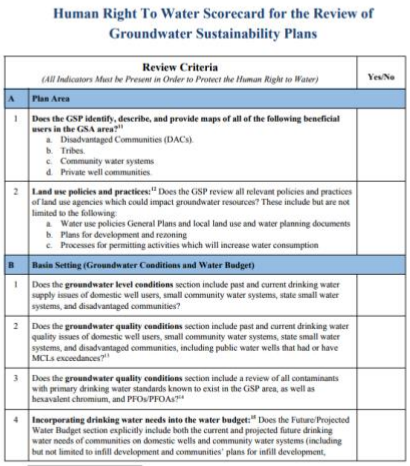
Clean Water Action, Community Water Center and Union of Concerned Scientists developed a guidance document called Collaborating for success: Stakeholder engagement for Sustainable Groundwater Management Act Implementation. It provides details on how to conduct targeted and broad outreach and engagement during Groundwater Sustainability Plan (GSP) development and implementation. Conducting a targeted outreach involves:

- Developing a robust Stakeholder Communication and Engagement plan that includes outreach at frequented locations (schools, farmers markets, religious settings, events) across the plan area to increase the involvement and participation of disadvantaged communities, drinking water users and the environmental stakeholders.

- Providing translation services during meetings and technical assistance to enable easy participation for non-English speaking stakeholders.

- GSP should adequately describe the process for requesting input from beneficial users and provide details on how input is incorporated into the GSP.

The Human Right to Water

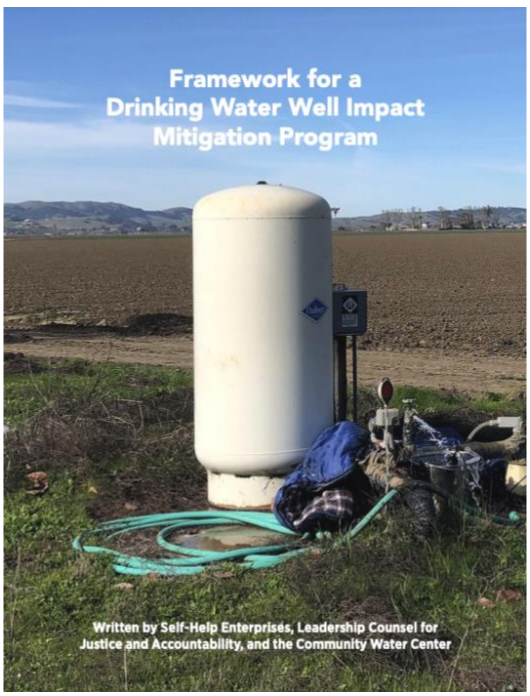


Human Right To Water Scorecard for the Review of Groundwater Sustainability Plans

	Review Criteria *(All Indicators Must be Present in Order to Protect the Human Right to Water)*	Yes/No
A	**Plan Area**	
1	**Does the GSP identify, describe, and provide maps of all of the following beneficial users in the GSA area?**[11] a. Disadvantaged Communities (DACs). b. Tribes. c. Community water systems d. Private well communities.	
2	**Land use policies and practices:**[12] Does the GSP review all relevant policies and practices of land use agencies which could impact groundwater resources? These include but are not limited to the following: a. Water use policies General Plans and local land use and water planning documents b. Plans for development and rezoning c. Processes for permitting activities which will increase water consumption	
B	**Basin Setting (Groundwater Conditions and Water Budget)**	
1	Does the **groundwater level conditions** section include past and current drinking water supply issues of domestic well users, small community water systems, state small water systems, and disadvantaged communities?	
2	Does the **groundwater quality conditions** section include past and current drinking water quality issues of domestic well users, small community water systems, state small water systems, and disadvantaged communities, including public water wells that had or have MCLs exceedances?[13]	
3	Does the **groundwater quality conditions** section include a review of all contaminants with primary drinking water standards known to exist in the GSP area, as well as hexavalent chromium, and PFOs/PFOAs?[14]	
4	**Incorporating drinking water needs into the water budget:**[15] Does the Future/Projected Water Budget section explicitly include both the current and projected future drinking water needs of communities on domestic wells and community water systems (including but not limited to infill development and communities' plans for infill development,	

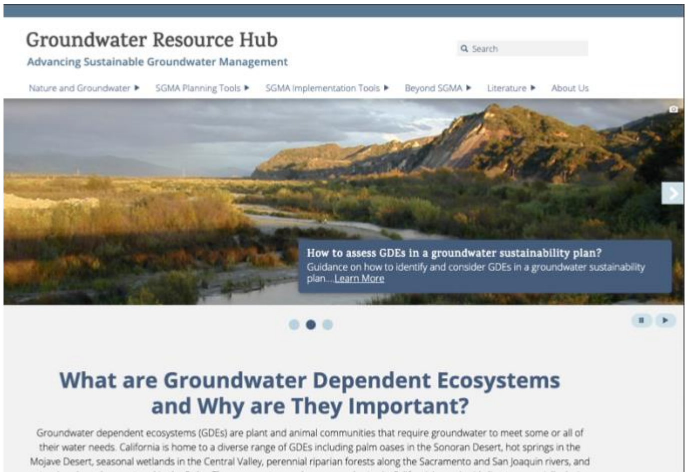
The Human Right to Water Scorecard was developed by Community Water Center, Leadership Counsel for Justice and Accountability and Self Help Enterprises to aid Groundwater Sustainability Agencies (GSAs) in prioritizing drinking water needs in SGMA. The scorecard identifies elements that must exist in GSPs to adequately protect the Human Right to Drinking water.

Drinking Water Well Impact Mitigation Framework



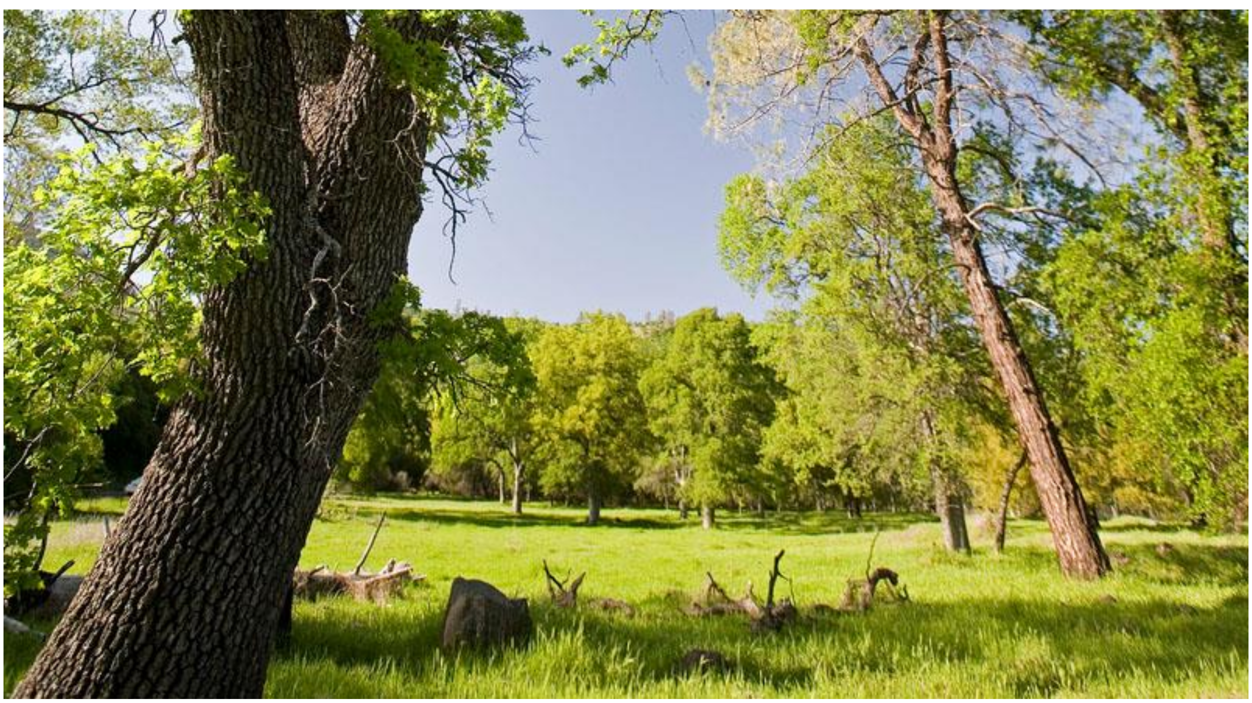
The Drinking Water Well Impact Mitigation Framework was developed by Community Water Center, Leadership Counsel for Justice and Accountability and Self Help Enterprises to aid GSAs in the development and implementation of their GSPs. The framework provides a clear roadmap for how a GSA can best structure its data gathering, monitoring network and management actions to proactively monitor and protect drinking water wells and mitigate impacts should they occur.

Groundwater Resource Hub



The Nature Conservancy has developed a suite of tools based on best available science to help GSAs, consultants, and stakeholders efficiently incorporate nature into GSPs. These tools and resources are available online at GroundwaterResourceHub.org. The Nature Conservancy's tools and resources are intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

Rooting Depth Database



The Plant Rooting Depth Database provides information that can help assess whether groundwater-dependent vegetation are accessing groundwater. Actual rooting depths will depend on the plant species and site-specific conditions, such as soil type and availability of other water sources. Site-specific knowledge of depth to groundwater combined with rooting depths will help provide an understanding of the potential groundwater levels are needed to sustain GDEs.

How to use the database

The maximum rooting depth information in the Plant Rooting Depth Database is useful when verifying whether vegetation in the Natural Communities Commonly Associated with Groundwater (NC Dataset) are connected to groundwater. A 30 ft depth-to-groundwater threshold, which is based on averaged global rooting depth data for phreatophytes[1], is relevant for most plants identified in the NC Dataset since most plants have a max rooting depth of less than 30 feet. However, it is important to note that deeper thresholds are necessary for other plants that have reported maximum root depths that exceed the averaged 30 feet threshold, such as valley oak (*Quercus lobata*), Euphrates poplar (*Populus euphratica*), salt cedar (*Tamarix spp.*), and shadescale (*Atriplex confertifolia*). The Nature Conservancy advises that the reported max rooting depth for these deeper-rooted plants be used. For example, a depth-to groundwater threshold of 80 feet should be used instead of the 30 ft threshold, when verifying whether valley oak polygons from the NC Dataset are connected to groundwater. It is important to re-emphasize that actual rooting depth data are limited and will depend on the plant species and site-specific conditions such as soil and aquifer types, and availability to other water sources.

The Plant Rooting Depth Database is an Excel workbook composed of four worksheets:

1. California phreatophyte rooting depth data (included in the NC Dataset)
2. Global phreatophyte rooting depth data
3. Metadata
4. References

How the database was compiled

The Plant Rooting Depth Database is a compilation of rooting depth information for the groundwater-dependent plant species identified in the NC Dataset. Rooting depth data were compiled from published scientific literature and expert opinion through a crowdsourcing campaign. As more information becomes available, the database of rooting depths will be updated. Please Contact Us if you have additional rooting depth data for California phreatophytes.

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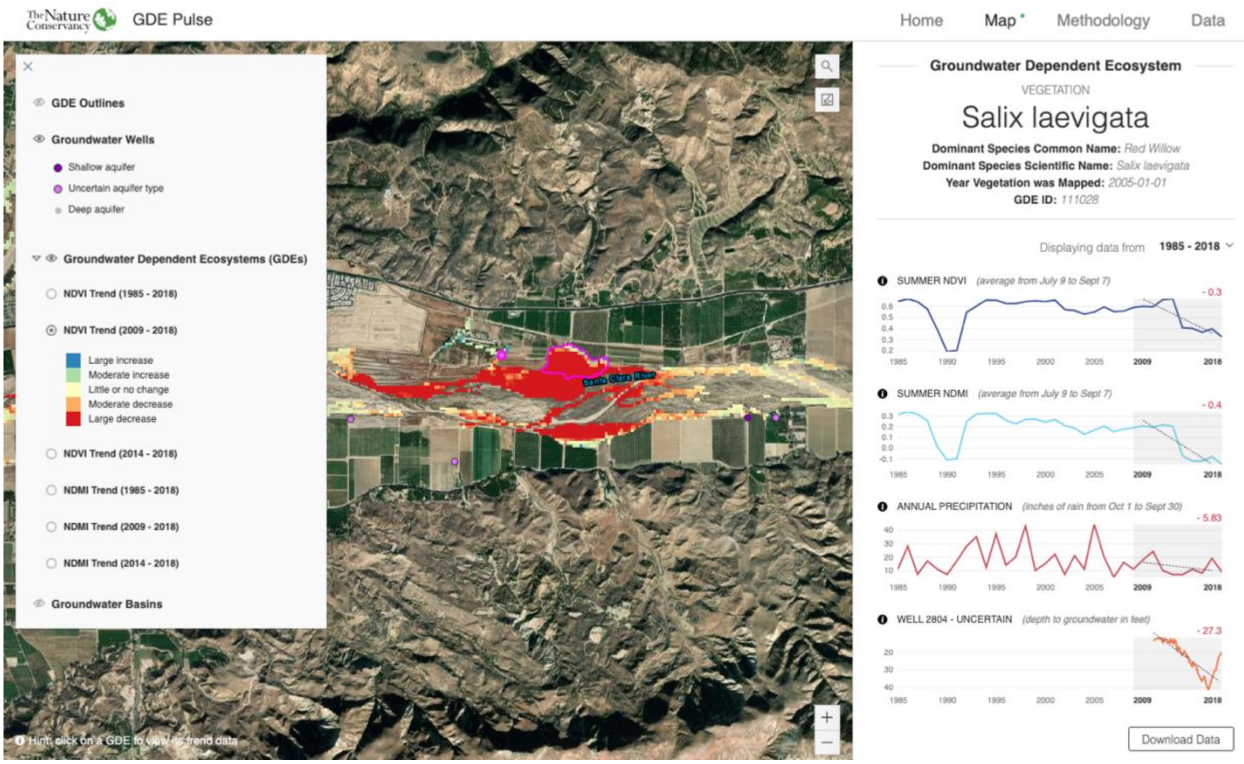
[1] Canadell, J., Jackson, R.B., Ehleringer, J.B. et al. 1996. Maximum rooting depth of vegetation types at the global scale. Oecologia 108, 583–595. https://doi.org/10.1007/BF00329030

GDE Pulse



[GDE Pulse](#) is a free online tool that allows Groundwater Sustainability Agencies to assess changes in groundwater dependent ecosystem (GDE) health using satellite, rainfall, and groundwater data. Remote sensing data from satellites has been used to monitor the health of vegetation all over the planet. GDE pulse has compiled 35 years of satellite imagery from NASA's Landsat mission for every polygon in the Natural Communities Commonly Associated with Groundwater Dataset. The following datasets are available for downloading:

Normalized Difference Vegetation Index (NDVI) is a satellite-derived index that represents the greenness of vegetation. Healthy green vegetation tends to have a higher NDVI, while dead leaves have a lower NDVI. We calculated the average NDVI during the driest part of the year (July - Sept) to estimate vegetation health when the plants are most likely dependent on groundwater.

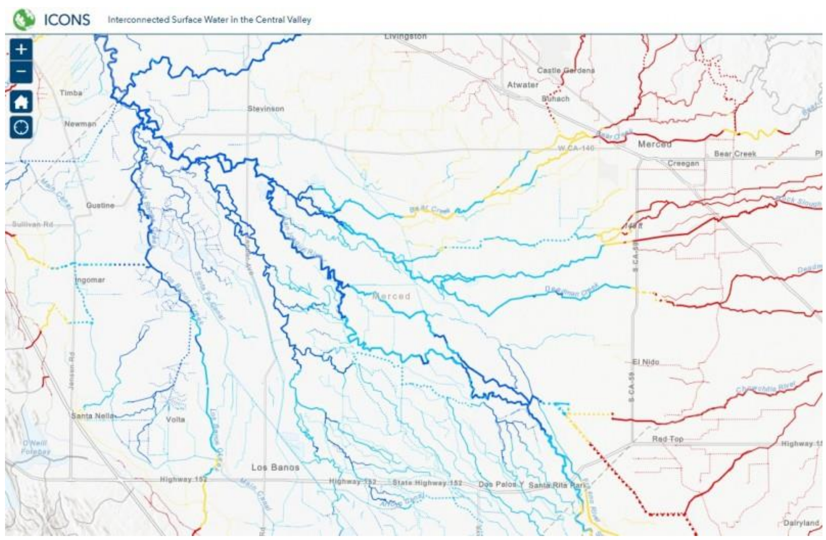
Normalized Difference Moisture Index (NDMI) is a satellite-derived index that represents water content in vegetation. NDMI is derived from the Near-Infrared (NIR) and Short-Wave Infrared (SWIR) channels. Vegetation with adequate access to water tends to have higher NDMI, while vegetation that is water stressed tends to have lower NDMI. We calculated the average NDVI during the driest part of the year (July–September) to estimate vegetation health when the plants are most likely dependent on groundwater.

Annual Precipitation is the total precipitation for the water year (October 1st – September 30th) from the PRISM dataset. The amount of local precipitation can affect vegetation with more precipitation generally leading to higher NDVI and NDMI.

Depth to Groundwater measurements provide an indication of the groundwater levels and changes over time for the surrounding area. We used groundwater well measurements from nearby (<1km) wells to estimate the depth to groundwater below the GDE based on the average elevation of the GDE (using a digital elevation model) minus the measured groundwater surface elevation.

ICONOS Mapper

Interconnected Surface Water in the Central Valley



[ICONS](#) maps the likely presence of interconnected surface water (ISW) in the Central Valley using depth to groundwater data. Using data from 2011-2018, the ISW dataset represents the likely connection between surface water and groundwater for rivers and streams in California's Central Valley. It includes information on the mean, maximum, and minimum depth to groundwater for each stream segment over the years with available data, as well as the likely presence of ISW based on the minimum depth to groundwater. The Nature Conservancy developed this database, with guidance and input from expert academics, consultants, and state agencies.

We developed this dataset using groundwater elevation data available online from the California Department of Water Resources (DWR). DWR only provides this data for the Central Valley. For GSAs outside of the valley, who have groundwater well measurements, we recommend following our methods to determine likely ISW in your region. The Nature Conservancy's ISW dataset should be used as a first step in reviewing ISW and should be supplemented with local or more recent groundwater depth data.

Attachment C

Freshwater Species Located in the Upper Valley Aquifer Basin

To assist in identifying the beneficial users of surface water necessary to assess the undesirable result "depletion of interconnected surface waters", Attachment C provides a list of freshwater species located in the Upper Valley Aquifer Basin. To produce the freshwater species list, we used ArcGIS to select features within the California Freshwater Species Database version 2.0.9 within the basin boundary. This database contains information on ~4,000 vertebrates, macroinvertebrates and vascular plants that depend on fresh water for at least one stage of their life cycle. The methods used to compile the California Freshwater Species Database can be found in Howard et al. 2015[1]. The spatial database contains locality observations and/or distribution information from ~400 data sources. The database is housed in the California Department of Fish and Wildlife's BIOS[2] as well as on The Nature Conservancy's science website[3].

Scientific Name	Common Name	Legal Protected Status		
		Federal	State	Other
BIRDS				
Agelaius tricolor	Tricolored Blackbird	Bird of Conservation Concern	Special Concern	BSSC - First priority
Anas acuta	Northern Pintail			
Anas americana	American Wigeon			
Anas crecca	Green-winged Teal			
Anas cyanoptera	Cinnamon Teal			
Anas platyrhynchos	Mallard			
Anas strepera	Gadwall			
Ardea herodias	Great Blue Heron			
Aythya affinis	Lesser Scaup			
Aythya collaris	Ring-necked Duck			
Aythya valisineria	Canvasback		Special	
Bucephala albeola	Bufflehead			
Calidris alpina	Dunlin			
Chen caerulescens	Snow Goose			
Chen rossii	Ross's Goose			
Cistothorus palustris palustris	Marsh Wren			
Gallinago delicata	Wilson's Snipe			
Haliaeetus leucocephalus	Bald Eagle	Bird of Conservation Concern	Endangered	

[1] Howard, J.K. et al. 2015. Patterns of Freshwater Species Richness, Endemism, and Vulnerability in California. PLoSONE, 11(7). Available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0130710

[2] California Department of Fish and Wildlife BIOS: https://www.wildlife.ca.gov/data/BIOS

[3] Science for Conservation: https://www.scienceforconservation.org/products/california-freshwater-species-database

Icteria virens	Yellow-breasted Chat		Special Concern	BSSC - Third priority
Limnodromus scolopaceus	Long-billed Dowitcher			
Lophodytes cucullatus	Hooded Merganser			
Megaceryle alcyon	Belted Kingfisher			
Mergus merganser	Common Merganser			
Oxyura jamaicensis	Ruddy Duck			
Phalacrocorax auritus	Double-crested Cormorant			
Piranga rubra	Summer Tanager		Special Concern	BSSC - First priority
Rallus limicola	Virginia Rail			
Riparia riparia	Bank Swallow		Threatened	
Setophaga petechia	Yellow Warbler			BSSC - Second priority
Tachycineta bicolor	Tree Swallow			
Vireo bellii pusillus	Least Bell's Vireo	Endangered	Endangered	
CRUSTACEANS				
Branchinecta lynchi	Vernal Pool Fairy Shrimp	Threatened	Special	IUCN - Vulnerable
Cyprididae fam.	Cyprididae fam.			
Hyalella spp.	Hyalella spp.			
FISH				
Oncorhynchus mykiss - SCCC	South Central California coast steelhead	Threatened	Special Concern	Vulnerable - Moyle 2013
HERPS				
Actinemys marmorata marmorata	Western Pond Turtle		Special Concern	ARSSC
Ambystoma californiense californiense	California Tiger Salamander	Threatened	Threatened	ARSSC
Anaxyrus boreas boreas	Boreal Toad			
Rana boylii	Foothill Yellow-legged Frog	Under Review in the Candidate or Petition Process	Special Concern	ARSSC
Rana draytonii	California Red-legged Frog	Threatened	Special Concern	ARSSC
Spea hammondii	Western Spadefoot	Under Review in the Candidate or Petition Process	Special Concern	ARSSC
Taricha torosa	Coast Range Newt		Special Concern	ARSSC

Thamnophis hammondii hammondii	Two-striped Gartersnake		Special Concern	ARSSC
Thamnophis sirtalis sirtalis	Common Gartersnake			
Pseudacris regilla	Northern Pacific Chorus Frog			
INSECTS & OTHER INVERTS				
Acentrella insignificans	A Mayfly			
Acentrella spp.	Acentrella spp.			
Agabus spp.	Agabus spp.			
Ambrysus mormon				Not on any status lists
Baetidae fam.	Baetidae fam.			
Baetis spp.	Baetis spp.			
Baetis tricaudatus	A Mayfly			
Berosus spp.	Berosus spp.			
Centroptilum spp.	Centroptilum spp.			
Cheumatopsyche spp.	Cheumatopsyche spp.			
Chironomidae fam.	Chironomidae fam.			
Chironomus spp.	Chironomus spp.			
Corixidae fam.	Corixidae fam.			
Cricotopus spp.	Cricotopus spp.			
Enochrus spp.	Enochrus spp.			
Ephydridae fam.	Ephydridae fam.			
Fallceon quilleri	A Mayfly			
Fallceon spp.	Fallceon spp.			
Gyrinidae fam.	Gyrinidae fam.			
Helophorus spp.	Helophorus spp.			
Hetaerina americana	American Rubyspot			
Hydrophilidae fam.	Hydrophilidae fam.			
Hydroporus spp.	Hydroporus spp.			
Hydropsyche spp.	Hydropsyche spp.			
Hydroptila spp.	Hydroptila spp.			
Hydryphantidae fam.	Hydryphantidae fam.			
Laccophilus maculosus				Not on any status lists
Laccophilus pictus				Not on any status lists
Leptoceridae fam.	Leptoceridae fam.			
Nectopsyche spp.	Nectopsyche spp.			
Optioservus spp.	Optioservus spp.			
Paracloeodes minutus	A Small Minnow Mayfly			
Paratanytarsus spp.	Paratanytarsus spp.			
Phaenopsectra spp.	Phaenopsectra spp.			
Rheotanytarsus spp.	Rheotanytarsus spp.			

Sigara spp.	Sigara spp.			
Simuliidae fam.	Simuliidae fam.			
Simulium spp.	Simulium spp.			
Sperchontidae fam.	Sperchontidae fam.			
Tanytarsus spp.	Tanytarsus spp.			
Tipulidae fam.	Tipulidae fam.			
Tricorythodes spp.	Tricorythodes spp.			
Tropisternus spp.	Tropisternus spp.			
MAMMALS				
Castor canadensis	American Beaver			Not on any status lists
MOLLUSKS				
Ferrissia spp.	Ferrissia spp.			
PLANTS				
Veronica anagallis-aquatica	NA			

Attachment D

July 2019

IDENTIFYING GDEs UNDER SGMA

Best Practices for using the NC Dataset

The Sustainable Groundwater Management Act (SGMA) requires that groundwater dependent ecosystems (GDEs) be identified in Groundwater Sustainability Plans (GSPs). As a starting point, the Department of Water Resources (DWR) is providing the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) online[1] to help Groundwater Sustainability Agencies (GSAs), consultants, and stakeholders identify GDEs within individual groundwater basins. To apply information from the NC Dataset to local areas, GSAs should combine it with the best available science on local hydrology, geology, and groundwater levels to verify whether polygons in the NC dataset are likely supported by groundwater in an aquifer (Figure 1)[2]. This document highlights six best practices for using local groundwater data to confirm whether mapped features in the NC dataset are supported by groundwater.

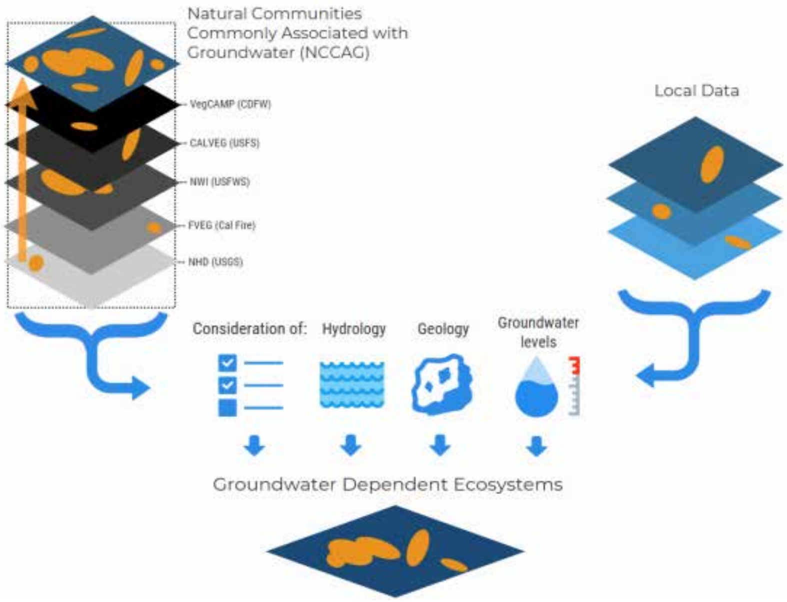


Figure 1. Considerations for GDE identification.
Source: DWR[2]

[1] NC Dataset Online Viewer: https://gis.water.ca.gov/app/NCDatasetViewer/
[2] California Department of Water Resources (DWR). 2018. Summary of the "Natural Communities Commonly Associated with Groundwater" Dataset and Online Web Viewer. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Statewide-Reports/Natural-Communities-Dataset-Summary-Document.pdf

The NC Dataset identifies vegetation and wetland features that are good indicators of a GDE. The dataset is comprised of 48 publicly available state and federal datasets that map vegetation, wetlands, springs, and seeps commonly associated with groundwater in California[3]. It was developed through a collaboration between DWR, the Department of Fish and Wildlife, and The Nature Conservancy (TNC). TNC has also provided detailed guidance on identifying GDEs from the NC dataset[4] on the Groundwater Resource Hub[5], a website dedicated to GDEs.

BEST PRACTICE #1. Establishing a Connection to Groundwater

Groundwater basins can be comprised of one continuous aquifer (Figure 2a) or multiple aquifers stacked on top of each other (Figure 2b). In unconfined aquifers (Figure 2a), using the depth-to-groundwater and the rooting depth of the vegetation is a reasonable method to infer groundwater dependence for GDEs. If groundwater is well below the rooting (and capillary) zone of the plants and any wetland features, the ecosystem is considered disconnected and groundwater management is not likely to affect the ecosystem (Figure 2d). However, it is important to consider local conditions (e.g., soil type, groundwater flow gradients, and aquifer parameters) and to review groundwater depth data from multiple seasons and water year types (wet and dry) because intermittent periods of high groundwater levels can replenish perched clay lenses that serve as the water source for GDEs (Figure 2c). Maintaining these natural groundwater fluctuations are important to sustaining GDE health.

Basins with a stacked series of aquifers (Figure 2b) may have varying levels of pumping across aquifers in the basin, depending on the production capacity or water quality associated with each aquifer. If pumping is concentrated in deeper aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, such as perched aquifers, that support springs, surface water, domestic wells, and GDEs (Figure 2). This is because vertical groundwater gradients across aquifers may result in pumping from deeper aquifers to cause adverse impacts onto beneficial users reliant on shallow aquifers or interconnected surface water. The goal of SGMA is to sustainably manage groundwater resources for current and future social, economic, and environmental benefits. While groundwater pumping may not be currently occurring in a shallower aquifer, use of this water may become more appealing and economically viable in future years as pumping restrictions are placed on the deeper production aquifers in the basin to meet the sustainable yield and criteria. Thus, identifying GDEs in the basin should done irrespective to the amount of current pumping occurring in a particular aquifer, so that future impacts on GDEs due to new production can be avoided. A good rule of thumb to follow is: *if groundwater can be pumped from a well - it's an aquifer*.

[3] For more details on the mapping methods, refer to: Klausmeyer, K., J. Howard, T. Keeler-Wolf, K. Davis-Fadtke, R. Hull, A. Lyons. 2018. Mapping Indicators of Groundwater Dependent Ecosystems in California: Methods Report. San Francisco, California. Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/iGDE_data_paper_20180423.pdf
[4] "Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans" is available at: https://groundwaterresourcehub.org/gde-tools/gsp-guidance-document/
[5] The Groundwater Resource Hub: www.GroundwaterResourceHub.org

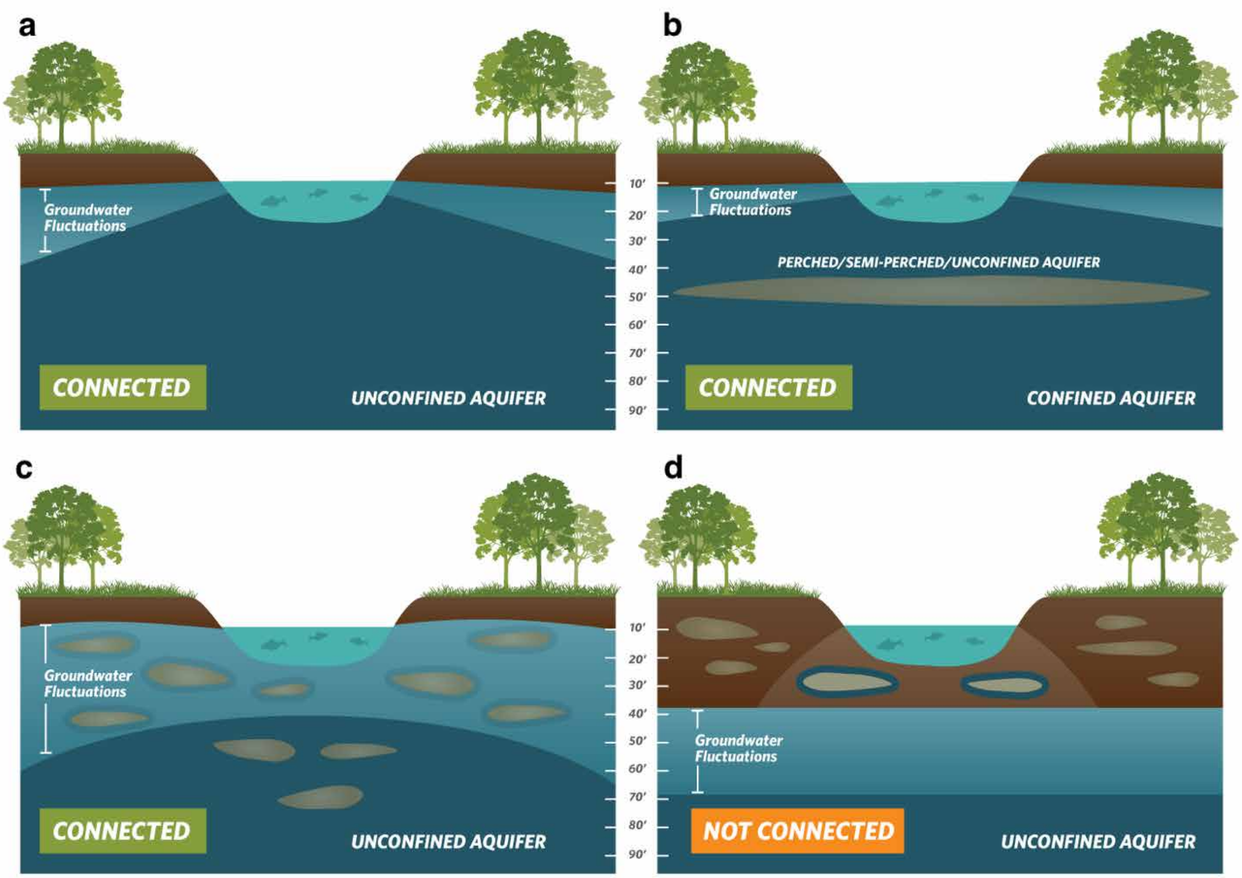


Figure 2. Confirming whether an ecosystem is connected to groundwater. Top: (a) Under the ecosystem is an unconfined aquifer with depth-to-groundwater fluctuating seasonally and interannually within 30 feet from land surface. **(b)** Depth-to-groundwater in the shallow aquifer is connected to overlying ecosystem. Pumping predominately occurs in the confined aquifer, but pumping is possible in the shallow aquifer. **Bottom: (c)** Depth-to-groundwater fluctuations are seasonally and interannually large, however, clay layers in the near surface prolong the ecosystem's connection to groundwater. **(d)** Groundwater is disconnected from surface water, and any water in the vadose (unsaturated) zone is due to direct recharge from precipitation and indirect recharge under the surface water feature. These areas are not connected to groundwater and typically support species that do not require access to groundwater to survive.

BEST PRACTICE #2. Characterize Seasonal and Interannual Groundwater Conditions

SGMA requires GSAs to describe current and historical groundwater conditions when identifying GDEs [23 CCR §354.16(g)]. Relying solely on the SGMA benchmark date (January 1, 2015) or any other single point in time to characterize groundwater conditions (e.g., depth-to-groundwater) is inadequate because managing groundwater conditions with data from one time point fails to capture the seasonal and interannual variability typical of California's climate. DWR's Best Management Practices document on water budgets[6] recommends using 10 years of water supply and water budget information to describe how historical conditions have impacted the operation of the basin within sustainable yield, implying that a baseline[7] could be determined based on data between 2005 and 2015. Using this or a similar time period, depending on data availability, is recommended for determining the depth-to-groundwater.

GDEs depend on groundwater levels being close enough to the land surface to interconnect with surface water systems or plant rooting networks. The most practical approach[8] for a GSA to assess whether polygons in the NC dataset are connected to groundwater is to rely on groundwater elevation data. As detailed in TNC's GDE guidance document[4], one of the key factors to consider when mapping GDEs is to contour depth-to-groundwater in the aquifer that is supporting the ecosystem (see Best Practice #5).

Groundwater levels fluctuate over time and space due to California's Mediterranean climate (dry summers and wet winters), climate change (flood and drought years), and subsurface heterogeneity in the subsurface (Figure 3). Many of California's GDEs have adapted to dealing with intermittent periods of water stress, however if these groundwater conditions are prolonged, adverse impacts to GDEs can result. While depth-to-groundwater levels within 30 feet[4] of the land surface are generally accepted as being a proxy for confirming that polygons in the NC dataset are supported by groundwater, it is highly advised that fluctuations in the groundwater regime be characterized to understand the seasonal and interannual groundwater variability in GDEs. Utilizing groundwater data from one point in time can misrepresent groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. Time series data on groundwater elevations and depths are available on the SGMA Data Viewer[9]. However, if insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons in the GSP <u>until</u> data gaps are reconciled in the monitoring network (see Best Practice #6).

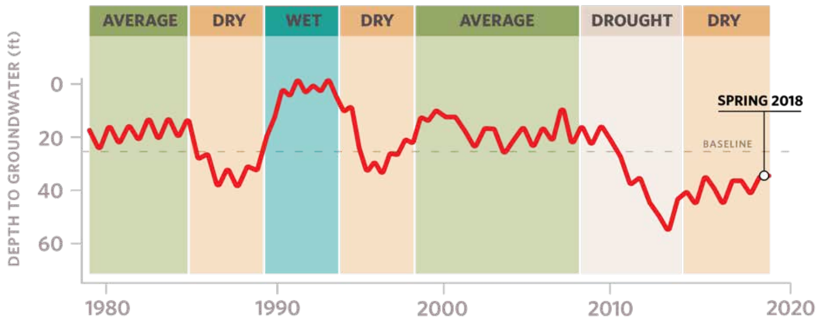


Figure 3. Example seasonality and interannual variability in depth-to-groundwater over time. Selecting one point in time, such as Spring 2018, to characterize groundwater conditions in GDEs fails to capture what groundwater conditions are necessary to maintain the ecosystem status into the future so adverse impacts are avoided.

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[6] DWR. 2016. Water Budget Best Management Practice. Available at: https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_Water_Budget_Final_2016-12-23.pdf

[7] Baseline is defined under the GSP regulations as "historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin." [23 CCR §351(e)]

[8] Groundwater reliance can also be confirmed via stable isotope analysis and geophysical surveys. For more information see The GDE Assessment Toolbox (Appendix IV, GDE Guidance Document for GSPs[4]).

[9] SGMA Data Viewer: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer

BEST PRACTICE #3. Ecosystems Often Rely on Both Groundwater and Surface Water

GDEs are plants and animals that rely on groundwater for all or some of its water needs, and thus can be supported by multiple water sources. The presence of non-groundwater sources (e.g., surface water, soil moisture in the vadose zone, applied water, treated wastewater effluent, urban stormwater, irrigated return flow) within and around a GDE does not preclude the possibility that it is supported by groundwater, too. SGMA defines GDEs as "ecological communities and species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" [23 CCR §351(m)]. Hence, depth-to-groundwater data should be used to identify whether NC polygons are supported by groundwater and should be considered GDEs. In addition, SGMA requires that significant and undesirable adverse impacts to beneficial users of surface water be avoided. Beneficial users of surface water include environmental users such as plants or animals[10], which therefore must be considered when developing minimum thresholds for depletions of interconnected surface water.

GSAs are only responsible for impacts to GDEs resulting from groundwater conditions in the basin, so if adverse impacts to GDEs result from the diversion of applied water, treated wastewater, or irrigation return flow away from the GDE, then those impacts will be evaluated by other permitting requirements (e.g., CEQA) and may not be the responsibility of the GSA. However, if adverse impacts occur to the GDE due to changing groundwater conditions resulting from pumping or groundwater management activities, then the GSA would be responsible (Figure 4).

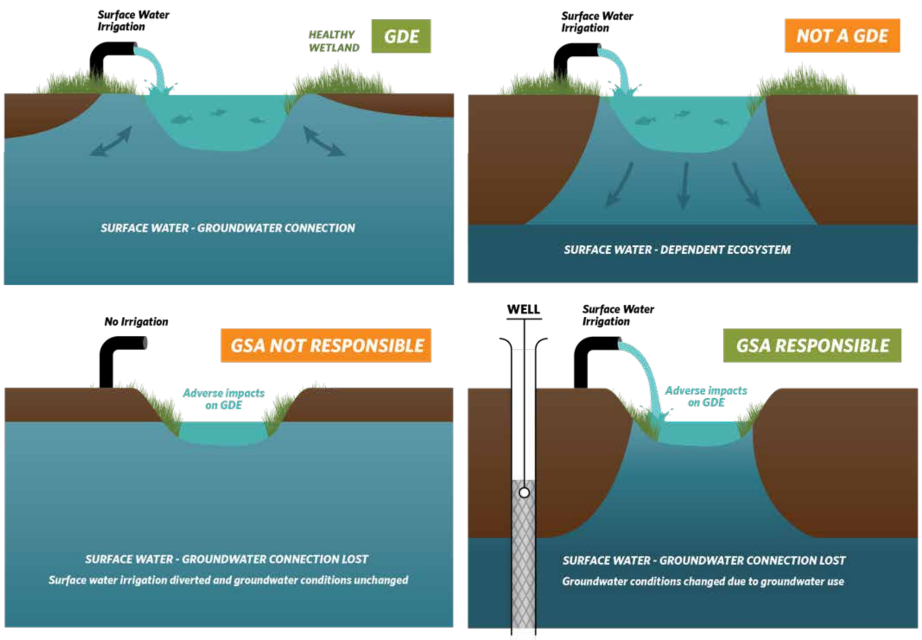


Figure 4. Ecosystems often depend on multiple sources of water. Top: (Left) Surface water and groundwater are interconnected, meaning that the GDE is supported by both groundwater and surface water. **(Right)** Ecosystems that are only reliant on non-groundwater sources are not groundwater-dependent. **Bottom: (Left)** An ecosystem that was once dependent on an interconnected surface water, but loses access to groundwater solely due to surface water diversions may not be the GSA's responsibility. **(Right)** Groundwater dependent ecosystems once dependent on an interconnected surface water system, but loses that access due to groundwater pumping is the GSA's responsibility.

[10] For a list of environmental beneficial users of surface water by basin, visit: https://groundwaterresourcehub.org/gde-tools/environmental-surface-water-beneficiaries/

BEST PRACTICE #4. Select Representative Groundwater Wells

Identifying GDEs in a basin requires that groundwater conditions are characterized to confirm whether polygons in the NC dataset are supported by the underlying aquifer. To do this, proximate groundwater wells should be identified to characterize groundwater conditions (Figure 5). When selecting representative wells, it is particularly important to consider the subsurface heterogeneity around NC polygons, especially near surface water features where groundwater and surface water interactions occur around heterogeneous stratigraphic units or aquitards formed by fluvial deposits. The following selection criteria can help ensure groundwater levels are representative of conditions within the GDE area:

- Choose wells that are within 5 kilometers (3.1 miles) of each NC Dataset polygons because they are more likely to reflect the local conditions relevant to the ecosystem. If there are no wells within 5km of the center of a NC dataset polygon, then there is insufficient information to remove the polygon based on groundwater depth. Instead, it should be retained as a potential GDE until there are sufficient data to determine whether or not the NC Dataset polygon is supported by groundwater.

- Choose wells that are screened within the surficial unconfined aquifer and capable of measuring the true water table.

- Avoid relying on wells that have insufficient information on the screened well depth interval for excluding GDEs because they could be providing data on the wrong aquifer. This type of well data should not be used to remove any NC polygons.

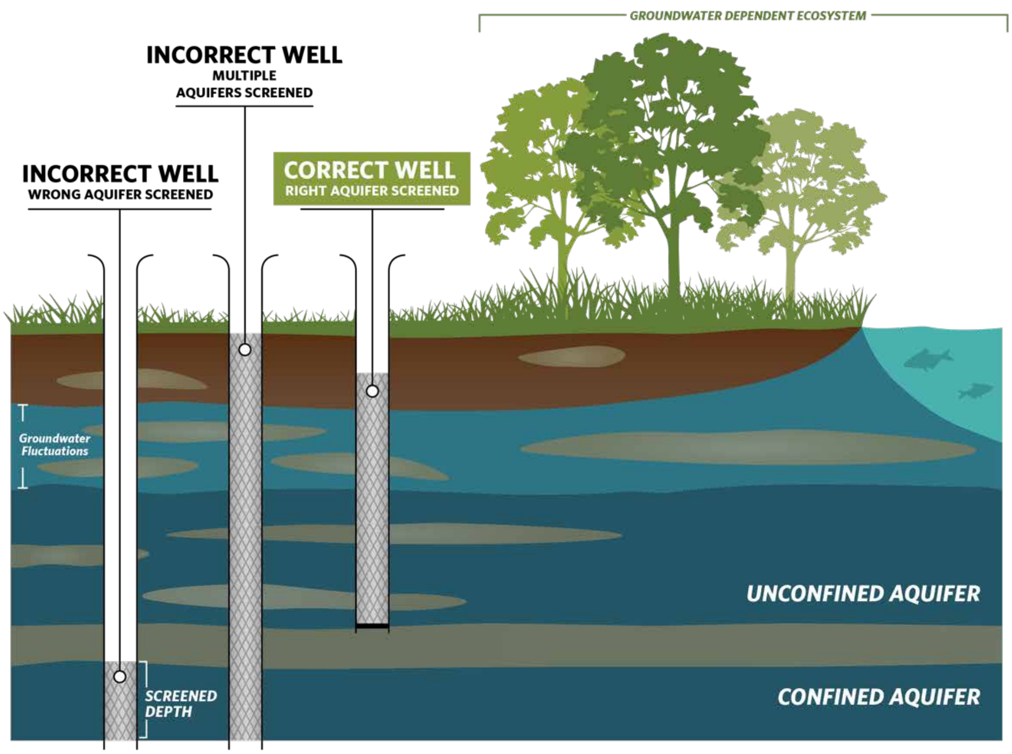


Figure 5. Selecting representative wells to characterize groundwater conditions near GDEs.

BEST PRACTICE #5. Contouring Groundwater Elevations

The common practice to contour depth-to-groundwater over a large area by interpolating measurements at monitoring wells is unsuitable for assessing whether an ecosystem is supported by groundwater. This practice causes errors when the land surface contains features like stream and wetland depressions because it assumes the land surface is constant across the landscape and depth-to-groundwater is constant below these low-lying areas (Figure 6a). A more accurate approach is to interpolate **groundwater elevations** at monitoring wells to get groundwater elevation contours across the landscape. This layer can then be subtracted from land surface elevations from a Digital Elevation Model (DEM)[11] to estimate depth-to-groundwater contours across the landscape (Figure b; Figure 7). This will provide a much more accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found.

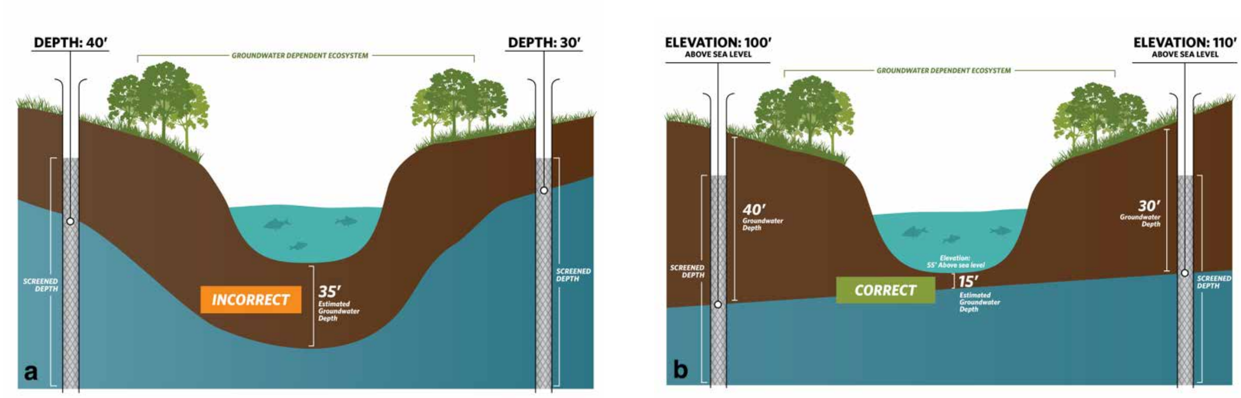


Figure 6. Contouring depth-to-groundwater around surface water features and GDEs. (a) Groundwater level interpolation using depth-to-groundwater data from monitoring wells. **(b)** Groundwater level interpolation using groundwater elevation data from monitoring wells and DEM data.

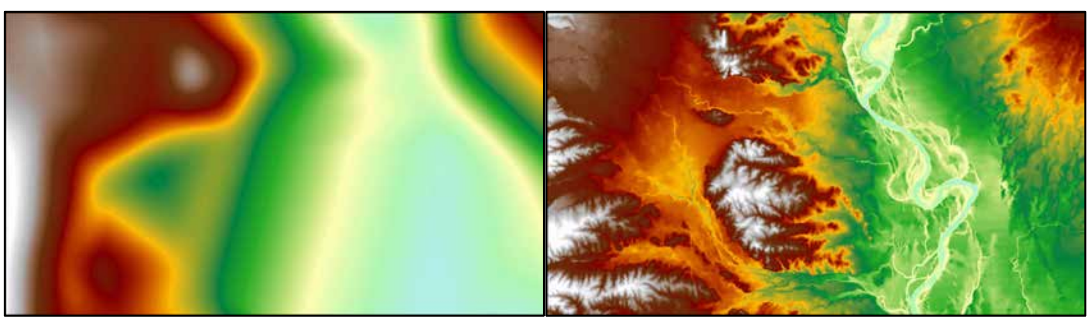


Figure 7. Depth-to-groundwater contours in Northern California. (Left) Contours were interpolated using depth-to-groundwater measurements determined at each well. **(Right)** Contours were determined by interpolating groundwater elevation measurements at each well and superimposing ground surface elevation from DEM spatial data to generate depth-to-groundwater contours. The image on the right shows a more accurate depth-to-groundwater estimate because it takes the local topography and elevation changes into account.

[11] USGS Digital Elevation Model data products are described at: https://www.usgs.gov/core-science-systems/ngp/3dep/about-3dep-products-services and can be downloaded at: https://iewer.nationalmap.gov/basic/

BEST PRACTICE #6. Best Available Science

Adaptive management is embedded within SGMA and provides a process to work toward sustainability over time by beginning with the best available information to make initial decisions, monitoring the results of those decisions, and using the data collected through monitoring programs to revise decisions in the future. In many situations, the hydrologic connection of NC dataset polygons will not initially be clearly understood if site-specific groundwater monitoring data are not available. If sufficient data are not available in time for the 2020/2022 plan, **The Nature Conservancy strongly advises that questionable polygons from the NC dataset be included in the GSP <u>until</u> data gaps are reconciled in the monitoring network.** Erring on the side of caution will help minimize inadvertent impacts to GDEs as a result of groundwater use and management actions during SGMA implementation.

KEY DEFINITIONS

Groundwater basin is an aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom. *23 CCR §341(g)(1)*

Groundwater dependent ecosystem (GDE) are ecological communities or species that depend on <u>groundwater emerging from aquifers</u> or on groundwater occurring <u>near the ground surface.</u> *23 CCR §351(m)*

Interconnected surface water (ISW) surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted. *23 CCR §351(o)*

Principal aquifers are aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to <u>wells, springs, or surface water systems.</u> *23 CCR §351(aa)*

ABOUT US

The Nature Conservancy is a science-based nonprofit organization whose mission is *to conserve the lands and waters on which all life depends*. To support successful SGMA implementation that meets the future needs of people, the economy, and the environment, TNC has developed tools and resources (www.groundwaterresourcehub.org) intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

Attachment E

Maps of representative monitoring sites in relation to key beneficial users

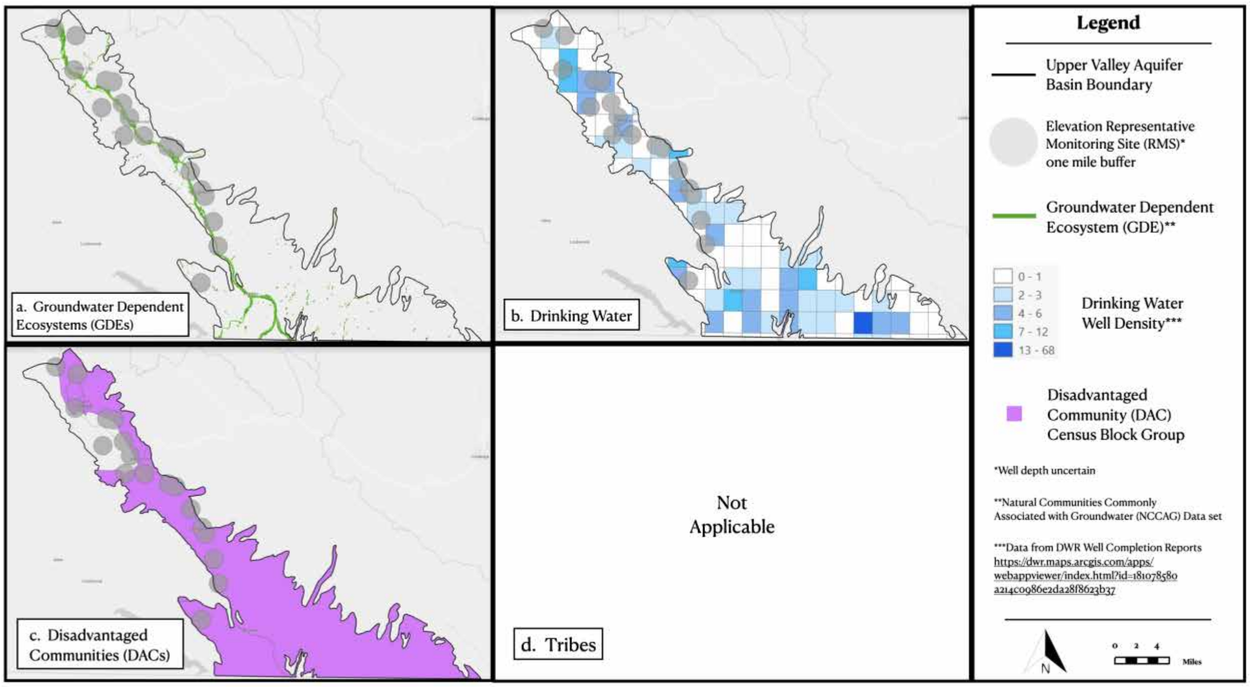


Figure 1. Groundwater elevation representative monitoring sites in relation to key beneficial users: a) Groundwater Dependent Ecosystems (GDEs), b) Drinking Water users, c) Disadvantaged Communities (DACs), and d) Tribes.

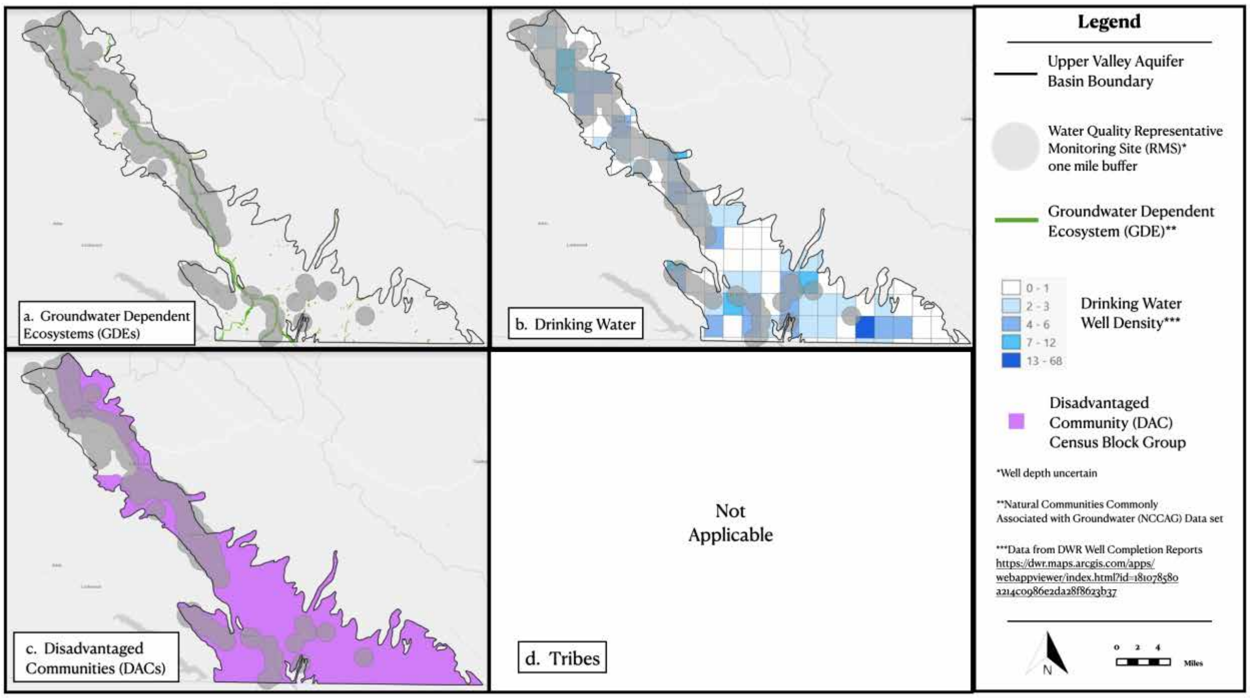


Figure 2. Groundwater quality representative monitoring sites in relation to key beneficial users: a) Groundwater Dependent Ecosystems (GDEs), b) Drinking Water users, c) Disadvantaged Communities (DACs), and d) Tribes.

Friday, October 15, 2021

SVBGSA Public Comments Form

Salinas Valley Basin Groundwater Sustainability Agency

Name	Douglas Deitch
Organization	Monterey Bay Conservancy (MBC)
Email Address	siddhartha1002@gmail.com
Subbasin	Langley, Eastside, Forebay, Upper Valley, Monterey, Whole Basin, 180/400
Chapter	Salinas Valley Basin GSA (entire)

Comments

https://twitter.com/DouglasDeitch/status/1375814806364594178/photo/1

Part I-General comments on balkanized/"sub basined" and too many Monterey Bay GSAs, our ground water commons, our Water Berry (and other similar) Ponzi Schemes (MBC @ CCC 2009 @ http://www.begentlewiththeearth.org , http://ourinconvenienttruth.net http://ourinconvenienttruth.org http://ourinconvenienttruth.com & 2011 @ http://douglasdeitch.com http://douglasdeitch.net & MBC @ http://dougforassembly.com @ SWRCB requesting SWRCB Monterey Bay Regional "Intervention" for the first time in 2016 @ 11:21 @ http://thebestthatmoneycantbuy.org), and their ongoing and worsening (terminal?) tragedy ... and our Alternatives

1. "Those who cannot remember the past are condemned to repeat it." :
"Toolittle/toolatefortheCentralValley (and Monterey Bay's $5 billion+ annual production) &it'sAG?
Those who cannot remember the past are condemned to repeat it, like we have forgotten in the Monterey Bay w/ berries&Driscolls/Reiter (et al) instead of cotton&Boswells@ http://youtube.com/watch?v=I5uloOJ5m1o&feature=youtu.be
http://santacruzfoods.com

https://twitter.com/DouglasDeitch/status/1448627629557354500

Alternative#1 @ Living within our means @ http://dougdeitch.info , 1995 Zmudowsky Beach 43 acre Pilot Project @ http://dougdeitch.com & @ MBC @ CCC in 2011 @ https://www.youtube.com/watch?v=ija6HUdP-eY

2. "VAST majority of the water/food/RE resources of World's 5th biggest economy/Community are inextricably tied to SFBay/Delta/Sierra-Snowpak&CentralValleyag. CCC predicts 3.5ftSLR in 30 years@ http://documents.coastal.ca.gov/assets/slr/CCCendorsement_SLRPrinciples.pdf .
5:42@ http://pebblebeachrealestate.com Dr.Mount sez what 1 foot will do!"
https://twitter.com/DouglasDeitch/status/1374672809163550720

Question #1: If one foot of SLR will "salt up" the Delta, as Dr. Mount tells us in 2015, how, for example will this same one foot SLR affect our already overuse/critically overstressed local ground water commons? How is this above referenced projected CCC 3.5 feet SLR in next 30 years accounted for, if at all, in any current Monterey Bay GSA, particularly the only and first two and already approved ones in this or your, my, and GM/Santa Cruz Mayor Meyer's neighbor's and partner's "Mid County Ground Water Agency" and the sustainability of each's respective ground water basins and "sub basins"? Here's my recent comment to the CCC on this exact issue:

"Good Afternoon Dear Chair and Commissioners,

Please find my four (4) comments (in reverse order) I tendered last Friday, as described in the "Subject" of this email, and various attached images/articles/etc. w/ some repetition? (please excuse)

I hope you will have the opportunity to review them and watch the 12 minute VICE video @ I suggested you please review @ www.sandiegorealestate.com (and elsewhere) at the last real public in person meeting you had in March 12 of 2020, so long ago,

... @ minute/second 12:12 @ https://cal-span.org/unipage/?site=cal-span&owner=CCC&date=2020-03-12&mode=large&fbclid=IwAR1Fh5WDXG7kaFHIj0NvpnIe58Ry8zsMXnsOAd3cgJZ9poK5LjQjXQPqW-E

Best/health/tikkun olam,

Respectfully,

Douglas Deitch

MBC

831.476.7662

http://sipodemos.democrat

http://lomejorqueeldineronopuedecomprar.com

www.dougdeitch.info

-------- Forwarded Message --------
Subject: Fwd: Please add Additional Comment 4. + attached image (Fwd: Comments on "public review draft of Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone")
Date: Fri, 24 Sep 2021 15:17:27 -0700
From: ddeitch@pogonip.org
To: StatewidePlanning@coastal.ca.gov, Ddeitch

4. continued: Here is the MC Weekly 2018 article mentioned below @ https://www.montereycountyweekly.com/news/local_news/as-seawater-intrusion-advances-new-farmland-puts-marina-s-water-supply-in-peril/article_b35ca7e0-f66e-11e7-b541-57771b472126.html

"As seawater intrusion advances, new farmland puts Marina's water
supply in peril.

* David Schmalz

* Jan 11, 2018
* Along Highway 1 just north of Marina, what has been grassland for
decades is turning into row crops. A look at satellite images on
Google, stretching back to 1984, shows that farming on the property,
known as Armstrong Ranch, started in 2014 just south of the Marina
landfill.

Expect that trend to continue: On Nov. 21, 2017, Valle Del Sol Properties LLC bought 1,784 acres of Armstrong Ranch for $81.5 million. (Monterey County Assessor Steve Vagnini says the price per-acre, just over $45,000, is in keeping with local agricultural land values.)

Three new ag wells have been drilled on the property since 2015, and an application for another is currently being processed by the county. But here's the rub: The wells are pumping from an ancient, finite water source. It's the same water source that residents of Marina and the former Fort aquifers, named for their respective depths – is impaired by seawater intrusion, a process that occurs when excessive pumping creates a pressure differential that draws seawater into the aquifers, fouling their water with salt.

The only groundwater available to irrigate the property is in the so-called deep aquifer, an ancient groundwater supply 900-plus-feet underground that is not recharging through natural mechanisms. Scientists believe the water is probably more than 20,000 years old.

The only recharge to the deep aquifer, hydrologists say, comes from leakage from overlying aquifers. In the coastal area around Marina, those aquifers are already compromised by seawater intrusion, making them unusable as municipal or irrigation water supplies.

Pumping from the deep aquifer is considered "water mining," and has long been viewed as a last-ditch water supply that is both expensive to tap – it costs upwards of $1 million to drill a well into it – and risky to rely on because its quantity is unknown. Yet Marina Coast Water District, which supplies the city of Marina and the former Fort Ord, pumps roughly 50 percent of its water from the deep aquifer. (In 2017, that came out to 1,587 acre-feet of 3,239-acre feet.)

In October, Howard Franklin, senior hydrologist with the Monterey County Water Resources Agency, presented six recommendations to the County Board of Supervisors to help combat worsening seawater intrusion.

Among those recommendations was a moratorium on new wells in the deep aquifer until a study determines its viability as a water supply..."

"All wells in the deep aquifer are of concern with respect to the recommendations," Franklin says. "This is an urgent situation. This is imminent."

According to Michael Cahn, an irrigation water resources adviser with UC Cooperative Extension in Salinas, an acre of strawberries requires about 2.5 to 3 acre-feet of water annually.

That means if the entire 1,784 acres were converted to strawberries, it would require in excess of 4,000 acre-feet of water annually – more than Marina Coast's current annual production.

Franklin, when articulating the urgency of the situation for Marina Coast, and others that rely on the deep aquifer, says the human-caused mechanism of recharge for the deep aquifer – leakage from overlying aquifers – does not happen easily, or quickly, but that it will happen in a matter of years.

"The damage is being done now, and the impact of that damage could be 10 years from now, but if you [pump the deep aquifer] today, the damage will occur," Franklin says.

Marina Coast does not have jurisdiction over new agricultural wells on Armstrong Ranch.

“It’s on our radar, and we’re concerned about it, but we’re not necessarily in the loop,” Marina Coast General Manager Keith Van Der Maaten says. “Unfortunately, I don’t think we’re as involved as we should be. We should have a more active role.”

The county’s Environmental Health Bureau processes applications for new wells, but while projects for residential water supplies face a gauntlet of bureaucratic hurdles, wells for agriculture are typically approved without any pushback.

That may change in the coming years with the formation of the Salinas Valley Groundwater Sustainability Agency, but ag wells in the region have so far have faced minimal regulation.

Marina Coast is currently exploring new potential water supplies, other than desalination. The agency is vying for up to $1 million in state grant funds – the grants will be awarded in February – to study water storage options in the aquifers around Armstrong Ranch.

The project would potentially seek to store excess winter flows in the Salinas River, which would make it similar to the Monterey Peninsula’s aquifer storage and recovery project in the Seaside Basin, where winter flows are pumped from Carmel River and injected underground.

Theoretically, Van Der Maaten says, Marina Coast could produce between 2,000-8,000 acre-feet of water annually with the project, and even send some of the water north to Castroville.

But he says there are still many unknowns, including whether it is technically feasible, whether Marina Coast could secure the water rights to those flows, and whether it would be economically feasible for Marina Coast to supply Armstrong Ranch farmland with water so that they stop pumping from the deep.

Van Der Maaten knows it won’t be easy, but the mission is clear: “We absolutely need to get into this deeper, and get people off the deep aquifer.”

---------- Forwarded Message --------

Subject: Please add Additional Comment 4. + attached images (Fwd: Comments on "public review draft of Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone")
Date: Fri, 24 Sep 2021 14:48:18 -0700
From: ddeitch@pogonip.org
To: Ddeitch , StatewidePlanning@coastal.ca.gov

4. The recent September 20, 2021 presentation by USGS and CCC staff (see attached images) on ground water and Sea Level Rise underlines and emphasizes the unadvisability and inherent risks and unknowns involved with our too many recent non DPR recycled water supply projects like Pure Water Monterey, Soquel, San Diego caused by sea level rise invading our ground waters despite our best efforts and intentions to prevent this.

At minute/second 5:41 @ the 12 minute VICE video at http://www.sanfranciscorealesatate.com , Dr. Jeff Mount in 2015 explains what just one foot of SLR will do to the Delta and the CCC plans for 3.5 feet SLR by 2050 (@ https://documents.coastal.ca.gov/assets/slr/CCCendorsement_SLRPrinciples.pdf) . So, just imagine what that same 1 foot of SLR will do to our coastal ground water, particularly in our already critically overdrafted coastal ground water basins and related new water supply infrastructure.

Now add to this uncontrolled and unplanned for increased ag coastal well pumping for new ag, such as is presEnt in the Pure Water Monterey area described in this Monterey Weekly article from a couple of years ago which will, at 5400 acre feet per year, completely offset the cleaned injected recycled water in the Monterey Pure Water expanded project.

-------- Forwarded Message --------
Subject: Comments on "public review draft of Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone"
Date: Fri, 24 Sep 2021 06:33:31 -0700
From: Douglas Deitch
To: StatewidePlanning@coastal.ca.gov, Ddeitch

"Thosewhocannotrememberthepast https://youtu.be/I5uloOJ5m1o can't adapt to 3.5' in30yrSLR? @ https://twitter.com/DouglasDeitch/status/1374672809163550720 toprotectvastmajoritywater/food/re assets w/o 1. http://sipodemos.democrat 2. http://dougdeitch.info : https://t.co/2L1RYOqKrI http://dougforassembly.com ?" (https://twitter.com/DouglasDeitch/status/1426946751336914944)

Comments on "public review draft of Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone : "This Guidance focuses on adaptation of transportation infrastructure (Chapter 5) and water infrastructure (Chapter 6), including highways, roads, railroads, wastewater, stormwater, and water supply infrastructure."

1. "VAST majority of the water/food/RE resources of World's 5th biggest economy/Community are inextricably tied to

nt_SLRPrinciples.pdf . 5:42@ http://sandiegorealestate.com Dr.Mount sez what 1 foot will do!" @ https://twitter.com/DouglasDeitch/status/1374672809163550720 :

Analysis & Conclusions: Due to this 2020 3.5 ft. SLR by 2050 "planning guideline/projection" (and other reasons like possible COVID19 and other possible contamination of our waste waters which cannot be cleaned (@ https://twitter.com/DouglasDeitch/status/1426593026571313152)

Additionally, this is why we must immediately begin investigation of feasibility and advisability of damming the Golden Gate run down @ http://sipodemos.democrat @ Linkedin:

CA - DWR

You Retweeted

Fair&Balanced! @ MakeCaliforniaGreatAgain.DEMOCRAT
@DouglasDeitch

Replying to
@CA_DWR
#CaWaterBoards
https://twitter.com/DouglasDeitch/status/1401916742541013000

DPRisbest! like @ my "NAUTURAL SOLUTION" @ http://dougdeitch.info and 21000 acre Monterey Bay Estuarine Nat'l Monument in the Monterey Bay, which will include up to 31k/a/f/yr from Castroville Reclamation Plant repurposed to urban, recharge, and conservation uses from ag use in perpetuity, to wit:

https://twitter.com/DouglasDeitch/status/1411648137878380551

*"Douglas Deitch, Balanced Law and Order Liberal Democrat for State
Senator*

September 14, 2019 ·
WELCOME TO www.DOUGDEITCH.info !!! ... Best SUSTAINABLE Monterey Bay region "SLR" (Sea Level Rise) water solution?
lomejorqueeldineroNOpuedecomprar.com /
lawandorderliberal.org
My 21,000 acre "Monterey Bay Estuarine National Monument" , etc. 'Water Fix" ..., of course.
The Castroville reclamation plant/project, run down @

1998 for around $75 million in Castroville.
This 31,000 acre feet/yr of water will be repurposed to urban use, further cleaned, processed, and distributed regionally and will easily supply and service all current and future Montrey Bay regionally urban water needs.
This will be accomplished by using the 12000 acres of land associated with this 31000 a/f/yr of water to it's highest and best use.
At present, this water is dedicated to exclusively ag use on 12,000 coastal ag acres at the mouth of the Salinas Valley to use instead of well water pumped at this location to protect the Salinas Valley from further salt water intrusion.
As farmland, this land is FMV worth around $50,000 per acre as farmland (https://www.santacruzsentinel.com/.../retired-federal.../). However, this 12,000 acres highest and best use is not as farmland but instead as a ground water conservation/aquifer recharge/ and estuarine habitat conservation/rehabilitation project, which actually doubles the FMV of this land to $100,000 per acre or $1.2 billion.
This land comprises roughly something under 5% (?) of irrigated farmland in the "Salinas Valley"
If this 12000 acres was publicly acquired and fallowed/or all well pumping ceased, along with another tract of 9000 acres of irrigated farmland at the mouth of the Pajaro Valley running from approximately Elkhorn Slough to Manresa Beach on the ocean side of Highway One in Santa Cruz County for 21000 acres in total to protect the Pajaro Valley from salt water intrusion in the same way, ag well pumping would stop on this 21000 acres and, @ 3 a/f/yr per acre for ag water, 63,000 a/f/yr of ground water, would be CONSERVED annually per year in perpetuity. Additionally, wouldn't this 63,000 a/f/yr be also de facto RECHARGED at these two most hydrologically critically important locations with the highest quality recharge water possibly available with the lowest cost and best "GREEN tech" water available possible anywhere, in perpetuity as well, ... the recharge water produced and recharged naturally by our best water purveyor named Ms. Mother Nature?
Correct.
This is what I call the "Monterey Bay Estuarine National Monument", and it is truly a national monument with the highest concentration of critically threatened critical estuarine resources and habitat of ANY LOCATION ANYWHERE IN THIS COUNTRY !!! Here's my already successful 25 year old "Pilot Project" @ "Willoughby Ranch" @ Zmudowski Beach @ to check out @ www.dougdeitch.com & www.dougdeitch.info (this page)...
"Farmlands back to wetlands"
Query: Where's the $2.1 billion?
Response: Reallocated rail bond money billions to "water/habitat/environmental projects" aka "OPM" (...other people's money) and INFRASTRUCTURE FUNDING.

2. "I wonder what the latest SCIENCE is today re:"Removing the novel coronavirus from the water cycle"& our ground water injection of "cleaned"? recycled/injection water projects like "Pure Water Soquel"? Monterey San Diego etc? @
https://twitter.com/DouglasDeitch/status/142659302657131

3152/photo/1 ?

3. SWRCB must intervene in Monterey Bay immediately to achieve sustainability and proper, legal, and responsible water management in the entire Monterey Bay @ https://twitter.com/DouglasDeitch/status/1375814806364594178/photo/1

Respectfully submitted,
Douglas Deitch

ED/Monterey Bay Conservancy

540 Hudson Lane, Aptos, Ca., 95003

831.476.7662"

Question #2:This 2018 Monterey County Weekly article @ https://www.montereycountyweekly.com/news/local_news/as-seawater-intrusion-advances-new-farmland-puts-marina-s-water-supply-in-peril/article_b35ca7e0-f66e-11e7-b541-57771b472126.html#comments cites around 1800+/- new acres of ag & new well pumping @ 5400 a/f/yr which seems to approximately cancel/use up all the new Monterey One ASR water? ... Any unanticipated problems, present or future conflicts/miscalculations, etc in this regard here or not?

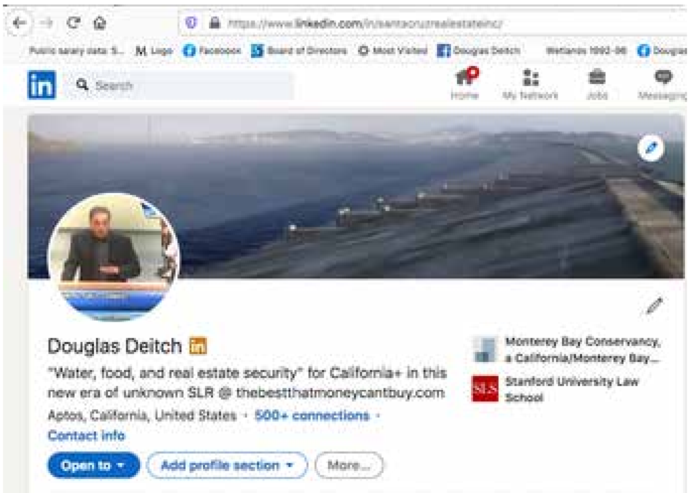
Please watch my most recent and 5th request for SWRCB INTERVENTION IN THE ENTIRE MONTEREY BAY water management and "control" just on August 3, 2021 @ 9:48 @ https://www.youtube.com/watch?v=A9KTIa0RDu8&t=919s and @ https://twitter.com/DouglasDeitch/status/1422889479061196803, my first request @ 11:21 @ www.thebestthatmoneycantbuy.org pictured below from April/2015, over SIX years ago, and please REVIEW the documents I am holding in my hand I presented and went through w/ SWRCB 4/16/15 during my presentation and first request for SWRCB INTERVENTION then @ http://www.dougforassembly.com , which only ONE current SWRCB board MEMBER then, Ms. Doreen D'Adamo, was present for?

... to be continued.
Respectfully,
Douglas Deitch/MBC
siddhartha1002@gmail.com

File Upload


Douglas Deitch 8-10-2011...California Coastal Commission Public Comment Ground Water
CAL-SPAN.ORG
08-10-2011
3. GENERAL PUBLIC COMMENT
CALIFORNIA COASTAL COMMISSION


Douglas Deitch: Damming the Golden Gate??? ... (PLEASE SHARE THIS WITH 5 PEOPLE and request they do the same?...)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Douglas Deitch
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LOCAL
A9
Water activist sues county board
Panel seeks school
"Tikkun Olam..."?
Sentinel
County water supplies dwindle
COUNTY OF SANTA CRUZ
8:39 AM · Aug 8, 2021 · Twitter Web App

ITEM 8F:
INFORMATIONAL BRIEFING:
UNDERSTANDING SLR RELATED GROUNDWATER CHANGE
California Coastal Commission

The Relevance of Sea Level Rise
Over 1 billion people are expected to live in the coastal zone by 2050
SLR will likely cause 'once-in-a-lifetime' coastal flooding events to occur annually by 2050, and every day by 2100
When including storms and coastal change, ~3 times more people would be at risk
In California
26 million residents in coastal counties
Over 600,000 people and $200 billion in property at risk by 2100 (6% of GDP!)
These potential impacts are ~ 10 times greater than the worst wildfires and earthquakes in California history
USGS


Coastal Groundwater Response to SLR
Major issues
Emergence/inundation
Increasingly shallower coastal groundwater
Saltwater intrusion (major hazard for agriculture)
USGS


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#covid19 contamination risks still! MakeCaliforniaGreatAgain.Democrat @SenToniAtkins @GavinNewsom @vp @SenFeinstein @SenAlexPadilla @Rendon63rd @SupervisorAlejo @RyanCoonerty @swrcb thebestthatmoneyCANTbuy.org @11:21 dougdeitch.info /.com pebblebeachrealestate.com sipodemos.democrat
MakeCaliforniaGreatAgain.DEMOCRAT @DougDeitch.info · Jun 2, 2020
#covid19 Despite our SWRCB in Cali assuring us, it's in our treated sewage and recycled water now being injected into our ground water commons for their next tragedy run down "Removing the novel coronavirus from the water cycle" @ sciencedaily.com/releases/2020/... youtube.com/watch?v=2W_zby...
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SWRCB Board Meeting May 19, 2020
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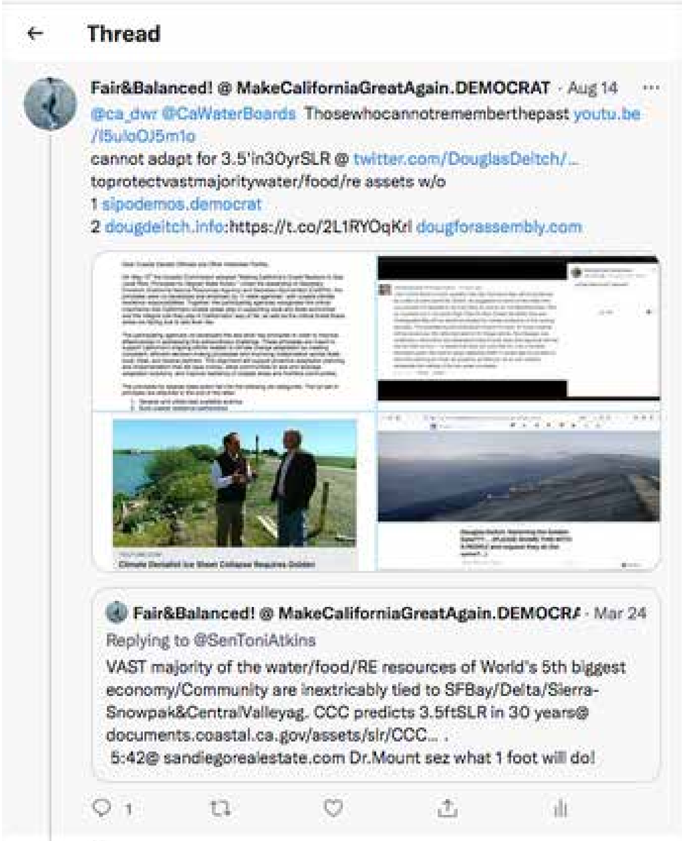
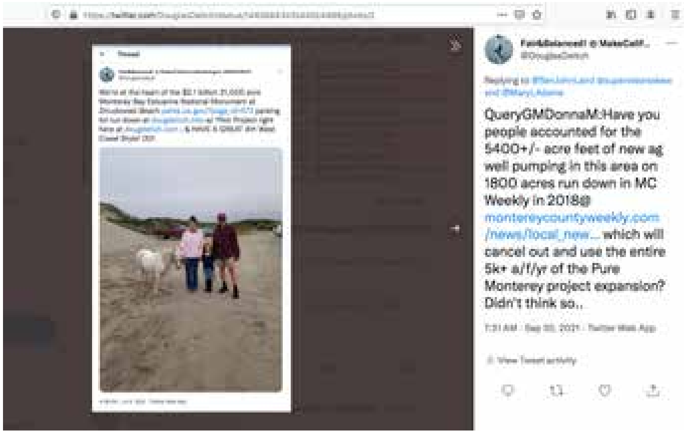


Thread

Fair&Balanced! @ MakeCaliforniaGreatAgain.DEMOCRAT · Aug 14
@ca_dwr @CaWaterBoards Thosewhocannotrememberthepast youtu.be/I5uloOJ5m1o
cannot adapt for 3.5'in30yrSLR @ twitter.com/DouglasDeitch/...
toprotectvastmajoritywater/food/re assets w/o
1 sipodemos.democrat
2 dougdeitch.info:https://t.co/2L1RYOqKrl dougforassembly.com

Fair&Balanced! @ MakeCaliforniaGreatAgain.DEMOCRA · Mar 24
Replying to @SenToniAtkins
VAST majority of the water/food/RE resources of World's 5th biggest economy/Community are inextricably tied to SFBay/Delta/Sierra-Snowpak&CentralValleyag. CCC predicts 3.5ftSLR in 30 years@ documents.coastal.ca.gov/assets/slr/CCC... .
5:42@ sandiegorealestate.com Dr.Mount sez what 1 foot will do!

1



Fair&Balanced! @ MakeCalif...
@DouglasDeitch

QueryGMDonnaM:Have you people accounted for the 5400+/- acre feet of new ag well pumping in this area on 1800 acres run down in MC Weekly in 2018@ montereycountyweekly.com/news/local_new... which will cancel out and use the entire 5k+ a/f/yr of the Pure Monterey project expansion? Didn't think so..

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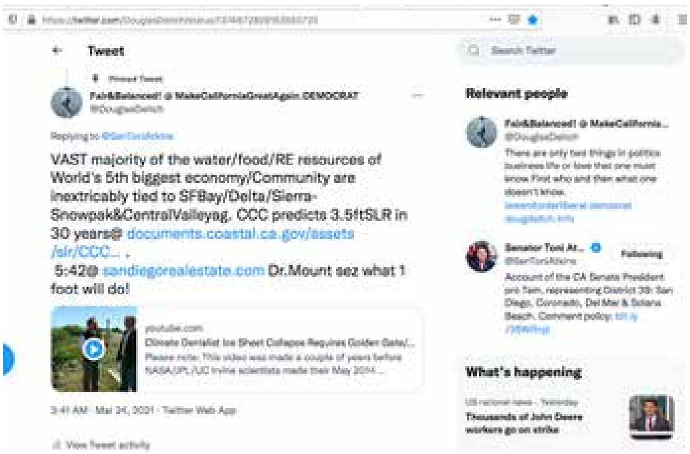

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@DouglasDeitch
Replying to @SenToniAtkins
VAST majority of the water/food/RE resources of World's 5th biggest economy/Community are inextricably tied to SFBay/Delta/Sierra-Snowpak&CentralValleyag. CCC predicts 3.5ftSLR in 30 years@ documents.coastal.ca.gov/assets/slr/CCC... .
5:42@ sandiegorealestate.com Dr.Mount sez what 1 foot will do!

youtube.com
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Senator Toni At...
@SenToniAtkins
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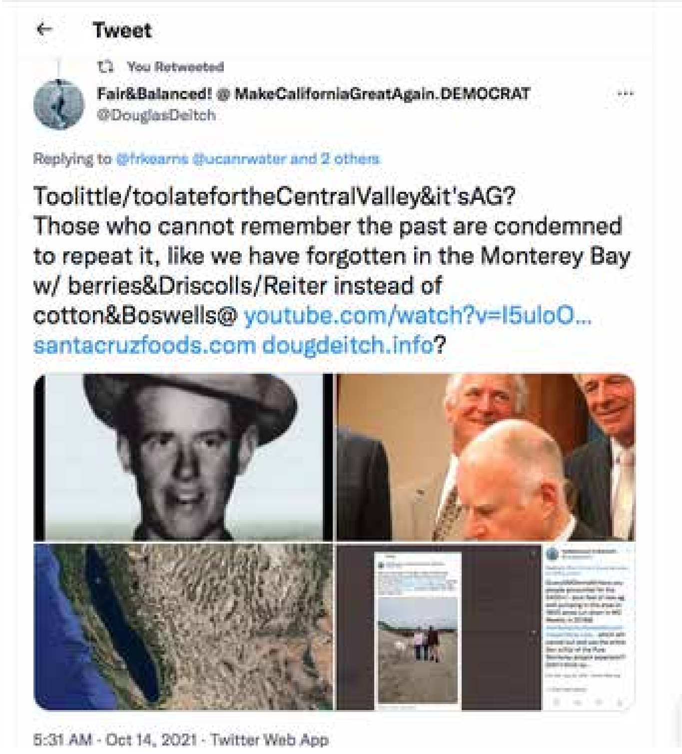
Account of the CA Senate President pro Tem, representing District 39: San Diego, Coronado, Del Mar & Solana Beach.

What's happening

Thousands of John Deere workers go on strike


NOW
Deep Threat
As seawater intrusion advances, new farmland puts Marina's water supply in peril.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Toolittle/toolatefortheCentralValley&it'sAG?
Those who cannot remember the past are condemned to repeat it, like we have forgotten in the Monterey Bay w/ berries&Driscolls/Reiter instead of cotton&Boswells@ youtube.com/watch?v=I5uloO… santacruzfoods.com dougdeitch.info?
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Monterey Bay Conservancy
August 6 ·

Please watch my most recent and 5th request for SWRCB INTERVENTION IN THE ENTIRE MONTEREY BAY water management and "control" just on August 3, 2021 @ 9:48 @ https://www.youtube.com/watch?v=A9KTla0RDu8&t=919s and @ https://twitter.com/DouglasDeitch/status/1422889479061196803, my first request @ 11:21 @ www.thebestthatmoneycantbuy.org pictured below from April/2015, over SIX years ago, and please REVIEW the documents I am holding in my hand I presented and went through w/ SWRCB 4/16/15 during my presentation and first request for SWRCB INTERVENTION then @ www.dougforassembly.com , which only ONE current SWRCB board MEMBER then, Ms. Doreen D'Adamo, was present for?

Monterey Bay Conservancy
August 27, 2018 ·

"It's past time for the State Water Resources Control Board to take control of our now predominantly below sea level Monterey Bay ground water commons..." https://www.linkedin.com/.../its-

nFRwxZIzGSPuoFx5b6R_jsixz-IB5meE6-tz-ScLicdl_RupVKolXxw-cgFX2DyZFouT

STATE OF CALIFORNIA - NATURAL RESOURCES AGENCY GAVIN NEWSOM, Governor

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400

May 22, 2020

Dear Coastal Elected Officials and Other Interested Parties,

On May 13th the Coastal Commission adopted "Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action." Under the leadership of Secretary Crowfoot (California Natural Resources Agency) and Secretary Blumenfeld (CalEPA), the principles were co-developed and endorsed by 17 state agencies[1] with coastal climate resilience responsibilities. Together, the participating agencies recognized the critical importance that California's coastal areas play in supporting local and state economies and the integral role they play in Californians' way of life, as well as the critical threat these areas are facing due to sea level rise.

The participating agencies co-developed the sea level rise principles in order to improve effectiveness in addressing this extraordinary challenge. These principles are meant to support California's ongoing efforts related to climate change adaptation by creating consistent, efficient decision-making processes and improving collaboration across state, local, tribal, and federal partners. This alignment will support proactive adaptation planning and implementation that will save money, allow communities to test and leverage adaptation solutions, and improve resiliency of coastal areas and frontline communities.

The principles for aligned state action fall into the following six categories. The full set of principles are attached to the end of this letter.

1. Develop and utilize best available science
2. Build coastal resilience partnerships
3. Improve coastal resilience communications
4. Support local leadership and address local conditions
5. Strengthen alignment around coastal resilience
6. Implement and learn from coastal resilience projects

Among other important goals, the Principles include an ambitious target for the year 2050 of preparing for 3.5 feet of sea level rise. Although this is not a new sea level rise projection, this planning target will help encourage state agencies and others to begin now to proactively prepare for the sea level rise that is anticipated to occur over short-, medium-, and long-term time horizons.

Friday, October 15, 2021

SVBGSA Public Comments Form

Salinas Valley Basin Groundwater Sustainability Agency

Name	Stephanie Hastings
Organization	Brownstein Hyatt Farber Schreck, LLP
Email Address	SHastings@bhfs.com
Subbasin	Langley, Eastside, Forebay, Upper Valley, Monterey, Whole Basin
Comments	Please see the attached correspondence submitted on behalf of the Salinas Basin Water Alliance. The exhibits are available on our sharefile at: https://bhfs.sharefile.com/d-scb50238ba04e4b4294bdf73ac89d25ee
File Upload	pdf 2021.10.15 Comment Letter to SVBGSA re Dr...

Brownstein Hyatt
Farber Schreck

October 15, 2021

Stephanie O. Hastings
Attorney at Law
805.882.1415 tel
shastings@bhfs.com

VIA E-MAIL – MEYERSD@SVBGSA.ORG; BOARD@SVBGSA.ORG; PRISO@MCWD.ORG; CITYCLERK@CI.GREENFIELD.CA.US

Donna Meyers
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924

Remleh Scherzinger
General Manager
c/o Paula Riso
Executive Assistant/Clerk to the Board
Marina Coast Water District Groundwater Sustainability Agency
11 Reservation Road
Marina, CA 93933-2099

Curtis Weeks
General Manager
c/o City Clerk
Arroyo Seco Groundwater Sustainability Agency
599 El Camino Real
Greenfield, CA 93927

RE: Draft Groundwater Sustainability Plans for the Upper Valley, Forebay, Eastside, Langley, and Monterey Subbasins of the Salinas Valley Groundwater Basin

Dear Ms. Meyers, Mr. Scherzinger, and Mr. Weeks:

This office represents the Salinas Basin Water Alliance (*Alliance*), a California nonprofit mutual benefit corporation formed to preserve the viability of agriculture and the agricultural community in the greater Salinas Valley. *Alliance* members include agricultural businesses and families that own and farm more than 80,000 acres within the Salinas Valley. Many *Alliance* members have been farming in the Salinas Valley for generations. As such, the *Alliance* has a significant interest in the long-term sustainability of the water supplies in the Salinas Valley. As mentioned in our preliminary comment letter on the draft Groundwater Sustainability Plans (GSP) for the Upper Valley, Forebay, Eastside, Langley, and Monterey Subbasins dated August 12, 2021, the *Alliance* greatly appreciates the Salinas Valley Basin Groundwater Sustainability

Agency (SVBGSA) staff and consultant team's efforts to implement the Sustainable Groundwater Management Act (SGMA) in the Salinas Valley Groundwater Basin (Basin) and in each of the six subbasins within the jurisdiction of the SVBGSA. The *Alliance* likewise appreciates the efforts undertaken by the Marina Coast Water District Groundwater Sustainability Agency (MCWDGSA) and the Arroyo Seco Groundwater Sustainability Agency (ASGSA) to implement SGMA in the Monterey and Forebay Subbasins, respectively.

The *Alliance* offers these comments, as well as the comments of aquilogic, Inc. attached hereto as **Exhibit A**, on the draft GSPs for the Upper Valley, Forebay, Eastside, Langley, and Monterey Subbasins.[1] These comments are submitted to the SVBGSA as the exclusive groundwater sustainability agency for the Upper, Eastside, and Langley Subbasins, and one of the groundwater sustainability agencies that will adopt the GSPs for the Forebay and Monterey Subbasins. These comments are also submitted to the MCWDGSA and the ASGSA as groundwater sustainability agencies that will adopt the GSPs for the Monterey Subbasin and Forebay Subbasin, respectively. Please include this letter, the aquilogic, Inc. memorandum ("aquilogic Memo"), and the other attachments hereto in the record of proceedings for the GSP of each of these subbasins.

I. THE DRAFT GSPS MUST BE INTEGRATED TO SATISFY SGMA

SGMA's goal is to provide for the sustainable management of priority groundwater basins throughout the State.[2] "Sustainable management" is defined as the "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results"—e.g., chronic lowering of groundwater levels, significant and unreasonable reduction of groundwater storage, significant and unreasonable seawater intrusion, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.[3] In order to achieve this goal, groundwater sustainability agencies must coordinate groundwater management within each basin[4] and with each adjacent basin.[5]

Coordination requires GSPs to maintain consistency or analyze inconsistencies in the data and modeling used to develop the GSPs, the minimum thresholds and measurable objectives set in the GSPs, and the

---

[1] The *Alliance* notes that several of the draft GSPs are being revised by the GSA during the public review process. An additional public comment period must be provided once the draft GSPs have been finalized for adoption. Informed public input cannot be provided on documents that are still subject to change.
[2] Wat. Code, § 10720.1.
[3] Wat. Code, § 10721(v), (x).
[4] SGMA defines "basin" as "a groundwater basin or subbasin identified and defined in Bulletin 118." (Wat. Code, § 10721(b); see also 23 Code Regs. ("GSP Regs."), § 341(g) ["The term 'basin' shall refer to an area specifically defined as a basin or 'groundwater basin' in Bulletin 118, and shall refer generally to an aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom, as further defined or characterized in Bulletin 118"; "The term 'subbasin' shall refer to an area specifically defined as a subbasin or 'groundwater subbasin' in Bulletin 118, and shall refer generally to any subdivision of a basin based on geologic and hydrologic barriers or institutional boundaries, as further described or defined in Bulletin 118."].)
[5] Wat. Code, §§ 10727, 10727.6.

projects and management actions proposed in the GSPs.[6] DWR will review each GSP to ensure it satisfies this requirement—i.e., that the GSP does not adversely affect the "ability of an adjacent basin to implement their groundwater sustainability plan or impedes achievement of sustainability goals in an adjacent basin."[7] Any GSP that cannot meet this standard will not satisfy SGMA.[8]

The consultant that prepared the draft GSPs for the Upper, Forebay, Eastside, and Langley Subbasins has acknowledged the importance of integrated management of surface water and groundwater throughout the Basin:

> It has long been acknowledged that the water resources of the Salinas Valley consist of an integrated surface water and groundwater system . . . This acknowledged surface water/groundwater integration underpins the approach the SVBGSA is taking to achieving groundwater sustainability throughout the Valley; the Salinas River is an integral part of groundwater management and managing groundwater cannot be divorced from the Salinas River's operations. Similarly, groundwater management plays an important role in maintaining Salinas River flows. Larger areas of low groundwater levels in the Salinas Valley will induce more leakage from the Salinas River – reducing Salinas River flows. Maintaining adequately high groundwater levels will help maintain Salinas River flows. These higher groundwater levels that help maintain Salinas River flows is one of the desired outcomes of our groundwater management and is a benefit to surface water users. Groundwater sustainability can lead to long-term reliability in surface water supplies . . .
>
> The Salinas River operations, Salinas River flows, and ability to use water from the River will be clearly influenced by the decisions made during GSP development and implementation. Balanced groundwater management that

---

[6] See e.g., Wat. Code, § 10727.6; GSP Regs., § 354.28(b) ("The description of minimum thresholds shall include the following: . . . (3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals."); see also *id.* at §§ 350.4(b), 354.28(b), 354.34(i), 354.38(e), 354.44(b)(6)-(7), 357.2; Department of Water Resources (DWR) Sustainable Management Criteria BMP, pp. 12-17 (Considerations when establishing minimum thresholds for each sustainability indicator includes the adjacent basin's minimum thresholds); DWR Modeling BMP, pp. 21-22; DWR Water Budget BMP, pp. 12, 16, 17, 36.
[7] Wat. Code, § 10733(c).
[8] *Ibid.*; GSP Regs., §§ 350.4, 354.8(d), 354.14, 354.18, 354.28(b)(3), 354.44(b)(6), 354.44(c), 355.4(b), 356.4(j), 357.2(b)(3); DWR Monitoring Networks and Identification of Data Gaps BMP, pp. 6, 8, 27; DWR Water Budget BMP, pp. 7, 12, 16, 17, 36; DWR Modeling BMP, pp. 21-22; DWR Sustainable Management Criteria BMP, pp. 9, 31.

> maintains consistent groundwater levels will provide surface water reliability for the Valley's surface water users.[9]

A Senior Hydrologist with the Monterey County Water Resources Agency (MCWRA) similarly commented:

> Additionally, as was experienced and monitored throughout the Basin during the most recent drought period, lowering of the groundwater table has a significant impact on the Agency's ability to operate the reservoirs to a controlled range of flows at the Salinas River Diversion Facility. As such, overdraft of the groundwater basin, resulting in a reduction in groundwater levels significantly impacted surface water flows, depleting the availability of surface water to riparian water uses.[10]

Close coordination of the draft GSPs for the subbasins is critical as each of the GSPs acknowledge a significant hydrologic and hydraulic connection with adjacent subbasins.[11] In other words, groundwater management in the Upper Valley impacts groundwater management in the Forebay Subbasin, which impacts groundwater management in the 180/400-Foot Aquifer, Eastside, Langley, and Monterey Subbasins, and there is a direct link between groundwater in the Basin and surface water in the Salinas River.

Given the integration of the Basin's surface and groundwater supplies (e.g., that pumping in one subbasin impacts surface and subsurface flows to an adjacent subbasin), SGMA mandates the coordination and integration of the GSPs for the subbasins within SVBGSA's jurisdiction—the GSPs must be integrated in their planning, development, and implementation to ensure the objectives of SGMA are satisfied, the interests of all beneficial users throughout the Basin are considered, and the burden of sustainability is equitably allocated across the Basin.[12] Indeed, the SVBGSA has acknowledged this obligation in its Joint Exercise of Powers Agreement[13] and, as the groundwater sustainability agency for the 180/400-Foot Aquifer, Monterey,

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[9] Feb. 26, 2019 Letter from Derrik Williams to Leslie Girard, attached hereto as **Exhibit B**.

[10] March 4, 2019 Memorandum from Howard Franklin to Leslie Girard and Gary Petersen, attached hereto as **Exhibit C**.

[11] Draft Upper Valley Subbasin GSP, § 4.3.1.1; Draft Forebay Subbasin GSP, § 4.3.1.1; Draft Eastside Subbasin GSP, § 4.3.1.1; Draft Langley Subbasin GSP, § 4.3.1.1; Draft Monterey Subbasin GSP, § 4.2.3; aquilogic Memo, pp. 2-3, attached hereto as **Exhibit A**.

[12] Wat. Code, § 10723.2; see also DWR Water Budget BMP, pp. 16-17 ("For many basins within the . . . Salinas Valley . . . not all lateral boundaries for contiguous basins serve as a barrier to groundwater or surface water flow . . . In situations where a basin is adjacent or contiguous to one or more additional basins, or when a stream or river serves as the lateral boundary between two basins, it is necessary to coordinate and share water budget data and assumptions. This is to ensure compatible sustainability goals and accounting of groundwater flows across basins, as described in § 357.2 (Interbasin Agreements) of the GSP Regulations."

[13] See Joint Exercise of Powers Agreement Establishing the Salinas Valley Basin GSA, § 2.2 ("The purpose of Agency is to . . . develop[], adopt[], and implement[] a GSP that achieves groundwater sustainability in the Basin."); § 4.1(c) (The JPA has the power to "develop, adopt and implement a GSP for the Basin."); *id.* at § 4.1(l) (The JPA has the power to "establish and administer projects and programs for the benefit of the Basin."); *id.* at § 4.3 ("As set forth in Water Code section 10723.3, the GSA shall consider the interests of all beneficial uses and users of groundwater in the Basin, as well as those responsible for implementing the

Eastside, Langley, Forebay, and Upper Subbasins, the SVBGSA is uniquely qualified to ensure coordination and integration among these subbasins. The SVBGSA previously proposed an integrated GSP that would incorporate the GSPs for each of the six subbasins, but appears to have abandoned or significantly delayed that commitment. As a result, the draft GSPs do not adequately coordinate and integrate their data, minimum thresholds and measurable objectives, and projects and management actions and do not analyze potential impacts on the adjacent subbasins. The draft GSPs must analyze and address these issues before they can be adopted, or delineate a plan for adding this information to the GSPs as soon as possible.

II. THE DRAFT GSPs DO NOT SUFFICIENTLY ANALYZE AND ADDRESS SUSTAINABLE GROUNDWATER MANAGEMENT THROUGHOUT THE BASIN

The *Alliance* supports integrated groundwater management throughout the Basin—such management is critical to the sustainable and equitable management of the integrated water resources throughout the Basin. In accordance with SGMA, this management should utilize consistent data and modeling, analyze impacts of groundwater production on adjacent subbasins, estimate sustainable yields and set minimum thresholds in consideration of impacts to adjacent subbasins, and coordinate projects and management actions throughout the Basin. As described further below, the draft GSPs as currently presented do not meet these thresholds dictated by SGMA.

A. Each Draft GSP Fails to Analyze Inconsistencies in the Data and Modeling Utilized By the Draft GSPs for Adjacent Subbasins

As an initial matter, the draft GSPs for the subbasins utilize differing modeling/estimation techniques that produce inconsistent data throughout the Basin and prevent integration of groundwater management absent additional analysis.

For example, the 180/400-Foot Aquifer Subbasin GSP's historical and current water budgets were created "by aggregating data and analyses from previous reports and publicly available sources" while the future

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GSP. Additionally, as set forth in Water Code section 10720.5(a) any GSP adopted pursuant to this Agreement shall be consistent with Section 2 of Article X of the California Constitution and nothing in this Agreement modifies the rights or priorities to use or store groundwater consistent with Section 2 of Article X of the California Constitution . . . Likewise, as set forth in Water Code section 10720.5(b) nothing in this Agreement or any GSP adopted pursuant to this Agreement determines or alters surface water rights or groundwater rights under common law or ay provision of law that determines or grants surface water rights."); 180/400-Foot Aquifer Subbasin GSP, p. 9-10 ("This GSP is part of an integrated plan for managing groundwater in all six subbasins of the Salinas Valley Groundwater Basin that are managed by the SVBGSA. The projects and management actions described in this GSP constitute an integrated management program for the entire Valley."); *id.* at 10-14 ("The SVBGSA oversees all or part of six subbasins in the Salinas Valley Groundwater Basin. Implementing the 180/400-Foot Aquifer Subbasin GSP must be integrated with the implementation of the five other GSPs in the Salinas Valley Groundwater Basin . . . The implementation schedule reflects the significant integration and coordination needed to implement all six GSPs in a unified manner."); see also Draft Upper Valley GSP, p. 10-16; Draft Eastside Subbasin GSP, pp. 9-1, 10-7, 10-8, 10-16; Draft Forebay Subbasin GSP, pp. 2-4, 9-2, 9-4, 10-7, 10-9, 10-17; Draft Langley Subbasin GSP, pp. 2-4, 9-1, 9-4, 10-8, 10-9, 10-16.

water budget was created using the Salinas Valley Integrated Hydrologic Model (SVIHM).[14] The draft GSPs for the Eastside, Langley, Forebay, and Upper Valley Subbasins take a different approach—the historical and current water budgets were developed using a “provisional version” of the SVIHM, while future water budgets were developed using “an evaluation version” of the Salinas Valley Operational Model (SVOM).[15] And the draft Monterey Subbasin GSP utilizes a third approach—employing the Monterey Subbasin Groundwater Flow Model for the historic, current, and projected water budgets.[16]

What is more, each of these approaches uses different time periods: (1) the 180/400-Foot Aquifer Subbasin GSP analyzes a historical period of 1995 to 2014 and a current period of 2015 to 2017[17]; (2) the draft GSPs for the Langley, Eastside, Forebay, and Upper Valley Subbasins analyze a historical period of 1980 through 2016 and a current period of 2016[18]; and, (3) the draft Monterey Subbasin GSP analyzes a historical period of 2004 to 2018 and a current period of 2015 to 2018.[19]

The inconsistency in the water-budget approaches for each subbasin must be addressed in the draft GSPs. Absent such an analysis, the draft GSPs cannot adequately analyze a subbasin’s potential to impact an adjacent subbasin or foster integrated groundwater management throughout the Basin.[20] Further, this absence of analysis prevents informed input on the draft GSPs by interested parties.[21]

This issue is best exemplified in the inconsistencies between the 180/400-Foot Aquifer Subbasin GSP and the draft Forebay Subbasin GSP. The 180/400-Foot Aquifer Subbasin GSP estimates that the 180/400-Foot Aquifer Subbasin receives (historically and currently) 17,000 acre-feet per year (AFY) of subsurface flow from the Forebay Subbasin.[22] However, the draft Forebay Subbasin GSP estimates that this amount was 3,100 AFY historically and 2,900 AFY currently. These numbers in the draft Forebay GSP are likely

[14] 180/400-Foot Aquifer Subbasin GSP, p. 6-1.
[15] See each referenced draft GSP, pp. 6-1-2. The GSA’s use of the SVIHM and SVOM models for the draft GSPs does not satisfy the modeling requirements in the GSP Regulations. Section 352.4(f) of the GSP Regulations state that the models used to develop GSPs must “include publicly available supporting documentation” and “consist of public domain open-source software.” The GSPs acknowledge that these requirements are not satisfied, and the draft GSPs state that “[d]etails regarding source data, model construction and calibration, and results for future budgets will be summarized in more detail once the model and associated documentation are available.” (See, e.g., Draft Upper Valley Aquifer Subbasin GSP, pp. 6-1-2.) Interested parties cannot provide informed comments and input on the draft GSPs until the GSAs incorporate use of models that satisfy the GSP Regulations.
[16] Draft Monterey Subbasin GSP, p. 6-7.
[17] 180/400-Foot Aquifer Subbasin GSP, p. 6-1.
[18] See each referenced draft GSP, pp. 6-7-8.
[19] Draft Monterey Subbasin GSP, p. 6-5.
[20] See DWR, Water Budget BMP, p. 9 (“Building a coordinated understanding of the interrelationship between changing water budget components and aquifer response will allow local water resource managers to effectively identify future management actions and projects most likely to achieve and maintain the sustainability goal for the basin.”).
[21] The draft GSPs also do not explain why different years are used to set minimum thresholds and measurable objectives in each subbasin, or how those inconsistencies impact sustainable groundwater management. (See aguilogic, Inc. Memo, p. 3, attached hereto as **Exhibit A**.)
[22] 180/400-Foot Aquifer Subbasin GSP, p. 6-16.

overestimates (i.e., the 180/400-Foot Aquifer is estimated to receive less subsurface flow from the Forebay Subbasin than the stated numbers) as the SVIHM utilized to provide the estimates in the draft Forebay Subbasin GSP only accounted for approximately 65% of the groundwater pumping in the Forebay Subbasin.[23] The discrepancy in interbasin flow needs to be addressed in the draft Forebay Subbasin GSP, or identified as a data gap that will be addressed through additional modeling as soon as possible. Without such information, the draft GSP cannot analyze how its implementation will impact the implementation of the 180/400-Foot Aquifer Subbasin GSP.

In sum, the draft GSPs must identify and analyze the inconsistencies in the modeling simulations and the time periods used for the water budgets in each of the GSPs in order to satisfy SGMA.[24] The *Alliance* identified a potential solution to this issue in its correspondence to the SVBGSA dated August 12, 2021, wherein the *Alliance* requested that the GSA conduct additional simulations with the SVIHM that are specifically focused on the issue of interbasin groundwater flows in order to understand the amount of Basin-wide groundwater discharge that is and has been captured by pumping. After adjusting the modelling simulations with GEMS data, the SVBGSA could integrate the data into the draft GSPs and provide an informed analysis of how each draft GSP will impact adjacent subbasins. Based upon the text of the draft GSPs, it appears that this modelling has already been completed in some capacity. In each of the draft GSPs for the Langley, Eastside, Forebay, and Upper Valley Subbasins, the GSPs state a “model simulation without any groundwater pumping in the model . . . was compared to the model simulation with groundwater pumping” to understand depletion of interconnected surface water.[25] However, the draft GSPs do not extrapolate this data to analyze impacts on surface or subsurface interbasin flows or adjacent subbasins. The *Alliance* understands that the SVBGSA is undertaking additional modeling for an update to the draft GSPs and strongly recommends that the SVBGSA incorporate the *Alliance’s* requested modeling simulations into the update. If not, the *Alliance* urges the SVBGSA to commit to adding this information prior to adoption of the draft GSPs or committing to a timeline in which it will be added shortly thereafter. Without this information, the GSPs cannot not analyze each of the issues required to be addressed by SGMA.

B. The Draft GSPs Do Not Adequately Analyze Impacts to Adjacent Subbasins

As discussed above, a GSP must not adversely affect “the ability of an adjacent basin to implement their [GSP] or impede[] achievement of sustainability goals in an adjacent basin.”[26] The GSP Regulations specify that minimum thresholds should be selected to “avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.”[27] And the GSP Regulations require DWR to evaluate a GSP to ensure it satisfies these objectives.[28] The draft GSPs as currently presented do not satisfy these requirements.

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[23] Draft Forebay Subbasin GSP, pp. 6-19, 21.
[24] See, e.g., DWR Water Budget BMP, pp. 16-17.
[25] See, e.g., Draft Forebay Subbasin GSP, p. 5-30.
[26] Wat. Code, § 10733.
[27] GSP Regs., § 354.28(b)(3).
[28] GSP Regs., § 355.4(b)(7).

1. <u>The Draft Eastside Subbasin and Langley Subbasin GSPs</u>

The Eastside Subbasin and Langley Subbasin GSPs largely require similar analysis and information to satisfy SGMA. The GSPs do not account for impacts to adjacent subbasins in defining sustainable yields or setting minimum thresholds and measurable objectives. Each of these issues is addressed in detail below.

a. *The GSPs do not account for impacts to adjacent subbasins in defining sustainable yields*

SGMA defines "sustainable yield" as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result."[29] Further, the sustainable yield must be defined in a manner that will not result in undesirable results in adjacent subbasins.[30] Here, the sustainable yields in the draft GSPs for both the Eastside and Langley Subbasins do not account for impacts on interbasin flow to the 180/400-Foot Aquifer Subbasin.

For example, the draft Eastside Subbasin GSP states that a pumping depression east of the City of Salinas creates a hydraulic gradient towards the depression, with groundwater flowing towards the pumping depression and away from the boundary with the 180/400-Foot Aquifer Subbasin.[31] This depression has reversed the natural downgradient groundwater flow from the Eastside Subbasin to the 180/400-Foot Aquifer Subbasin, drawing 3,600 AFY historically and 5,400 AFY currently of groundwater from the 180/400-Foot Aquifer Subbasin.[32] This amount is likely substantially underestimated as the SVIHM only accounts for 81% of groundwater pumping in the Subbasin.[33] Despite this unnatural hydraulic gradient and the pull of groundwater from the 180/400-Foot Aquifer Subbasin, the draft Eastside Subbasin GSP includes this interbasin flow in its calculation of sustainable yield,[34] but the draft GSP does not analyze how estimated sustainable yield will impact groundwater management in the 180/400-Foot Aquifer Subbasin.

Similarly, the draft Langley Subbasin GSP states that a pumping depression has formed in the center of the Langley Subbasin as a result of a pumping trough.[35] Groundwater is drawn towards the pumping depression and away from the 180/400-Foot Aquifer Subbasin despite the natural downward gradient flow towards the 180/400-Foot Aquifer and Eastside Subbasins.[36] The draft Langley Subbasin GSP then estimates that,

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[29] Wat. Code, § 10721(w).
[30] See Wat. Code, § 10733.
[31] Draft Eastside Subbasin GSP, p. 5-11.
[32] *Id.* at pp. 6-19-20 ("Groundwater pumping near the [C]ity of Salinas has created a cone of depression . . . that draws in groundwater into the Eastside Aquifer Subbasin from the 180/400-Foot Aquifer Subbasin, which is naturally slightly downgradient in the Salinas area. Estimated groundwater inflows from the 180/400-Foot Aquifer Subbasin have slightly increased since 1980.").
[33] *Id.* at p. 6-17. The 180/400-Foot Aquifer Subbasin GSP estimates the outflow to the Eastside and Langley Subbasins amounts to 8,000 AFY. (*Id.* at p. 6-19.)
[34] *Id.* at pp. 6-22-24, Table 6-10.
[35] Draft Langley Subbasin GSP, p. 5-7.
[36] *Id.* at p. 5-18, Figure 5-11.

despite this reversal in groundwater elevations, the 180/400-Foot Aquifer Subbasin has historically received 3,700 AFY and currently receives 2,900 AFY in interbasin flow from the Langley Subbasin, while the Eastside Subbasin has historically received 1,100 AFY and currently receives 1,700 AFY in interbasin flow from the Langley Subbasin.[37] However, the draft Langley Subbasin GSP fails to analyze how the pumping depression in the Langley Subbasin has impacted and will continue to impact these interbasin flows—e.g., what are the outflows to the 180/400-Foot Aquifer and Eastside Subbasins if the pumping depression were ameliorated? Again, the draft GSP includes these unnatural interbasin flows in its calculation of the sustainable yield without analyzing the impacts on adjacent subbasins.[38]

Without understanding how groundwater production impacts interbasin flows, the draft GSPs cannot accurately estimate the sustainable yield of the subbasins and their impact on adjacent subbasins.[39] As discussed above, this issue can be addressed by undertaking the additional modeling simulations requested by the *Alliance* and revising the draft GSPs accordingly. This additional information should be added prior to the adoption of the draft GSPs, or the draft GSPs should commit to a timeline under which this information will be added as soon as possible after adoption of the draft GSPs.

b. *The GSPs do not analyze how their minimum thresholds and measurable objectives will impact adjacent subbasins*

The draft GSPs also do not consider impacts to adjacent subbasins in their setting of minimum thresholds and measurable objectives, as required by SGMA.[40]

For example, the draft Eastside Subbasin GSP sets the minimum threshold for groundwater elevations at 2015 levels.[41] As shown in Figure 8-1, these levels are only nominally above historic lows (approximately 6 feet higher) and barely above the lowest elevation since the introduction of the CSIP and Salinas Valley Water Project.[42] Consequently, these groundwater elevations will still produce a significant pumping

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[37] *Id.* at p. 6-19.
[38] *Id.* at pp. 6-21-23.
[39] See DWR Water Budget BMP, p. 17 (To evaluate the impact on adjacent basin, “this will necessitate GSA coordination and sharing of water budget data, methodologies, and assumptions between contiguous basins including: • Accurate accounting and forecasting of surface water and groundwater flows across the basin boundaries.”).
[40] GSP Regs., § 354.28(b)(3) (“The description of minimum thresholds shall include the following: . . . (3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.”); see also GSP Regs., § 355.4(b)(7); DWR Sustainable Management Criteria BMP, p. 9; DWR Sustainable Management Criteria BMP, p. 10 (“The purpose of the specific requirements is to ensure consistency within groundwater basins and between adjacent groundwater basins.”).
[41] Draft Eastside Subbasin GSP, p. 8-7.
[42] *Id.* at p. 8-13.

depression east of the City of Salinas that will draw water away from the boundary with the 180/400-Foot Aquifer Subbasin.[43]

Similarly, the draft Langley Subbasin GSP sets the minimum threshold for groundwater elevations at 2019 levels—the lowest elevations since the introduction of the CSIP and Salinas Valley Water Project and only nominally above the historic lows in the Subbasin.[44] These levels will continue to produce a significant pumping depression east of the City of Salinas that will draw water away from the boundary with the 180/400-Foot Aquifer Subbasin.[45] Despite the maintenance of these unnatural gradients, neither draft GSP analyzes how these minimum thresholds will impact adjacent subbasins (e.g., the 180/400-Foot Aquifer Subbasin).

The draft GSPs for the Eastside and Langley Subbasins merely include the statement that: "Minimum thresholds for the [subbasins] will be reviewed relative to information developed for the neighboring subbasins' GSPs to ensure that these minimum thresholds will not prevent the neighboring subbasins from achieving sustainability."[46] This statement is not evidence and it does not ensure the management of the subbasins will avoid impacts to adjacent subbasins.[47] As discussed above, this issue can be addressed by undertaking the additional modeling simulations requested by the *Alliance* and revising the draft GSPs accordingly.

The lack of analysis is concerning as both draft GSPs acknowledge that low groundwater elevations within the Langley and Eastside Subbasins may exacerbate seawater intrusion in the 180/400-Foot Aquifer Subbasin.[48] But the draft GSPs only mention this issue in concluding: "The chronic lowering of groundwater

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[43] *Id.* at p. 8-10, Figure 8-3. The same issue applies to the draft Eastside Subbasin GSP's measurable objective for groundwater elevations—it maintains a pumping depression that reverses the natural hydraulic gradient towards the 180/400-Foot Aquifer Subbasin but fails to explain how the measurable objective will not impact the 180/400-Foot Aquifer Subbasin. (See e.g., Draft Eastside Subbasin GSP, p. 8-19.)
[44] Draft Langley Subbasin GSP, pp. 8-8, 8-13.
[45] *Id.* at p. 8-10. Again, the same issue applies to the draft Langley Subbasin GSP's measurable objective for groundwater elevations—it maintains a pumping depression that reverses the natural hydraulic gradient towards the 180/400-Foot Aquifer Subbasin but fails to explain how the measurable objective will not impact the 180/400-Foot Aquifer Subbasin. (See e.g., Draft Langley Subbasin GSP, p. 8-19.)
[46] *Id.* at p. 8-6; Draft Eastside Subbasin GSP, p. 8-16.
[47] See Joint Exercise of Powers Agreement Establishing the SVBGSA, § 4.3 ("As set forth in Water Code section 10723.3, the GSA shall consider the interests of all beneficial uses and users of groundwater in the Basin, as well as those responsible for implementing the GSP. Additionally, as set forth in Water Code section 10720.5(a) any GSP adopted pursuant to this Agreement shall be consistent with Section 2 of Article X of the California Constitution and nothing in this Agreement modifies the rights or priorities to use or store groundwater consistent with Section 2 of Article X of the California Constitution . . . Likewise, as set forth in Water Code section 10720.5(b) nothing in this Agreement or any GSP adopted pursuant to this Agreement determines or alters surface water rights or groundwater rights under common law or ay provision of law that determines or grants surface water rights.").
[48] See Draft Langley Subbasin GSP, pp. 3-18, 4-32, 5-18 (Figure 5-11 "shows the groundwater elevations that are persistently below sea levels that, when paired with a pathway, enable seawater intrusion. The groundwater elevation contours show that groundwater is drawn toward the depression at the northern end of the Eastside Aquifer Subbasin. If the magnitude of this depression increases, it could potentially draw seawater intrusion into the Langley Subbasin."), 5-20 (Figure 5-11); Draft Eastside Subbasin GSP, pp. 3-17,

level minimum thresholds are set above historic lows. Therefore, the groundwater elevation minimum thresholds are intended to not exacerbate, and may help control, the rate of seawater intrusion."[49] That statement must be revised to acknowledge that the pumping depressions in the Langley and Eastside Subbasins will remain even if the groundwater elevation minimum thresholds and measurable objectives are achieved, and the seawater minimum thresholds set by the draft Langley and Eastside Subbasin GSPs only protect against seawater intrusion in their respective subbasins, not against seawater intrusion in adjacent subbasins like the 18/400-Foot Aquifer Subbasin.[50]

In sum, the draft Langley and Eastside Subbasin GSPs in their current form do not account for potential impacts to adjacent subbasins in setting their minimum thresholds and measurable objectives. As a result, the draft GSPs cannot provide any evidence that their implementation will not impair implementation of a GSP in an adjacent subbasin—e.g., the 180/400-Foot Aquifer Subbasin GSP's seawater intrusion minimum threshold, which requires seawater intrusion to be maintained at 2017 levels, and measurable objective, which requires the seawater intrusion isocontour to be pushed back to Highway 1.[51] This analysis should be added to the draft GSPs prior to adoption by the SVBGSA, or the draft GSPs should provide a commitment to incorporating this information within a time certain.[52]

c. *There is no support for using groundwater elevations as a proxy for groundwater storage minimum thresholds*

As mentioned above, the sustainable yield of the basin is the amount of water that can be withdrawn annually without causing an undesirable result, such as the "significant and unreasonable reduction of groundwater storage."[53] The GSP Regulations permit a minimum threshold for groundwater elevations to be used as the minimum threshold for other sustainability indicators, "where the Agency can demonstrate that the representative value is a reasonably proxy . . . as supported by adequate evidence."[54] Here, both the draft Eastside Subbasin GSP and the Langley Subbasin GSP utilize groundwater elevation minimum thresholds

4-35 ("the groundwater elevations in the northwestern portion of the Eastside Subbasin (near the City of Salinas) are below sea level, creating a groundwater gradient away from the coast and towards the Eastside Subbasin"), 5-26-29 .

[49] Draft Langley Subbasin GSP, p. 8-15; Draft Eastside Subbasin GSP, p. 8-15.

[50] Draft Langley Subbasin GSP, p. 8-28; Draft Eastside Subbasin GSP, p. 8-29.

[51] See 180/400-Foot Aquifer Subbasin GSP, pp. 8-32-37.

[52] A report prepared for MCWRA has highlighted the significant impact pumping in the Eastside and Langley Subbasins has on seawater intrusion in the 180/400-Foot Aquifer Subbasin. (See November 19, 2013, Technical Memorandum, Protective Elevations to Control Sea Water Intrusion in the Salinas Valley, attached hereto as **Exhibit D**.) The report states: "At one time (before excessive pumping), the East Side Subarea was one of the natural sources of recharge to the adjacent Pressure Subarea with ground water flowing from the northeast to the southwest. However, historical groundwater level declines have resulted in a reversal of the gradient." (*Id.* at p. 3.) The report then states that: "Artificial recharge in the East Side Subarea would reduce subsurface inflow from the Pressure Subarea and eventually restore the historical northeast to southwest recharge. Both northwest underflow from the Forebay Subarea as well as southwest recharge from the East Side Subarea would help control seawater intrusion." (*Id.* at pp. 6-7.) See also aquilogic Memo, pp. 8-12, attached hereto as **Exhibit A**.

[53] Wat. Code, § 10721(w), (x).

[54] GSP Regs., § 354.28(d); DWR Sustainable Management Criteria BMP, pp. 17-18.

as proxies for groundwater storage minimum thresholds.[55] However, there is insufficient evidence to support that approach.

In particular, each of the draft GSPs sets groundwater elevations at near historic lows, and show a substantial trend in declining groundwater storage over the historic period.[56] The minimum threshold groundwater elevations, in other words, have resulted in overdraft of the subbasins.[57] And by setting the minimum thresholds at historic low groundwater elevations, the draft GSPs will facilitate continued decline in groundwater storage.[58] In fact, because there is no commitment to pump at the sustainable yield of the subbasins, it is possible that production in the subbasins could increase over historic and current amounts so long as the subbasins do not experience another significant drought and still comply with the groundwater elevation minimum thresholds. The SVBGSA's prior actions seem to imply that utilizing groundwater elevations as a proxy in this scenario is improper—the 180/400-Foot Aquifer Subbasin GSP set the groundwater storage minimum threshold to production at the projected sustainable yield.[59] The draft GSP must explain why this different approach will suffice now.

2. <u>The Draft Forebay and Upper Valley Subbasin GSPs</u>

The draft Forebay and Upper Valley Subbasin GSPs lack the same analysis as the draft GSPs for the Eastside and Langley Subbasins—they do not adequately consider impacts to adjacent subbasins. These issues begin with the draft GSPs' water budget and estimate of sustainable yield, and cascade through the minimum thresholds, measurable objectives, and projects and management actions.

As discussed above, SGMA requires GSPs to define a sustainable yield for each basin that will avoid undesirable results and impacts to adjacent basins. The sustainable yields defined in the draft GSPs for the Forebay and Upper Valley Subbasins do not meet this threshold. Both draft GSPs conclude that the subbasins have not been in overdraft historically, but they do not analyze how groundwater pumping within the subbasins (151,100 to 174,500 AFY in the Forebay Subbasin and 108,500 to 129,600 AFY in the Upper Valley) impacts surface and subsurface flows to adjacent subbasins.[60]

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[55] Draft Eastside Subbasin GSP, p. 8-23; Draft Langley Subbasin GSP, p. 8-22.
[56] See discussion *supra;* Draft Eastside Subbasin GSP, p. 5-21; Draft Langley Subbasin GSP, p. 5-16.
[57] *Ibid*.
[58] See, e.g., Wat. Code, § 10721(x)(1) ("Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.").
[59] 180/400-Foot Aquifer Subbasin GSP, p. 8-25 ("The total volume of groundwater that can be annually withdrawn from the Subbasin without leading to a long-term reduction in groundwater storage or interfering with other sustainability indicators is the calculated sustainable yield of the Subbasin."); see also DWR GSP Assessment Staff Report, p. 25 ("The Plan describes how setting the minimum threshold as the long-term sustainable yield for the Subbasin is a reasonable, protective approach against overdraft and the long-term reduction of groundwater storage.").
[60] Draft Forebay Subbasin GSP, pp. 6-45-46; Draft Upper Valley Subbasin GSP, pp. 6-22-23.

For example, the draft Forebay Subbasin GSP states that the SVIHM, which undercounts groundwater pumping by 35%, estimates the Forebay Subbasin received 90,300 AFY historically through stream exchange, currently receives 77,800 AFY, and 31,800 AFY of that stream exchange on average is caused by groundwater pumping.[61] Similarly, the draft Upper Valley Subbasin GSP states that the SVIHM, which under counts groundwater pumping by 24%, estimates the Upper Valley Subbasin received 89,100 AFY historically through stream exchange, currently receives 65,500 AFY, and 1,100 AFY of that stream exchange on average is caused by groundwater pumping.[62] This recharge is substantially induced by the operation of the Nacimiento and San Antonio Reservoirs; prior to that time groundwater storage was significantly decreasing in the subbasins.[63] However, neither draft GSP analyzes: (a) how streamflow recharges the subbasins during drought years, offering instead averages over the historical period, and (b) how groundwater pumping impacts natural surface or subsurface flows to adjacent subbasins—i.e., without pumping, how much groundwater would flow to the downgradient subbasin? Instead, the draft GSPs use the average stream exchange amounts to facilitate a "finding" that the subbasins are presently managed within their sustainable yield. Without understanding how pumping impacts streamflow during drought years and interbasin surface and subsurface flow, the draft GSPs cannot reasonably estimate sustainable yield in the subbasins or analyze how implementation of the draft GSPs will impact adjacent subbasins' GSPs.

The failure to analyze impacts to adjacent subbasins becomes more apparent in the draft GSPs' discussion of minimum thresholds. The draft Forebay Subbasin GSP sets the minimum threshold for groundwater elevations at 2015 groundwater levels, only a few feet above the historic low, while the draft Upper Valley Subbasin GSP sets the minimum threshold for groundwater elevations at "5 feet below the lowest ground elevation between 2012 and 2016," significantly below the historic low.[64] These minimum thresholds are not reasonable—set at levels experienced at the bottom of a historic drought, or even lower—and cannot be qualified as sustainable groundwater management.[65] The draft Upper Valley GSP admits as much, stating: "The groundwater elevations during the 2012 to 2016 drought in the Upper Valley Aquifer Subbasin are the lowest groundwater elevations seen in the Subbasin and are considered significant and unreasonable."[66]

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[61] Draft Forebay Subbasin GSP, pp. 5-30, 6-23. Note that the draft GSPs may also underestimate streamflow depletion by only analyzing stream cells that are connected to groundwater more than 50% of the time. (See aquilogic Memo, p. 5, attached hereto as **Exhibit A**.)
[62] Draft Upper Valley Subbasin GSP, pp. 5-31, 6-22.
[63] Draft Upper Valley Subbasin GSP, p. 5-18; Draft Forebay Subbasin GSP, p. 5-17; see also Hydrogeology and Water Supply of Salinas Valley, pp. 15-16, attached hereto as **Exhibit D**.
[64] Draft Forebay Subbasin GSP, pp. 8-8, 8-14; Draft Upper Valley Subbasin GSP, pp. 8-7, 8-12 (emphasis added).
[65] Wat. Code, § 10720.1 ("In enacting this part, it is the intent of the Legislature to do all of the following: (a) To provide for the sustainable management of groundwater basins. . . . (c) To establish minimum standards for sustainable groundwater management."]; GSP Regs., § 355.4(b) ("When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following: (1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are reasonable and supported by the best available information and best available science. . . .").
[66] Draft Upper Valley Subbasin GSP, p. 8-10 (emphasis added).

Moreover, the draft GSPs do not analyze how the minimum thresholds will impact flows in the Salinas River or adjacent subbasins. Rather, this analysis appears to be deferred to the future. The draft GSPs state that: “Minimum thresholds . . . will be reviewed relative to information developed for neighboring subbasins’ GSPs to ensure that these minimum thresholds will not prevent the neighboring subbasin from achieving sustainability.”[67] As discussed above, this issue can be addressed by undertaking the additional modeling simulations requested by the *Alliance* and revising the draft GSPs accordingly. This additional information should be added prior to the adoption of the draft GSPs, or the draft GSPs should commit to a timeline under which this information will be added as soon as possible after adoption of the draft GSPs.

These same concerns are raised with respect to the groundwater storage minimum thresholds. The draft Upper Valley Subbasin GSP uses the groundwater elevation minimum threshold as a proxy, which is permitted, as discussed above, as long as it is supported by adequate evidence.[68] However, there is no evidence supporting that approach as the groundwater elevation minimum threshold suffers the flaws discussed above, and evidence in the draft GSP relating groundwater elevations to groundwater storage shows groundwater storage at historic lows by a wide margin when groundwater levels were 5 feet above the groundwater elevation minimum threshold in 2016.[69] Similarly, the draft Forebay Subbasin GSP sets the minimum threshold for groundwater storage based upon the groundwater elevation minimum threshold: “The minimum threshold groundwater elevation contours . . . were used to estimate the amount of groundwater in storage when groundwater elevations are held at the minimum threshold levels.”[70] Again, there is no evidence supporting that approach as the groundwater elevation minimum threshold is flawed as discussed above, and evidence in the draft GSP shows the groundwater elevation minimum threshold results in historic lows in groundwater storage.[71] In fact, the groundwater elevation minimum thresholds allow for additional production in the subbasins over historic and current amounts so long as the subbasins do not experience another significant drought. There is no commitment in the draft GSPs that the production in the subbasins will be restricted to the estimated sustainable yield in the subbasins, and there is no model simulation showing the minimum threshold for groundwater elevations will prevent continued decline in groundwater storage.

Finally, the draft GSPs also utilize groundwater elevations as proxies to set the minimum thresholds for depletion of interconnected surface water.[72] But again, there is no evidence supporting this approach. These groundwater elevation proxies are at or near historic lows, and there is no evidence proving these elevations will prevent the depletion of interconnected surface water that would have a significant and unreasonable impact on beneficial uses. Rather, the draft GSPs merely state that these levels will not impact beneficial uses because there is not currently any litigation over surface water uses, and due to the operation of the Nacimiento Reservoir.[73] However, this statement does not acknowledge that decreased groundwater

[67] Draft Upper Valley Subbasin GSP, p. 8-14; Draft Forebay Subbasin GSP, p. 8-17.
[68] Draft Upper Valley Subbasin GSP, p. 8-20.
[69] Draft Upper Valley Subbasin GSP, pp. 5-13, 5-18.
[70] Draft Forebay Subbasin GSP, p. 8-24.
[71] Draft Forebay Subbasin GSP, p. 5-17.
[72] See Draft Upper Valley Subbasin GSP, p. 8-39; Draft Forebay Subbasin GSP 8-42.
[73] Draft Forebay Subbasin GSP, pp. 8-44-45; Draft Upper Valley Subbasin GSP, pp. 8-41-42.

elevations will increase depletion of the Salinas River, and reduce flow to downstream uses, including those uses in adjacent subbasins.[74] Lastly, the draft GSPs do not analyze how these minimum thresholds for depletion of interconnected surface water will impact adjacent subbasins.

In sum, the draft Forebay and Upper Valley GSPs require additional data and analysis to satisfy SGMA. These issues must be addressed before the GSPs are adopted, or the draft GSPs must be provide for their provision by a date certain.[75]

3. The Inadequacies in the Draft GSPs Addressed Above Threaten to Impinge Upon Water Rights

As stated previously, each of the groundwater sustainability agencies has an obligation to consider the interests of all beneficial users of the Basin[76] when implementing SGMA. Moreover, SGMA does not "determine[] or alter[] surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights."[77]

By not analyzing potential impacts to adjacent subbasins in each draft GSP, the groundwater sustainability agencies disproportionately allocate the burden of sustainability across the Basin and threaten to impair groundwater users' rights in and to the Basin. This approach violates SGMA and must be addressed before the groundwater sustainability agencies adopt the draft GSPs or, as discussed above, through a commitment in the draft GSPs to modify or update their contents within a time certain.

III. THE DRAFT GSPS MUST INCORPORATE PROJECTS AND MANAGEMENT ACTIONS TO ACHIEVE SUSTAINABILITY

The GSP Regulations require each GSP to "include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin."[78] Because the draft GSPs are lacking the data and analysis described in Section II above, the draft GSPs cannot meet this requirement (e.g., the draft GSPs' lack of analysis of impacts to adjacent basins prevents an adequate proposal of projects and management actions to achieve sustainability). Further, without understanding impacts on interbasin surface and subsurface flow and how implementation of the draft GSPs will impact adjacent subbasins, the groundwater sustainability agencies will be unable to properly assess the benefits associated with any future projects or management actions—e.g., if they propose projects involving dam operations, how can the groundwater sustainability agencies assess the benefits of those projects to the Lower Valley? Accordingly,

[74] aquilogic Memo, pp. 3-8, attached hereto as **Exhibit A**; DWR Water Budget BMP, pp. 4-5.
[75] See also aquilogic Memo, pp. 3-8, attached hereto as **Exhibit A**.
[76] Wat. Code, § 10723.2
[77] Wat. Code, § 10720.5(b); see also Wat. Code, § 10720.1(a) and (b).
[78] GSP Regs., § 354.44(a).

the *Alliance* reserves the right to comment on the draft GSPs' proposed projects and management actions once the issues described above have been addressed.

However, as a preliminary note, the draft GSPs as currently presented do not include sufficient projects or management actions to achieve sustainable groundwater management Basin-wide. Rather, the draft GSPs appear to foist the burden of sustainable groundwater management on the Eastside, Langley, 180/400-Foot Aquifer, and Monterey Subbasins, while avoiding consequential projects and management actions in the Forebay and Upper Valley Subbasins. Indeed, the draft GSPs for the Eastside, Langley, and Monterey Subbasins each include a management action for pumping allocations and controls, but no such management action is included in the draft Forebay Subbasin or Upper Valley Subbasin GSPs.[79] Instead, the draft Forebay Subbasin and Upper Valley Subbasin GSPs include management actions that only superficially impact the subbasins—e.g., the proposed Subbasin "Sustainable Management Criteria Technical Advisory Committees," which require the formation of a "TAC for each Subbasin" that will "develop recommendations to correct negative trends in groundwater conditions and continue to meet the measurable objectives."[80] This issue must be addressed in the next draft of the GSPs.

The *Alliance* also notes that the draft GSPs do not mention the project proposed in the Hydrogeology and Water Supply of Salinas Valley White Paper prepared by the Salinas Valley Groundwater Basin Hydrology Conference for MCWRA in 1995 ("Salinas Valley White Paper"), which is attached hereto as **Exhibit E**. The "Conference" was a "panel of 10 geologists, hydrogeologists, and engineers familiar with Salinas Valley ground water basin" that was convened to "reach agreement on the basic physical characteristics of the basin, and the surface and ground water flow within the basin."[81] The Conference had a "remarkable unanimity of opinion" on the understanding of the "physical characteristics of the basin, the hydrologic system, the interaction between surface water and ground water, and definition of the specific ground water problems in the basin."[82] The Conference agreed that this understanding pointed "compellingly toward an already identified *regional* solution to the Valley's groundwater water resources problem" and recommended pursuing that solution.[83]

> The need for conjunctive operation of surface water and ground water storage was recognized as early as 1946. In 1946, the California Department of Water Resources published a report on Salinas Valley that described the occurrence of seawater intrusion and declining ground water levels. The report recommended a project to eliminate these problems that included development of surface water and ground water storage. Surface water storage was to be accomplished by the construction of dams on tributaries to Salinas River, and ground water storage was to be accomplished by ground water transfers from the Forebay Area to the Pressure Area and East [S]ide Area. The Department

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[79] See Draft Eastside Subbasin GSP, § 9.4.12; Draft Langley Subbasin GSP, § 9.4.5; Draft Monterey Subbasin GSP, § 9.4.8; see also 180/400-Foot Aquifer Subbasin GSP, § 9.2 [water charges framework].
[80] Draft Upper Valley Subbasin GSP, § 9.4.1; Draft Forebay Subbasin GSP, § 9.4.1.
[81] *Id.* at p. 5.
[82] *Ibid.*
[83] *Ibid.*

> recommended transfer facilities that include wells in the Forebay Area, conveyance facilities from the Forebay Area to the Pressure and East Side Areas, and distribution facilities within the Pressure and East Side Areas. In such a conjunctive operation, the increased extraction in the Forebay Area and conveyance of water to the Pressure and East Side Areas would vacate ground water storage in the Forebay Area. This empty storage space would be refilled by additional infiltration from Salinas River . . . Part of the recommended facilities for surface water and ground water storage have been completed by the construction of the dams for San Antonio and Nacimiento reservoirs, but the facilities for the effective use of groundwater storage have not been completed. The operation of San Antonio and Nacimiento reservoirs has produced benefits to [S]alinas Valley, but the ultimate benefits that would result from the construction and operation of transfer facilities have not been realized. **The panel concluded that the facilities recommended in 1946 by the California Department of Water Resources should be completed immediately** . . . The result of partially completing the project has been an uneven distribution of benefits throughout the Valley. The Forebay Area and Upper Valley Areas have enjoyed relatively large benefits from San Antonio and Nacimiento reservoirs that would have been shared equally with the Pressure and East Side Areas if the intended transfer facilities had been built. In the absence of the transfer facilities, seawater intrusion into the Pressure Area and water-level declines within the East Side Area have not been mitigated.[84]

The Conference noted that this solution is practical as the "water resources problem in Salinas Valley is not a water supply problem. It is a water distribution problem. The basin has enough surface and ground water to meet existing and projected future average annual agricultural, and municipal and industrial water demand through the year 2030. The problem lies in managing those supplies to meet water demands at all locations in the Valley at all times."[85] This project is an example of integrated groundwater management for the Basin as a whole and should be included in the list of projects and management actions in each of the draft GSPs.[86]

IV. CONCLUSION

The *Alliance* appreciates the opportunity to provide these comments on the draft GSPs, as well as the groundwater sustainability agencies' consideration of the *Alliance*'s input. At present, the draft GSPs do not provide a sufficient basis for integrated management of the Basin given their inconsistent analytical approaches and inadequate analysis of impacts on adjacent subbasins. The *Alliance* makes these comments with the hope that these issues can be addressed through additional engagement prior to the adoption of the GSPs. It is critical that the groundwater sustainability agencies lay the foundation now for the integrated sustainable management of the Basin; without such a foundation, the agencies will not be able to satisfy their obligations under SGMA.

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[84] Salinas Valley White Paper, pp. 15-16, attached hereto as **Exhibit E (**emphasis added).
[85] *Id.* at p. 7.
[86] See aquilogic Memo, pp. 12-13, attached hereto as **Exhibit A**.

Respectfully submitted,

Stephanie Osler Hastings
Christopher R. Guillen

Exhibits:

A. October 15, 2021 aquilogic, inc. memorandum
B. February 26, 2019 Letter from Derrik Williams to Les Girard
C. March 4, 2019 Memorandum from Howard Franklin to Gary Petersen & Les Girard
D. November 19, 2013 Technical Memorandum re Protective Elevations to Control Sea Water Intrusion in the Salinas Valley
E. June 1995 Salinas Valley Ground Water Basin Hydrology Conference White Paper re Hydrogeology and Water Supply of Salinas Valley

cc: Emily Gardner, Senior Advisor / Deputy General Manager (gardnere@svbgsa.org)
Derrik Williams, Montgomery & Assoc. (dwilliams@elmontgomery.com)
Leslie Girard, Monterey County Counsel (GirardLJ@co.monterey.ca.us)

23184613

San Jerardo
Cooperative,
Inc.

October 15, 2021

Salinas Valley Basin Groundwater Sustainability Agency
Submitted electronically to:
Emily Gardner, Deputy General Manager
Donna Meyers, General Manager

Subject: Comments on the Draft Salinas Valley Subbasin GSPs for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins

Dear Salinas Valley Basin Groundwater Sustainability Agency:

The Community Water Center (CWC) and the San Jerardo Cooperative offer comments and recommendations in response to the draft Groundwater Sustainability Plans (GSPs) for the Langley, East Side, Forebay, and Upper Valley Subbasins as released in the Fall of 2021 by the Salinas Valley Basin Groundwater Sustainability Agency (SVB GSA). Previously, we submitted comments on April 23, 2021 regarding Chapters 1-8, on April 28, 2021 on a preliminary draft of Chapter 9, and on June 17, 2021 regarding Chapters 2, 9, and 10.

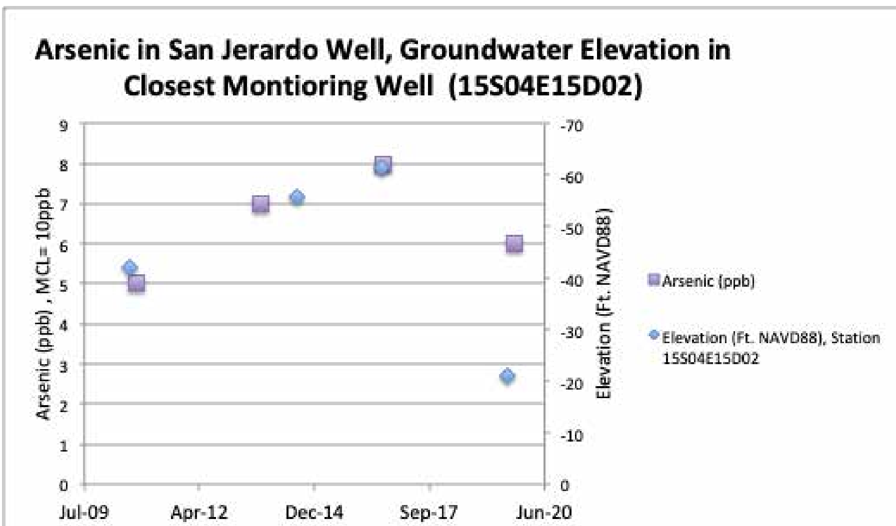
Because the Subbasin GSP drafts are now to be reviewed and voted upon by the SVB GSA Board, we take this opportunity to synthesize many of our comments into one document and provide relevant updates based on SVB GSA Staff responses and our answers in turn. Responses included here from SVB GSA, unless otherwise cited, were published in the Comment Letter Comment Tables responding to public comments made mid-2021 when drafts were prepared for the Subbasin Committees.[1] Additionally, unless otherwise noted, GSP Section numbers refer to the Eastside Subbasin GSP and the comments apply to all SVB GSA subbasins. As always, these comments are intended to add to the public record and are submitted in addition to previous written and spoken comments.

We reiterate the following context for this comment letter and the San Jerardo Cooperative's participation in particular. The challenges facing San Jerardo and similar communities throughout all the Subbasins in the Salinas Valley are the foundation of our comments in this letter. The San Jerardo Cooperative's well is highly vulnerable to changes in groundwater levels and groundwater quality. Over decades of living and working at San Jerardo Cooperative, Advisory Committee Member Horacio Amezquita has observed firsthand how the irrigation practices on properties surrounding the cooperative impact the water quality in their current and former wells. The San Jerardo Cooperative receives drinking water from a small public water system (CA2701904) and is very concerned that

[1] SVB GSA. (2021). *Subbasin GSP Comment Letter Comment Tables*. On file with SVB GSA and available at: svbgsa.org. *See e.g.*, https://svbgsa.org/wp-content/uploads/2021/08/Eastside-Comment-Letters-Responses-081021.pdf.

pumping, irrigation practices, and groundwater management in the East Side Subbasin will cause their drinking water well, which currently meets all drinking water standards, to exceed the maximum contaminant levels for arsenic and/or nitrate. Unfortunately, data from the State Water Board indicates increasing levels of nitrate and arsenic in their well with a high arsenic level of 8 ppb on 8/22/2016 that also corresponds to a low groundwater elevation of -61.5 in Station 15S04E15D02, the closest monitoring well to the San Jerardo Cooperative's well (See CWC Figures 1 and 2).[2] While there are too few monitoring data points to draw significant conclusions, CWC Figure 1 does suggest that arsenic levels are higher when groundwater levels are lower. Scientific studies confirm that contaminants like arsenic, uranium, and chromium (including hexavalent chromium) are more likely to be released under certain geochemical conditions influenced by pumping rates, geological materials, and water level fluctuations.[3]

CWC Figure 1: Arsenic in San Jerardo Well, Groundwater Elevation in Closest Monitoring Well
(Note: The groundwater elevation y-axis is reversed to illustrate that lower groundwater elevations are associated with higher arsenic levels.)



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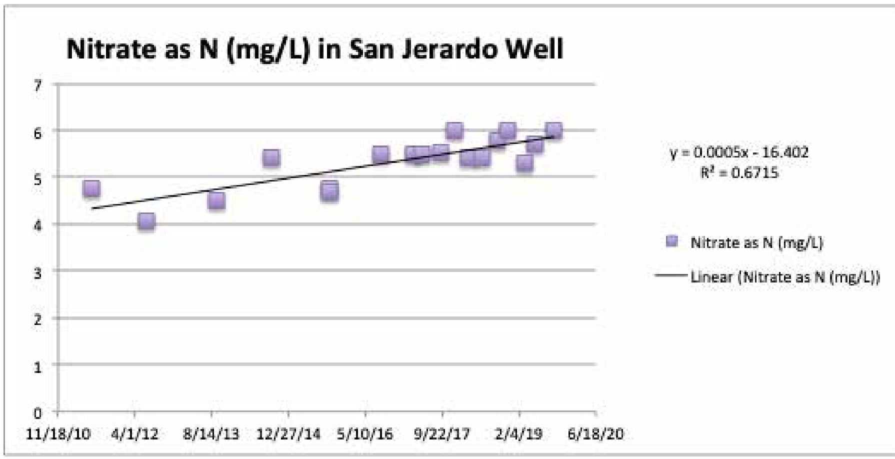
[2] CWC Figure 1 contains all available arsenic data from the State Water Board's Drinking Water Watch online database (https://sdwis.waterboards.ca.gov/PDWW/) which was collected in October 2010, 9/11/13, 8/22/16, and 9/23/19. We then added the monitoring data for Station 15S04E15D02 for the dates most close to the arsenic sampling dates (August 2010, August 2014, August 2016, and August 2019). CWC Figure 2 data was also downloaded from the same online database.

[3] Community Water Center and Stanford University (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium*. Available at: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

CWC Figure 2: Nitrate in San Jerardo Well.



We provide more specific chapter-by-chapter comments below. We emphasize that the GSP must be revised throughout to further incorporate the best available science[4] showing that groundwater pumping and groundwater level changes can influence water quality, and the GSA has obligations to prevent the significant and unreasonable exacerbation of degraded water quality. We also note that a management decision to *not* regulate pumping and to therefore permit current pumping rates is still a management decision. This recommendation is supported by DWR's 180/400 ft Aquifer GSP Determination on June 3, 2021:

> "**[S]taff find that the approach to focus only on water quality impacts associated with GSP implementation, i.e., GSP-related projects, is inappropriately narrow.** Department staff recognize that GSAs are not responsible for improving existing degraded water quality conditions. **GSAs are required; however, to manage future groundwater extraction to ensure that groundwater use subject to its jurisdiction does not significantly and unreasonably exacerbate existing degraded water quality conditions.**
> Where natural and other human factors are contributing to water quality degradation, the GSAs may have to confront complex technical and scientific issues regarding the causal role of groundwater extraction and other groundwater management activities, as opposed to other factors, in any continued degradation; but **the analysis should be on whether groundwater extraction is causing the**

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[4] 23 CCR § 355.4(b)(1). "When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following:
(1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are reasonable and supported by the best available information and best available science."

degradation in contrast to only looking at whether a specific project or management activity results in water quality degradation.
Department staff recommend that the SVBGSA coordinate with the appropriate water quality regulatory programs and agencies in the Subbasin to understand and **develop a process for determining when groundwater management and extraction is resulting in degraded water quality in the Subbasin** (see Recommended Corrective Action 5).”[5]

We strongly recommend that the GSPs incorporate a more robust and representative monitoring network and minimum thresholds to protect vulnerable communities like San Jerardo and those dependent on shallow domestic drinking water wells. This network should include state and local small water systems. In tandem, we recommend the incorporation of a Well Impact Mitigation Program, as discussed below.

Thank you for reviewing this letter and for the consideration of our comments on the draft GSP chapters. We look forward to working with the SVB GSA to ensure that the GSPs are protective of the drinking water sources of vulnerable, and often underrepresented, groundwater stakeholders. Please do not hesitate to contact us with any questions or concerns. We also look forward to meeting with you in the future to further discuss issues raised in these and past comments.

Sincerely,

Heather Lukacs
Community Water Center

Horacio Amezquita
General Manager, San Jerardo Cooperative, Inc.

Justine Massey
Community Water Center

Mayra Hernandez
Community Water Center

[5] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* Pp. 26-27. (Internal citations omitted; emphasis and paragraph breaks added). Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

GSP Chapter 2: Communications and Public Engagement

SGMA requires GSAs to consider all beneficial users in groundwater management decisions and specifically names domestic well users and disadvantaged communities (DACs) as beneficial users.[6] SGMA also requires GSAs to "encourage the active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin *prior to and during the development and implementation of the groundwater sustainability plan."*[7] The regulations similarly require that a GSP summarize and identify, "opportunities for public engagement and a discussion of how public input and response will be used."[8] The GSA thus must engage, "diverse social, cultural, and economic elements of the population within the basin."[9] SGMA Regulations recognize that failure to engage adequately with a diverse cross-section of the public undermines the likelihood that a GSP will avoid undesirable results and meet its sustainability goal.[10]

Community Water Center appreciates the statement found in Chapter 2 of the Langley, Eastside, Forebay, and Upper Valley subbasins: "[T]he success of the... Subbasin GSP will be determined by the collective action of every groundwater user."[11] Public engagement invites citizens to get involved in deliberation and to take action on public issues that are important to them. More importantly, it helps leaders and decision-makers have a better understanding of the perspectives, opinions, and concerns of citizens and stakeholders, especially those who are traditionally underrepresented. DWR's Guidance for Stakeholder Communication and Engagement acknowledges that public engagement, when done well, goes far beyond the usual participants to include those members of the community whose voices have traditionally been left out of political and policy debates.[12] Additionally, as part of a Strategic Planning Review, SVB GSA has recently recognized an overrepresentation of agricultural interests in its GSP formation process and voiced interest in balancing its representation, however has not yet taken action to do so. In this light, we offer the following recommendations:

- **Fast-track stakeholder outreach efforts in order to meaningfully engage beneficial users throughout the basin in the GSP development process currently underway.**
    - Based on our review of the language in Chapter 2 of the Subbasin GSPs, it appears that the outreach and engagement strategies outlined in Section 2.7, which are specific to the underrepresented communities and disadvantaged communities in the Basin, are to be put in place only after the GSP is submitted in 2022.

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[6] Cal. Water Code § 10723.2.

[7] Water Code § 10727.8. (Emphasis added).

[8] 23 CCR § 354.10(d)(2).

[9] DWR (2018). *Guidance Document for Groundwater Sustainability Plan: Stakeholder Communication and Engagement.* P. 1. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Assistance-and-Engagement/Files/Guidance-Doc-for-GSP---Stakeholder-Communication-and-Engagement.pdf.

[10] 23 CCR §355.4(b)(4).

[11] SVB GSA (2021). *Subbasin GSPs Draft - Chapter 2: Goals for Communication and Public Engagement.* P. 10 (in all drafts). Available at: https://svbgsa.org/subbasins/.

[12] DWR (2018). *Guidance Document for Groundwater Sustainability Plan: Stakeholder Communication and Engagement.* Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Assistance-and-Engagement/Files/Guidance-Doc-for-GSP---Stakeholder-Communication-and-Engagement.pdf.

    - This delay results in little to no participation or input from these communities during the GSP development process currently underway.
- Update: While SVB GSA held workshops with DAC representatives to develop a plan for outreach to DACs, **the resulting plan to solicit DAC input regarding the core management decisions in the GSP—including the setting of SMCs and the representative monitoring network—was *not* implemented during GSP development.** Consulting DAC stakeholders solely in regards to outreach strategies is not sufficient engagement. It is likely that due to SVB GSA's lack of implementation of their outreach strategy plan[13] many DAC voices and opinions have been left out of this current GSP because DAC residents have not been made aware of this process. Even if they are aware of the GSP process, many still lack the information and tools they need to participate. It is critical to have DAC stakeholders engaged in the development of the GSP as well as on a continuing basis.
    - Section 2.4 asserts that SVB GSA "deployed… [an] inclusive outreach and education process conducted that best supports the success of a well- prepared GSP that meets SGMA requirements." However, acknowledging that initial steps were taken, the GSA has not provided evidence of carrying out this outreach and fulfilling SGMA requirements.
- **Specify which outreach strategies will be used to reach underrepresented communities and disadvantaged communities.** The proposed goals for communication and engagement actions and strategies in this chapter lack important details to ensure that all beneficial users, especially underrepresented communities and disadvantaged communities, will have access to the resources that are being proposed. It must be noted that underrepresented communities and disadvantaged communities may not have access to the internet, therefore they may not have access to the online resources on either the SVB GSA website or through social media. Additionally, in the case that they do have access to the internet, they may lack knowledge or familiarity regarding how to access the online resources.
- **Provide a strategy for how to reach stakeholders with limited or no SGMA knowledge.** In Subbasin GSPs' Section 2.6.3, SVB GSA acknowledges that there is a "variety of audiences targeted within the Basin whose SGMA knowledge varies from high to little or none." However, no strategy is provided for how those with no knowledge will be reached. This chapter should be modified to include more details on how and what additional strategies will be implemented to ensure that SVB GSA is reaching all beneficial users. We recommend the following approaches:
    - **Include more grassroots-based approaches to request and incorporate DAC and drinking water user feedback in the GSP, which are critical to actually reaching stakeholders and fulfilling the GSA's goal.** One of the goals of the Communications and Public Engagement (CPE) Actions which we strongly support is to "invite input from the public at every step in the decision-making process and provide transparency in outcomes and recommendations." However, based on the communication/ outreach strategies mentioned in the chapter, efforts fall short of inclusivity. The general public

[13] As outlined in February 2021 SVB GSA Staff Report, Available at: https://legistarweb-production.s3.amazonaws.com/uploads/attachment/pdf/820418/Item_5a_-_Staff_Report.pdf.

does not always have access to certain resources like the internet, and even if they do have access they may not know how to use social media, use email, or browse the web.

- **Document and continue the policy of providing translation services at public meetings and of providing bilingual (English and Spanish) information and materials on the website, via email, and paper mail.** The Dymally-Alatorre Bilingual Services Act requires that public agencies serving over 10% of non-English speaking constituents provide appropriate translation services.[14] At a minimum, translated information should be provided during Plan updates and prior to critical decisions. In particular, the submitted GSP released during the formal comment period should include bilingual materials highlighting key summaries of the GSP. Critical decision points also include the adoption of groundwater fees, the approval of new groundwater projects or management actions, and decisions around pumping restrictions.
- **Consider inserting short notices in water bills and/or community newsletters on a monthly basis (notices should include key messages, visuals and information that is relevant to the average water user).** These notices must be translated as described above.
- **Specify how and when the accessible and culturally responsive GSA materials mentioned in Section 2.7 will be developed to communicate impacts of groundwater management on local water conditions and how they will be delivered or made available to URCs and DACs that do not have internet access.** Accessibility includes appropriate visual content and translation.
- **Consider using USPS every door direct mail (EDDM) to send out educational materials and updates to all stakeholders.** This tool can be used to map ZIP Code(s) and neighborhoods, it also has a filter feature that lets you filter by age, income, or household size using U.S. Census data. This tool can be helpful to reach stakeholders that do not have internet access.
- **Clearly identify and utilize existing community venues (on a monthly basis if possible) for community meetings, workshops, and events to provide information**. For example, the GSA could hold educational workshops during water board and school district board meetings, or after church services. Venues should be carefully selected in order to meet the needs of the targeted audience.
- **Clearly identify radio channels, social media avenues, websites, and other media outlets readily accessible to the community**. The submitted GSP should be revised with a policy requiring a broader outreach effort in the near future, with bilingual outlets.
- **Specify a timeline to work with key community leaders or trusted messengers on at least a monthly basis to distribute information and encourage community participation.** Venues for such leaders to share information could include churches, civic groups, clubs, non-profit organizations, and schools.
- **Consider hosting Spanish-only outreach meetings, as they can be more effective in transferring knowledge and receiving feedback.** It can be a challenge to provide

[14] California Government Code §7290.

real-time translation of technical groundwater terms and concepts in a way that is understandable and promotes participation, so it may be appropriate to conduct a meeting entirely in Spanish so that participants can be fully immersed in the discussion.

    - **Consider hiring a bilingual Stakeholder and Outreach Communication specialist as part of the SVB GSA staff.** Expanding the GSA's reach to different audiences and maintaining a robust stakeholder list of interested individuals, groups and/or organizations is a good step to ensure that the general public is informed about the GSA's activities. However, it will require substantial time and effort to develop a clear outreach methodology, obtain a representative list of stakeholders (including those who do not engage online), ensure language accessibility, and make sure stakeholders stay informed and engaged. A bilingual Stakeholder and Outreach Communication specialist could support this work.

- **We recognize and appreciate the inclusion of Appendix 2D Disadvantaged Communities in this draft of the subbasin GSPs. We recommend the following corrections / improvements to better represent DACs and their drinking water sources:**
    - **Clarify the number of domestic water systems that Monterey County Department of Environmental Health regulates under its Local Primacy Agency Authority as well as the local small water systems regulated under County Code.** See page 61 of the Eastside Volume 1 Appendices which states "There are approximately 160 such systems in the County regulated under this program."[15] This number is likely referring to the total number of public water systems serving less than 200 connections regulated by Monterey County but does not include state and local small water systems. From Monterey County's webpage on Small Water Systems "The Drinking Water Protection Services regulates Local and State Small Water Systems, which serve 2-14 connections. Many residents and visitors receive their water from these systems. Drinking Water Protection Services currently administers 969 systems, which serve about 4232 connections."[16]
    - Update the maps of **all disadvantaged communities (DACs) currently in Appendix 2D in the following ways:**
        - To reflect more recent census data from 2019 or later (the current map shows data from 2016). Continue to share the DAC/SDAC status of all census block groups, census designated places, and census tracts.
        - Include DAC or SDAC communities according to household income surveys conducted in accordance with state and federal agency guidelines to determine eligibility for state funding programs.
        - More clearly show the location of DACs, their drinking water sources, and their water quality in the subbasin including private wells. Figure 2 in Appendix 2D

[15] https://svbgsa.org/wp-content/uploads/2021/08/Eastside-Volume-1-Appendices.pdf
[16] https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/state-and-local

should combine data from GAMA and Monterey County to show the levels of COCs, including but not limited to nitrate, in recent years in drinking water sources in DAC areas. This would also provide data for Figure 2 in the Monterey County Subbasin which currently does not show any water quality data, because the Monterey Subbasin was not part of the geographic scope of the CCGS (2015) information included in the appendix.

- Update Figure 2 to show the entire Salinas Valley and not only the subbasins in the north. The Upper Valley Subbasin Volume 1 Appendices, for example, includes Figure 2 that does not show the Upper Valley subbasin.[17]

GSP Chapter 3: Description of Plan Area

The description of the plan area can be improved by clarifying the descriptions of the drinking water users in the area. In order to develop a GSP that addresses the needs of all beneficial users, it is critical that the location and groundwater needs of Disadvantaged Communities (DACs) and all drinking water users including domestic well communities are explicitly addressed early on in the GSP. In addition to comments previously submitted to the GSA on July 10, 2020, we recommend the following updates to this chapter:

- **Clarify the number and type of public water systems in the subbasins throughout the entire plan.** In each subbasin plan, there are discrepancies between types and numbers of public water systems in different chapters. It is absolutely critical to clearly include the number of public supply wells *currently in use* in the GSPs. For example, the East Side GSP lists the following:
    - Table 3-2 Well Count Summary shows “Public Supply= **24 wells**”
    - Table 5-3 GAMA Water Quality Summary shows "Number of Existing Wells in Monitoring Network Sampled for COC to be **78** for 123-TCP, **89** for Nitrate, and **70** for TDS.
    - Section 7.5 says "**Ninety** DDW wells have been chosen to be part of the RMS network. These wells are shown on Figure 7-4 and listed in Appendix 7D.” This table includes all DDW wells that were sampled for COCs between December 1982 to December 2019, yet it is unclear whether all these wells are still active, and after consulting Appendix 7D, it is unclear whether these wells are all public water system wells, as defined in Section 7.5, or whether wells of other types are also included.
    - Table 8-4 Groundwater Quality Minimum Thresholds - **No well count shown**.

  We recognize that different data sources have different limitations and recommend using the best available data consistently throughout the plan.
- Add a clear reference to a **table of all public water systems, their names, locations, number of connections, and number of active wells** in the text that is consistent with the numbers of wells in Table 3-2, Table 5-3, Section 7.5, and other locations where mentioned in the GSPs.

[17] See page 58 of Upper Valley Subbasin Volume 1 Appendices: https://svbgsa.org/wp-content/uploads/2021/08/Upper-Valley-Volume-1-Appendices-1.pdf)

    - Appendix 7-D: DDW and ILRP Wells in the Water Quality Monitoring Network should be updated to include the number of connections served by that well and the status of the well as active or inactive according to DDW.
- **Revise Section 3.6.2 on the Agricultural Order to indicate that Agricultural Order 4.0 includes monitoring requirements including on-farm domestic well monitoring of nitrate and 123-trichloropropane (123-TCP).** 123-TCP should also be included in the monitoring network (see comments in Chapter 7).

GSP Chapter 4: Hydrogeologic Conceptual Model

The hydrogeologic conceptual model is a key component of the basin setting. The basin setting represents the baseline assumptions that the GSA relies on throughout the GSP when choosing minimum thresholds, measurable objectives, and undesirable results, as well as when planning projects and management actions. We recommend that the GSA:

- **Revise Section 4.6 on Water Quality to acknowledge that "natural groundwater quality in the Subbasin" can be influenced by pumping and the way groundwater is managed.**[18] As indicated in our cover letter, this is of particular importance for the San Jerardo Cooperative who has experienced increases in nitrate and arsenic in their well.
    - SVB GSA response (Section 5.4.3): "Text about the effect of groundwater pumping on groundwater quality was added to Chapter 5 in the "Distribution and Concentrations of Diffuse or Natural Groundwater Constituents" section. A discussion on the effect of lowering groundwater elevation on groundwater quality is included in Chapter 8 in the "Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators" section for groundwater elevations under the degraded water quality bullet."
    - Our response: We appreciate the addition of a paragraph in Section 5.4.3 and recommend that this is also acknowledged in Section 4.6 since the topic of "natural groundwater quality" is being discussed. Furthermore, the release of arsenic into groundwater can be attributed to low dissolved oxygen levels, high rates of pumping, and an increase in pH. These changes can all be attributed to how groundwater is managed.

GSP Chapter 5: Groundwater Conditions

SGMA Regulations require: "Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes the following: … (d) Groundwater quality issues that may affect the

[18] Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes."[19] We do not believe the GSA is meeting this requirement and recommend that the GSA make the following changes to Chapter 5 of all subbasin GSPs (East Side, Langley, Upper Valley, Forebay, and Monterey) to clearly represent current and past water quality conditions in the subbasin in order to inform the monitoring network, sustainable management criteria, planning, management actions, and projects.

Groundwater Quality Distribution and Trends

- **Clearly state in the introduction to Section 5.4 that the amount and location of pumping can impact groundwater quality distribution and trends.** We recommend including the following language in the letter submitted by the State Water Board to DWR regarding the 180/400 foot aquifer GSP (Dec. 2020): "Not all water quality impacts to groundwater must be addressed in the GSP, but significant and unreasonable water quality degradation due to groundwater conditions occurring throughout the subbasin, and that were not present prior to January 1, 2015, must be addressed in the GSP's minimum thresholds."[20] High rates of groundwater pumping can pull in contaminant plumes towards drinking water wells, cause the release of arsenic from the strata in the ground, and when shallow wells go dry or are too contaminated to use, new wells must be drilled into deeper portions of the aquifer where they are more likely to encounter high arsenic levels.[21] As previously mentioned, this is of direct concern to the San Jerardo Cooperative, which has observed increasing arsenic levels in their relatively new drinking water well, which was drilled to replace a more shallow well contaminated with nitrate and 123-trichloropropane.
    - SVB GSA response: "The SVBGSA does not have regulatory authority over groundwater quality and is not charged with improving groundwater quality in the Salinas Valley Groundwater Basin. Projects and actions implemented by the SVBGSA are not required to improve groundwater quality; however, they must not further degrade groundwater quality."[22]
    - Our response: CWC recommendation in this section is not to extend the GSA's responsibility to improving water quality. But if extraction rates that the GSA allows to occur result in water quality degradation, then that is within the GSA's responsibility to address. The GSA has explicit statutory authority and responsibility to prevent significant and unreasonable water quality degradation.[23] In line with this responsibility, DWR has instructed GSAs to map out where water quality issues exist in the basin, and to prevent

[19] Cal. Code of Regulations § 354.16(d)
[20] DWR SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29
[21] Community Water Center and Stanford University, (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium*. Available at: https://www.communitywatercenter.org/sgmaresources.
[22] Salinas Valley Groundwater Sustainability Agency, Langley Area Subbasin GSP, p. 5-21.
[23] Cal Water Code § 10721, subd. (x)(4).

new impacts from occurring.[24] This includes managing contaminant plumes that may migrate or increase in concentration due to extraction rates and locations.

- **Include trend data for drinking water wells in the subbasins.** In some places, nitrate and other contaminants are increasing in drinking water wells. It is important to understand current contamination values and also whether well water quality is improving, staying the same or declining as well as the relationship of water quality to other sustainability indicators. As indicated by the data provided in this section, Monterey County maintains an exceptional dataset of water quality data for over 900 state and local small water systems serving 2-14 connections that should be utilized throughout the GSPs. Monterey County has sampled many small water systems for decades. CWC Figures 3 and 4 show nitrate concentrations increasing over time in two state small water systems in the East Side sub basin with high levels in one of the systems (Middlefield Rd. Water System #4) in 2015. Figure 5 illustrates arsenic concentrations in the Metz Road Water System #4 in the Forebay Subbasin. In some cases, data shows fluctuations and peaks in concentrations during the 2015-2016 timeframe. This is similar to the San Jerardo example shared previously. Further, the Central Coast Regional Water Board has analyzed data from their Irrigated Lands Regulatory Program to show that many wells across the region are showing increasing levels of nitrate concentrations and recent studies have confirmed that there is a link between decreased water quality and declining groundwater levels observed during times of drought.[25]
    - SVB GSA staff responded: "Nitrate trends are included based on a review of existing studies. The analysis of temporal trends are not required and would entail substantial additional work that would not likely change the management approach. Water quality data for DDW wells and ILRP on-farm domestic and irrigation supply wells were used to make maps showing the spatial distribution of water quality exceedances of Title 22 or Basin Plan standards from 2013 to 2019 are now included in a new Chapter 5 Appendix."
        - Our response: : We maintain our position on the importance of including trend data as previously recommended because the way in which the GSA manages the basin impacts water quality. GSAs are responsible for monitoring water quality conditions in the basin and ensuring that they do not degrade beyond 2015 conditions.[26] The rate, timing, and location of pumping as well as fluctuations in groundwater levels overtime can result in the horizontal and

[24] Dept. of Water Resources, 180/400 Foot Aquifer Groundwater Sustainability Plan Determination, (June 3, 2021), pp. 26-27.
[25] Draft Ag Order, Attachment A, 141-143. Available at: https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/ag_order4_renewal/2021april/pao4_att_a_clean.pdf; *see also* U.S. Geological Survey (USGS). (Sept 2021). *Increased Pumping in California's Central Valley During Drought Worsens Groundwater Quality.* California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA). Available at: https://www.usgs.gov/news/increased-pumping-california-s-central-valley-during-drought-worsens-groundwater-quality.
[26] Cal. Water Code §§ 10721 subd. (x)(4) and 10722.2 subd. (b)(4).

vertical migration of contaminant plumes into drinking water sources, including vulnerable private domestic wells.

- SVB GSA Staff replied: "The relationship between declining water levels and water quality degradation was evaluated for the Eastside Subbasin as presented in the December 2020 Subbasin Planning Committee Meeting. Although there seems to be a relationship between decreasing groundwater elevations and degrading water quality, within the analysis for the Eastside, subbasin-wide data does not show a strong correlation. Thus, the data is not definitive enough to determine if the decline in groundwater quality is due to additional loading of constituents or lowering of groundwater elevations. There may be a correlation within individual wells, like is seen in San Jerardo, however, that could be due to those other factors."
    - Our response: The current best available science[27] clearly links decreasing groundwater levels, including through overpumping of groundwater, to exacerbated degradation of groundwater quality. The U. S. Geological Survey (USGS) analyzed trends of increased pumping in California's Central Valley and further degradation of water quality and concluded that they are interlinked.[28] There is no reason to assume that the Central Coast would be subject to a hydrology so distinct as to negate the applicability of this finding to SVB GSA's groundwater management. Because of this established correlation, in instances of further water quality degradation, particularly when resulting in impacts to drinking water wells, SVB GSA should have the burden of proof to show that exacerbated water quality degradation is *not* linked to pumping practices, and identify the responsible source.
        - This is another example of why a more representative monitoring system for water quality (ie including SSWS and LSWS data from the Monterey County Environmental Health Department) would benefit Salinas Valley groundwater management, so that impacts can be identified and addressed in a highly localized manner. Additionally, even if the Subbasin GSPs plan to maintain current water levels, the GSA should be prepared to respond in case basin conditions do not evolve as planned and water quality degradation is exacerbated by ongoing pumping practices, including if hotspots (highly concentrated areas of

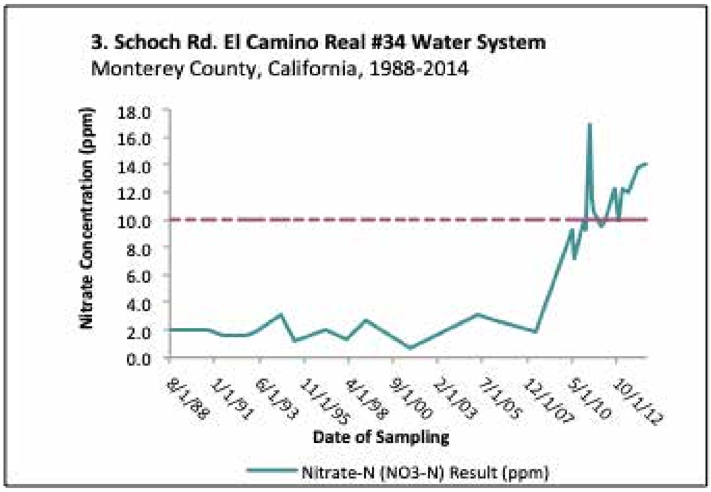
[27] 23 CCR § 355.4(b)(1). "When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following:
(1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are reasonable and supported by the best available information and best available science."

[28] U.S. Geological Survey (USGS). (Sept 2021). *Increased Pumping in California's Central Valley During Drought Worsens Groundwater Quality.* California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA). Available at: https://www.usgs.gov/news/increased-pumping-california-s-central-valley-during-drought-worsens-groundwater-quality.

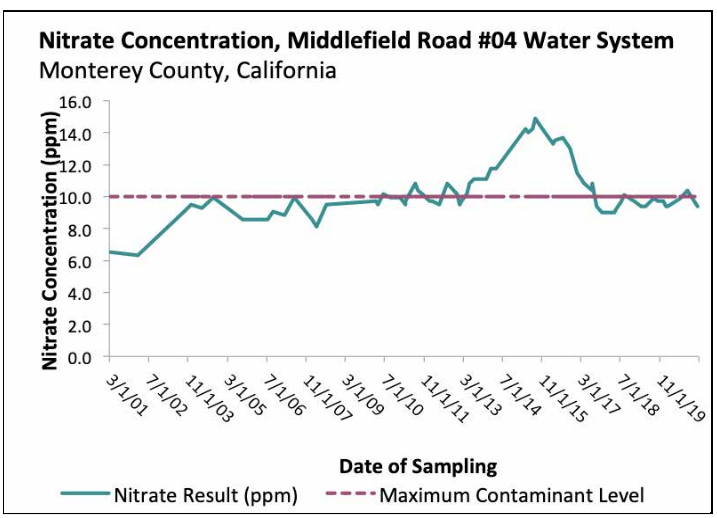
impact) of contamination form which impact drinking water beneficial users.

- We further request additional information be added to the GSP about the analysis conducted by the SVB GSA to understand the relationship between groundwater quality and groundwater levels. It is not sufficient to say this analysis was conducted without also providing the public information about the data sources, methods, and findings.

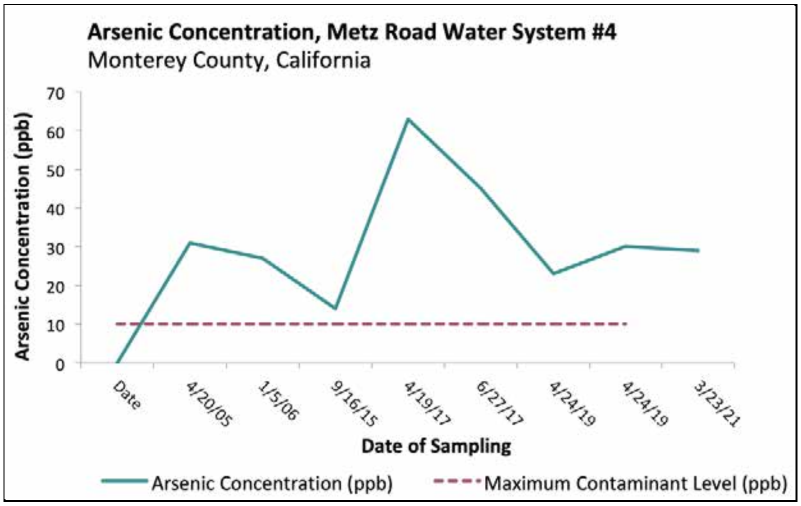
CWC Figure 3: El Camino Real WS #34 - Nitrate as N, East Side Subbasin



CWC Figure 4: Middlefield Road WS #4 - Nitrate as N, East Side Subbasin



CWC Figure 5: Metz Road Water System #4, Arsenic, Forebay Subbasin



- **Revise Section 5.4 to include a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have been detected in the subbasin and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** This section should include water quality data (both in map and tabular form) for all constituents (where available) with primary drinking water standards that have been detected in the subbasin including, but not limited to, **nitrate, 123-trichloropropane, hexavalent chromium,[29] arsenic, uranium, and perchlorate for all public drinking water wells, state and local small water system wells, and private domestic wells.** It is especially important for all groundwater stakeholders to be able to understand and visualize the location of contaminant hotspots throughout each subbasin.
    - **Present maps and supporting data for all constituents of concern.** The review of water quality data in the groundwater conditions section of the draft Section 5.4 in the subbasin GSPs is focused primarily on nitrate. The GSPs identify numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, do not present this data spatially. Even though the subbasin GSPs set water quality minimum thresholds for additional constituents (See Tables 8-4 and 8-5), the supporting data is not all presented, and limited analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR § 354.16(d)).
    - We reiterate the request made in previous comment letters and acknowledge the inclusion of Appendix 5-B, Figure 1: Water Quality Exceedances for DDW Wells which shows DDW wells that have had a COC exceedance between 1986-2019. This new appendix has significant limitations. For example, San Jerardo Cooperative's well is

[29] The maximum contaminant level for hexavalent chromium should be reinstated in 2021. Data is available from the State Water Resources Control Board and Monterey County Environmental Health Bureau (public water system data, state/local small water system data) as well as on GAMA from the Central Coast Regional Water Quality Control Board's private well testing program.

shown to have multiple exceedances of COCs during the time period shown (between 1986-2019). Yet, the well that had these exceedances is no longer active. Instead, San Jerardo's new well is showing increased trends of nitrate and arsenic. CWC's Figures in this comment letter illustrate the importance of presenting trend data for San Jerardo Cooperative's well and others throughout the Salinas Valley Basin. It is also important to include COC data for wells that are not yet in violation of drinking water standards. In addition, *CWC Figure 6: Arsenic Concentrations in Public Water System Wells, Monterey, Langley East Side Subbasins (Red dots = >10 ppb, Orange = 5-9.9 ppb, Yellow = 0.6-5.9 ppb, Green= non-detect)* illustrates hot spots for arsenic and also areas in orange (5-9.9 ppb arsenic), like San Jerardo, that are at risk if business-as-usual groundwater management continues.

- **Augment and clarify data presented in Table 5-3 GAMA Water Quality Data Summary and Section 5.4.1 in the following ways:**
    - **Add all state and local small water systems data.** Table 5-3 should include all state and local small water system data for nitrate, arsenic, hexavalent chromium, and any other contaminants that Monterey County monitors in the subbasin.
    - **Include additional contaminants that have been detected in the subbasin(s) to be consistent with Tables 8-5 and 8-6.** Our review of publicly available data on drinking water wells of all types (private domestic wells, state/local small water systems, and public water systems) indicate that there are additional constituents of concern beyond those currently listed. We included CWC Figure 6 (page 9) to highlight the spatial distribution of arsenic in public water system wells in the **East Side, Langley and Monterey Subbasins**, and CWC Figure 7 (page 10) to highlight the spatial distribution of hexavalent chromium in public water system wells in the **Langley Subbasin**. We recommend a more comprehensive analysis of all other constituents in the subbasins, including, but not limited to the following[30]:
        - **East Side Subbasin:** Table 5-3 presents data on two primary contaminants in drinking water: nitrate and 123-trichloropropane, but arsenic is also of particular concern to San Jerardo Cooperative and others in the subbasin. GAMA shows that four public water system wells have exceedances of the arsenic MCL in the past three years (CWC Figure 8), and state/local small water system out of compliance lists from the Monterey County Health Department (2021) show that both Old Stage Rd WS #6 and Old Stage Rd WS #7 are out of compliance for arsenic and that at least five other state or local small water systems have between 6-8 ppb of arsenic, which means they are similar to San Jerardo

[30] All Monterey County data shared in this section was collected by the small water system program.
https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/state-and-local
It was downloaded from the Greater Monterey County Community Water Tool on April 22, 2021:
http://www.greatermontereyirwmp.org/documents/disadvantaged-community-plan-for-drinking-water-and-wastewater/

Cooperative in terms of their vulnerability to water level fluctuations or other changes.

- **Forebay Subbasin:** While arsenic is less common in the Forebay than in the Langley, Monterey, and East Side Subbasins, our review of the Monterey County Health Department data indicates that 17 state or local smalls had arsenic at levels above 1 ppb in the 2015-2017 time period, and at least two of these had levels above the MCL. See CWC Figure 5 (page 8) which illustrates trends in one of the out-of-compliance small water systems, Metz Road Water System #4. In addition, three systems monitored by Monterey County as part of their Local Primacy Program for public water systems serving 15-199 connections had hexavalent chromium detections of 2.8 ppb, 3.4 ppb, and 2.1 ppb in the 2014-2017 timeframe.
- **Upper Valley Subbasin:** Although arsenic is not as common in the Upper Valley as other subbasins, it has been detected in levels between 3.2 and 5 ppb in six small water systems monitored by Monterey County.

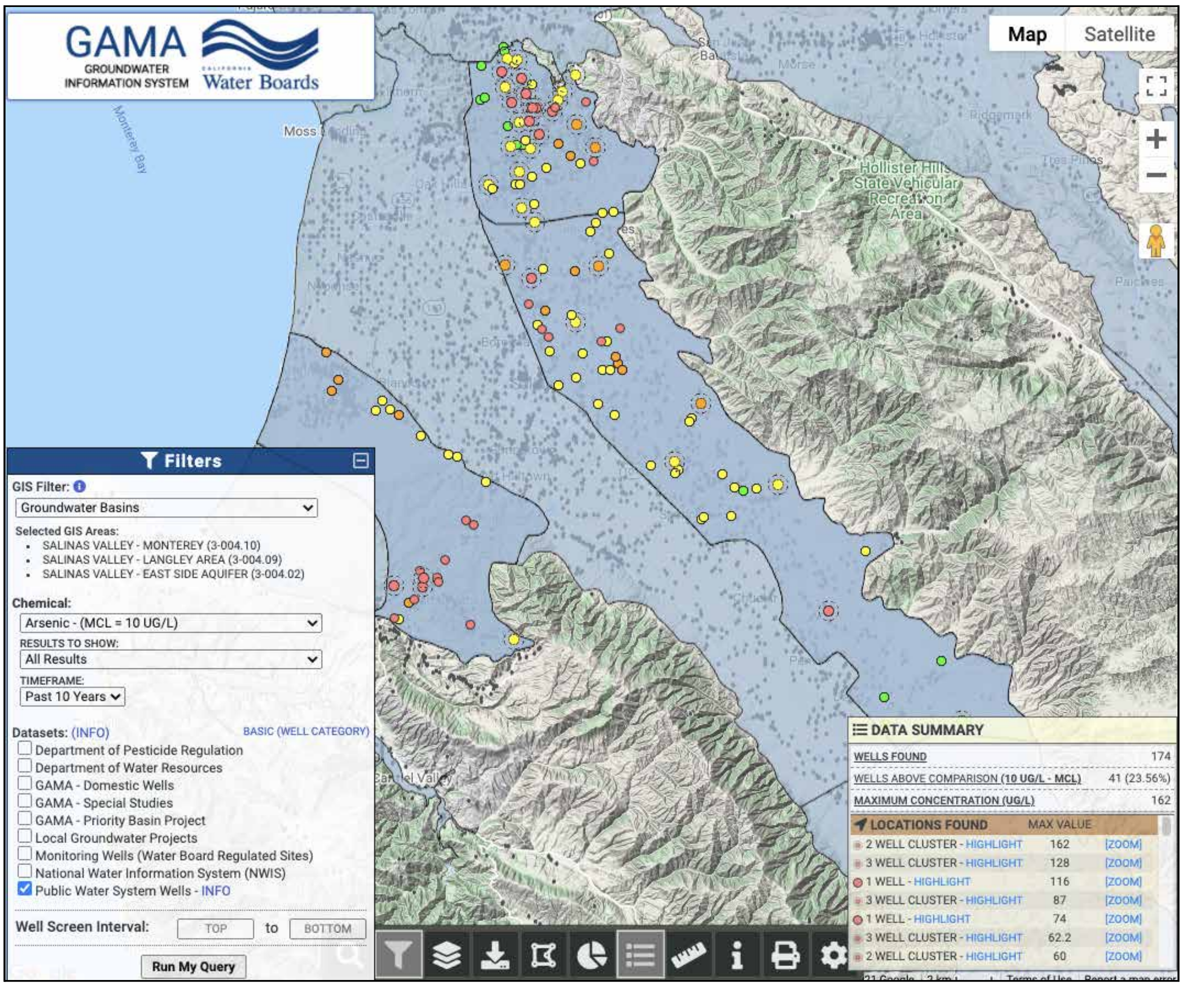
- SVB GSA Response: "The water quality analysis was redone for V2 to include both current and historic groundwater quality data, and arsenic is now a constituent of concern in the Eastside Subbasin. Section 5.4.3 and 5.4.4 text was also revised to provide more specificity about the constituents and wells sampled."
  - Our Response: We acknowledge that the SVB GSA added arsenic as a constituent of concern in the Eastside Subbasin GSP. We reiterate these comments to ensure that all subbasin GSPs include all contaminants detected in the subbasins as COCs. It is important to include all contaminants detected in the subbasins as COCs and not only those greater than the MCLs because many contaminants, such as arsenic and hexavalent chromium, pose a risk to public health at levels much lower than the MCL. The Office of Environmental Health Hazard Assessment (OEHHA) sets a public health goal (PHG) for each chemical. PHGs are levels of a contaminant in drinking water that do not pose a significant risk to health. The public health goal for Arsenic is 0.004 ppb and hexavalent chromium is 0.02 ppb.[31]
  - SVB GSA Staff replied: “Table 5-3 list the constituents of concern (COC) with exceedances in the latest sample for each COC in each well that has not been destroyed or abandoned, and it has been updated to be consistent with Table 8-5 that lists the minimum thresholds and measurable objectives for these constituents only. Table 8-6 list all the constituents for which data is available for the 3 types of wells in the monitoring network (DDW wells, ILRP on-farm domestic, and ILRP irrigation supply wells). Table 5-3 and Table 8-5 do not list all the constituents that have had an the exceedance in these 3 sets of wells, it only includes exceedances that occured in the latest sample, while Table 8-6 includes

[31] https://oehha.ca.gov/water/public-health-goals-phgs

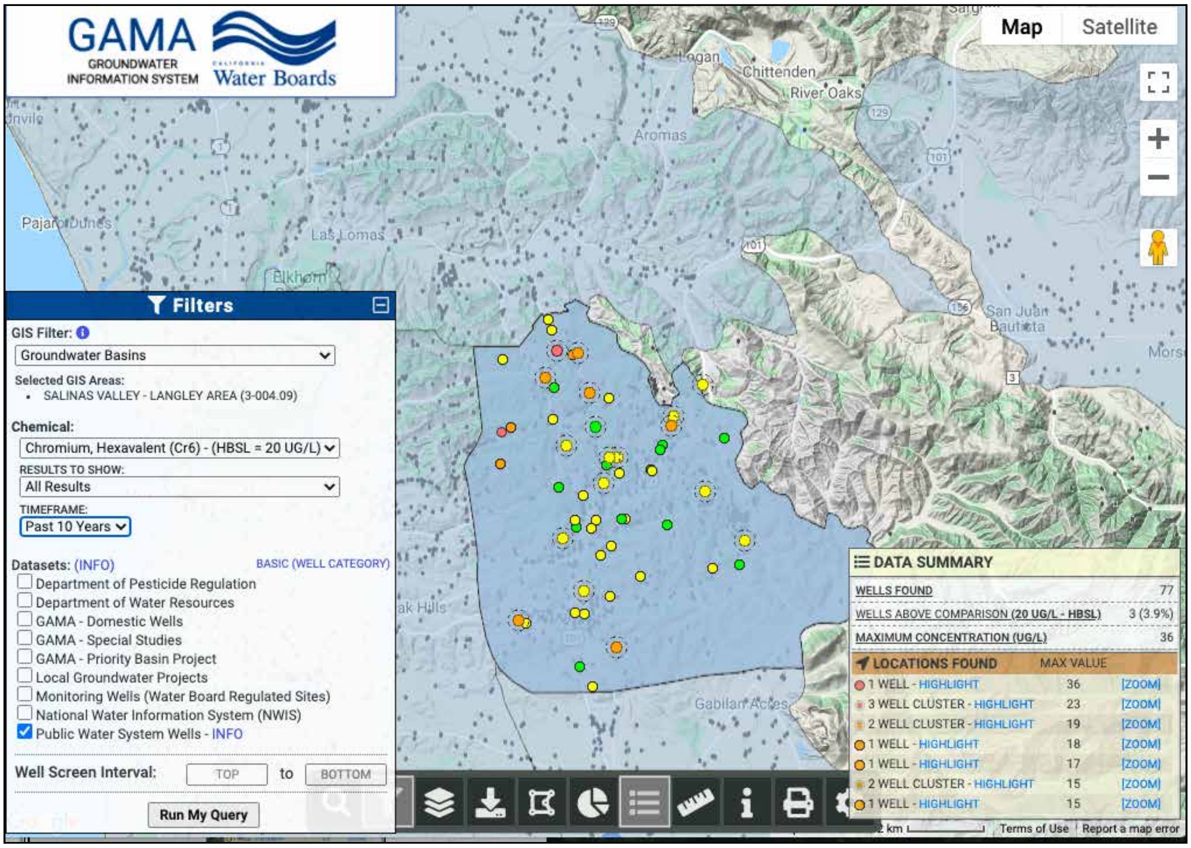
all the constituents that were included in the analysis that have been sampled for historically in each set of wells."

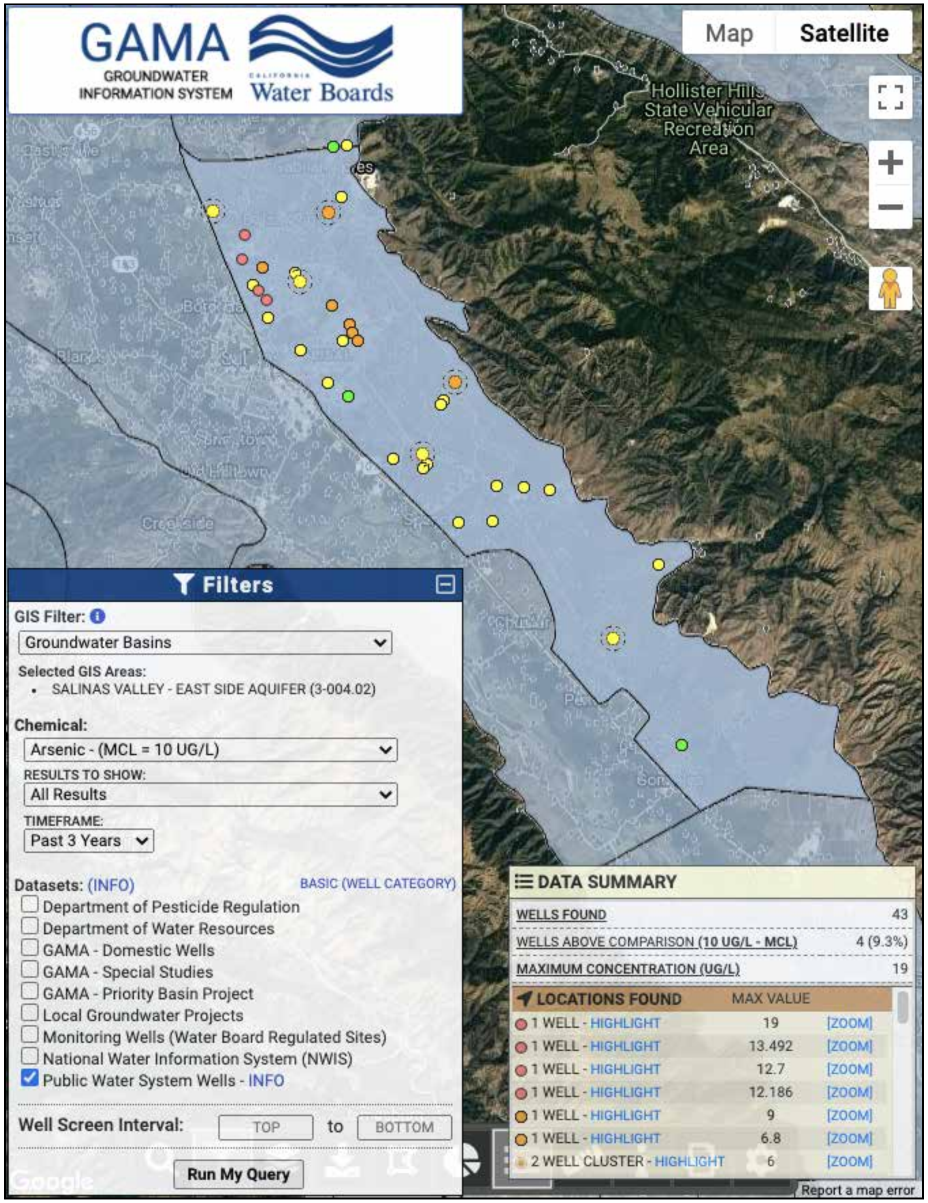
- Our response: We acknowledge the updates to Table 5-3 and request clarity on whether the DDW wells are all public water system wells, as defined in Section 7.5, or whether wells of other types are also included. Also, please add text explaining why two different time periods of data used in this table for DDW and ILRP wells. This table includes DDW wells sampled for COCs between December 1982 to December 2019, and ILRP Wells sampled from May 2013-December 2019.

CWC Figure 6: Arsenic Concentrations in Public Water System Wells, Monterey, Langley East Side Subbasins (Red dots = >10 ppb, Orange = 5-9.9 ppb, Yellow = 0.6-5.9 ppb, Green= non-detect)

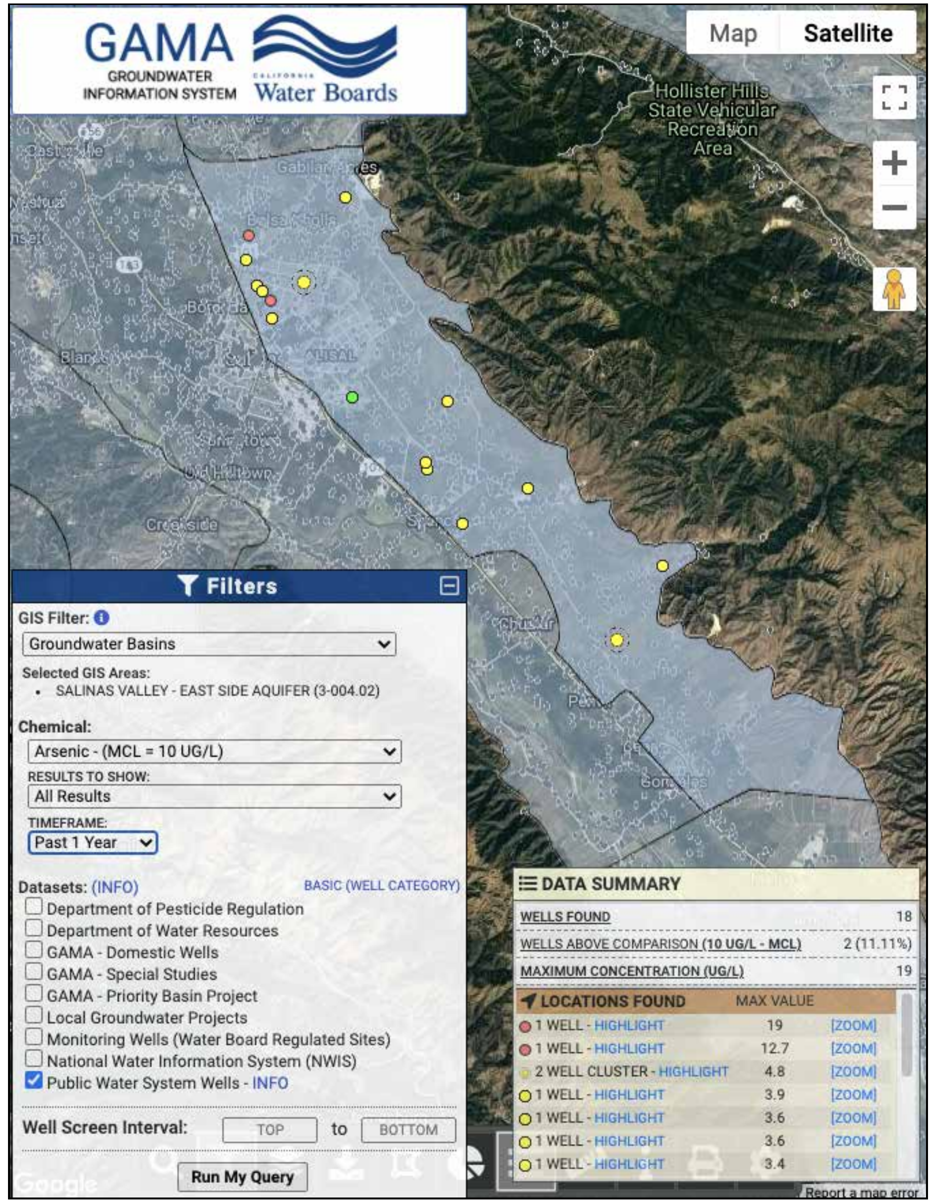


CWC FIgure 7: Hexavalent Chromium Concentrations in Public Water System Wells, Langley Subbasin





CWC Figure 8: 43 Public Water System Wells have arsenic data in the past 3 years. One well at San Jerardo Cooperative appears orange on this map.



CWC Figure 9: Only 18 Public Water Systems Wells have arsenic data in the past year. San Jerardo Cooperative's wells are not shown on this map.

GSP Chapter 6: Water Budgets

SGMA requires a GSP to quantify the water budget in sufficient detail in order to build local understanding of how historic changes have affected the six sustainability indicators in the basin.[32] Ultimately, this information is intended to be used to predict how these same variables may affect or guide future management actions.[33] GSAs must provide adequate water budget information to demonstrate that the GSP adheres to all SGMA and GSP regulation requirements, that the GSA will be able to achieve the sustainability goal within 20 years, and be able to maintain sustainability over the 50 year planning and implementation horizon.[34]

The calculations of sustainable yield and the water budget in this chapter may *overestimate the actual sustainable yield and water availability of the subbasins*. We highlight points of concern below and recommended changes.

6.4 Projected Water Budgets

The SVB GSA Subbasin GSPs explain that "[p]rojected water budgets are extracted from the SVOM, which simulates future hydrologic conditions with assumed climate change. Two projected water budgets are presented, one incorporating estimated 2030 climate change projections and one incorporating estimated 2070 climate change projections. … The climate change projections are based on data provided by DWR (2018)."[35] Including climate change scenarios in water planning is an important step for California's increased resiliency. However, which scenarios to include is a critical question.

Climate change is affecting when, where, and how the state receives precipitation.[36] Impacts to water supply, particularly drinking water supply, could be devastating if planning is inadequate or too optimistic. GSAs must adequately incorporate climate change scenarios in water budgets. As such, the DWR Climate Change Guidance[37] makes recommendations to GSAs for how to conduct their climate change analysis while preparing water budgets. DWR also provides climate data for a 2030 Central Tendency scenario and 2070 Central Tendency, 2070 Dry-Extreme Warming (DEW), and 2070 Wet-Moderate Warming (WMW) scenarios. While DWR's Guidance should be improved with more specific guidelines and requirements, the current Guidance specifically encourages GSAs to analyze the more extreme DEW and WMW projections for 2070 to plan for likely events that may have costly outcomes. Therefore, we recommend that the SVB GSA subbasin GSPs:

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[32] 23 CCR § 354.18.
[33] California Department of Water Resources (DWR), 2016. Best Management Practices for the Sustainable Management of Groundwater, Modeling (BMP #5), December 2016.
[34] 23 CCR § 354.24.
[35] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development. https://data.cnra.ca.gov/dataset/sgma-climate-change-resources/resource/f824eb68-1751-4f37-9a15-d9edbc854e1f?inner_span=True.
[36] Union of Concerned Scientists. Troubled Waters: Preparing for Climate Threats to California's Water System, 2020. https://www.ucsusa.org/resources/troubled-waters#top.
[37] See DWR (2018) reference above.

- **Include water budget analyses based on DWR's 2070 DEW and WMW scenarios in order to analyze the full range of likely scenarios[38] that the region faces.**
    - Currently, the SVB GSA's exclusive use of the "central tendency" climate scenario predicts an increase in surface water availability, as represented in the tables in Section 6.4.3 of the subbasin GSPs. The Projected Groundwater Budgets show increases in deep percolation of stream flow, deep percolation of precipitation, and irrigation. The subbasin GSPs are relying on this presumed increase for their water budgets. However, the 2070 DEW scenario provided by DWR could likely result in a significant decrease in precipitation and increase in evapotranspiration, which would have substantial effects on the subbasin water budgets. By analyzing only the central tendency scenario and not other likely scenarios such as the extremely dry and wet scenarios provided by DWR, the SVB GSA is ignoring the specific 2070 DEW and WMW scenarios provided by DWR as well as an increasing trend in drought frequency. In doing so, the GSP could be overestimating groundwater recharge or underestimating water demands, inadequately planning, and jeopardizing groundwater sustainability. This will waste precious time to prepare and reduce the vulnerability of the basin's agriculture and already vulnerable communities.
    - DWR's guidance (2018) states that the central tendency scenarios *might* be considered most likely future conditions -- that is not a clear endorsement of a higher statistical probability. It appears that they are calling it the central tendency merely because it falls in the middle of the other two projections, not because it is significantly more probable.
    - DWR (2018) explicitly encourages GSAs to plan for more stressful future conditions:
        - "GSAs should understand the uncertainty involved in projecting future conditions. The recommended 2030 and 2070 central tendency scenarios describe what might be considered most likely future conditions; there is an approximately equal likelihood that actual future conditions will be more stressful or less stressful than those described by the recommended scenarios. Therefore, GSAs are encouraged to plan for future conditions that are more stressful than those evaluated in the recommended scenarios by analyzing the 2070 DEW and 2070 WMW scenarios.."[39]

[38] Terminology used in the California Climate Change Assessment, 2019. (Table 3). https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf.

[39] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development. Section 4.7.1. https://data.cnra.ca.gov/dataset/sgma-climate-change-resources/resource/f824eb68-1751-4f37-9a15-d9edbc854e1f?inner_span=True. (In red is a statement about the central tendency scenarios referenced in SVB GSA public meetings and email communications by the GSA's engineering consultant, and in blue is the important text accompanying it, urging GSAs to analyze the more extreme scenarios. CWC staff cited this complete paragraph in email communications with the consultant and GSA staff on April 8, 2021. CWC also raised this point at Forebay and Upper Valley Subbasin Committee meetings in March and at the April SVB GSA Board Meeting.)

- Including the DEW and WMW climate scenarios as part of the 2070 water budget analysis is necessary to meet the statutory requirement to use the "best available information and best available science."[40] Sustainable planning must include planning for foreseeable negative and challenging scenarios. The extreme scenarios provided by DWR are certainly foreseeable, as they have been modeled and made available to the GSA for analysis.
- It is important for the SVB GSA to include the 2070 DEW and WMW scenarios, because shallow drinking water wells in the area are particularly vulnerable to various extreme conditions, especially drought.

- **Share water budget results based on the 2070 central tendency, DEW and WMW scenarios that DWR has provided with the Subbasin committees, the Advisory Committee, and the GSA board**. This should be done at a *minimum* to see what the difference in outcomes could be, and to provide a transparent process for selecting the preferred scenario. This analysis is particularly important because of the drastic differences between the dry and wet scenarios for this region. Drought and/or intensified rainfall (more water falling over a shorter period of time) would pose severe challenges[41] to the Subbasins' plans for recharge, which is a critical component of their plans to reach sustainability.
- **Plan for potential adverse climate conditions when determining Projects and Management Actions.** The results of limited-scope planning will be detrimental to beneficial users throughout the SVB GSA. "If water planning continues to fail to account for the full range of likely climate impacts, California risks wasted water investments, unmet sustainability goals, and increased water supply shortfalls."[42] This is true not just generally across California, but also specifically on the Central Coast. "Without effective adaptations, projected future extreme droughts will challenge the management of the Central Coast region's already stressed water supplies, including existing local surface storage and groundwater recharge as well as imported surface water supplies from the State Water Project which will become less reliable, and more expensive."[43]

GSP Chapter 7: Monitoring Network

Robust monitoring networks are critical to ensuring that the GSP is on track to meet sustainability goals. GSAs undertaking recharge, significant changes in pumping volume or location, conjunctive management or other forms of active management as part of GSP implementation must consider the interests of all

[40] See 23 CCR § 355.4(b)(1).
[41] Union of Concerned Scientists. Inter-model agreement on projected shifts in California hydroclimate characteristics critical to water management. 2020, p. 13. https://link.springer.com/content/pdf/10.1007/s10584-020-02882-4.pdf.
[42] See Union of Concerned Scientists. Troubled Waters (2020) cited above.
[43] Regional Climate Change Assessment for the Central Coast, 2019. (Discussing drought pp. 21-23. Internal citations omitted). https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf.

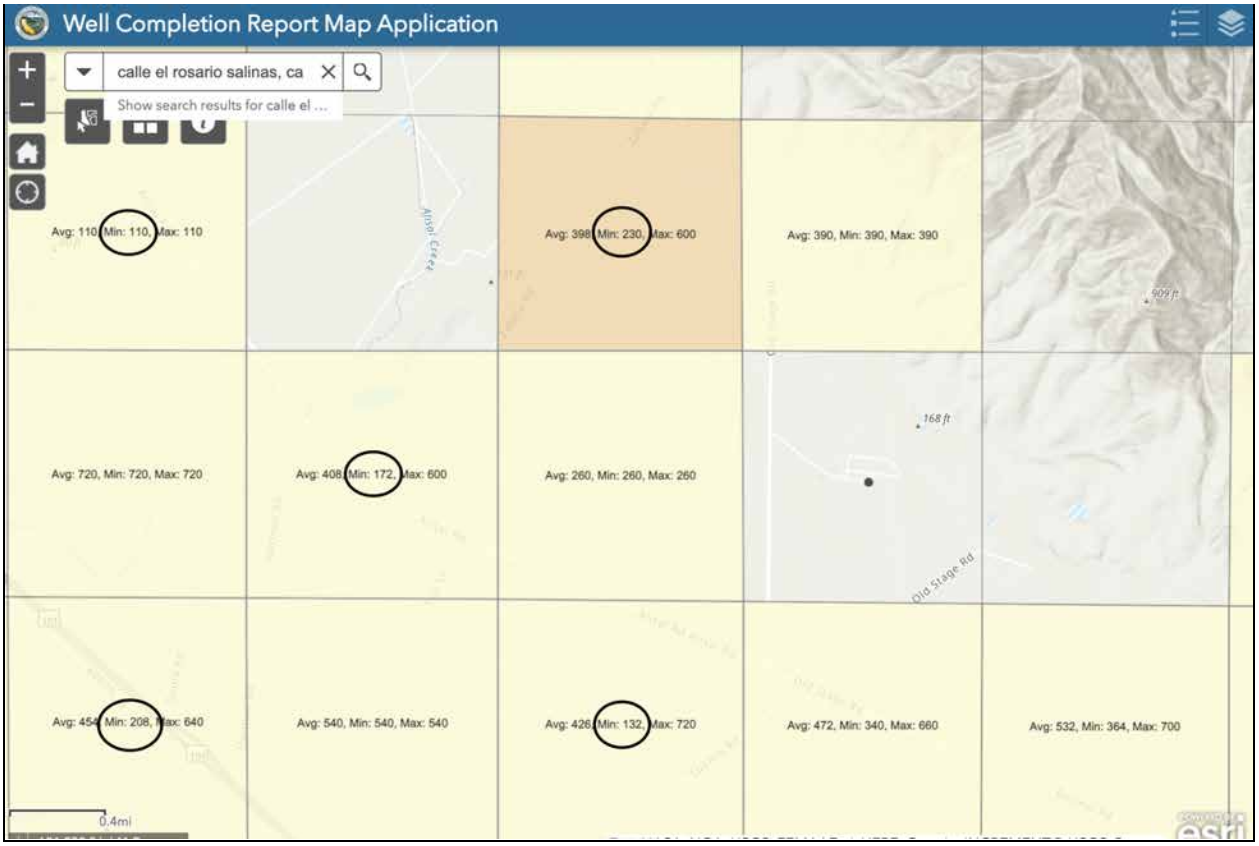
beneficial users, including domestic well owners and S/DACs. We have the following overarching recommendations for this chapter and provide more details for sub-sections below:

- **Require well registration and metering for all wells in the Salinas Valley, and begin implementation of a well registration and metering program in early 2022 with a dedicated budget.** We voice our strong support, with modifications indicated in our comments below, for proposed "Implementation Action 12: Well Registration" in Section 9.1 of Chapter 9 released in April 2021 and recommend that this action be updated and moved to Chapter 7. We agree with the SVB GSA's statement in Section 7.3.2 Groundwater Storage Monitoring Data Gaps that: "Accurate assessment of the amount of pumping requires an accurate count of the number of municipal, agricultural, and domestic wells in the GSP area. During implementation, the SVB GSA will finalize a database of existing and active groundwater wells in the Eastside Aquifer Subbasin." This is essential for the plan to achieve sustainability for all beneficial users and influences many different chapters including:
    - Monitoring networks: In order to develop a monitoring network that is representative, it will be essential to understand the number, location, well construction, and type (domestic, irrigation, other) of all wells located in the subbasins.
    - Water budget and minimum thresholds: Understanding the amount and location of pumping of all water users will be essential for creating an accurate water budget and minimum thresholds consistent with achieving sustainability.
    - Projects and management actions: Section 9.2.1 Well Registration and Metering is a key management action and component of the Water Charges Framework (in the 180/400 foot aquifer) and forthcoming subbasin GSPs. This will underpin the funding structure for many future projects.
- **Require flowmeter calibration to ensure consistent and fair monitoring among all agricultural groundwater users (Section 7.3.1).** Rather than "consider the value of developing protocols for flowmeter calibration," the GSPs should require flowmeter calibration. The water budget and sustainable yield calculation depend on reliable and fair monitoring and reporting of pumping.
- **Provide a plan and schedule for data gap resolution in Chapter 10 of the subbasin GSPs.** In the 180/400 foot aquifer GSP, there was not a clear plan or schedule for the resolution of data gaps in Chapter 7 even though it indicated that this would be included in Chapter 10.
- **Revise GSP monitoring chapters such that monitoring networks for groundwater storage (pumping), groundwater elevation, and groundwater quality adequately monitor how groundwater management actions could impact vulnerable communities including those reliant on domestic wells and shallow portions of the aquifers** (see more detail below).

7.2 Groundwater Elevation Monitoring Network

- **Include groundwater elevation monitoring sites in the network that are representative in terms of the depth and geographic distribution of private domestic wells, and that take into account areas of high agricultural pumping and wells vulnerable to groundwater decline.**
    - The draft East Side Subbasin GSP Table 7-1 of “Eastside Aquifer Groundwater Elevation Representative Monitoring Site Network” shows all irrigation and observation wells (and no domestic wells) which range in depth from 299 to 1122 feet.[44] Yet, the DWR Well Completion Report Map Application[45] shows that 1 mile by 1 mile square sections near San Jerardo Cooperative include private domestic wells with the following minimum depths: 110 ft, 210 ft, 172 ft, 208 ft, and 132 ft which are more shallow than all the wells in the current monitoring network (See CWC Figure 10).
- **Overlay the private well density map (Figure 3-7), the DWR Well Completion Report Map Application (with minimum, average, and maximum depths), the water level monitoring network (with well depths), and available pumping data to better illustrate if and how representative the proposed groundwater elevation monitoring network is of private domestic wells and which areas are vulnerable to water elevation changes.** The GSPs state: "The BMP notes that professional judgment should be used to design the monitoring network to account for high-pumping areas, proposed projects, and other subbasin-specific factors." This will also help to better visualize where there are gaps in the monitoring network which the GSAs can address.

[44] One well shows "0" depth but that must be an error or missing value.
[45] https://water.ca.gov/Programs/Groundwater-Management/Wells/Well-Completion-Reports



CWC Figure 10: Screenshot of DWR Well Completion Report Map application in the area near San Jerardo Cooperative highlighting that several 1 mi. by 1 mi. square sections include private domestic wells less than 250 feet deep.

7.5 Water Quality Monitoring Network

- **Clarify the number of public water system wells that will be included in the water quality monitoring network.** As indicated in Chapter 3 and Chapter 5 comments, the GSPs should also clearly identify the total number of public supply wells as well as the number of public supply wells that are out of compliance and at risk in each subbasin. Section 7.5 currently states that "Ninety DDW wells have been chosen to be part of the RMS network. These wells are shown on Figure 7-4 and listed in Appendix 7D." This section and appendix should be consistent with the total number of wells represented in Table 8-4 which includes groundwater quality minimum thresholds. As previously noted, we also recommend clearly presenting the number of public water system wells and state and local small water system wells located in each subbasin. A review of Appendix 7D indicates that perhaps not all wells listed are public water system wells.
- **Representative Water Quality Monitoring Wells for the shallow aquifer should be established in the GSPs based on all currently available data sources with direct agreements with landowners or public entities established.**

- **Develop long-term access agreements for Representative Monitoring Wells (RMWs) that use private wells.** It is currently difficult to reliably collect data from private wells due to access challenges, lack of well construction information, and unreliable accounting of pumping or non-pumping measurements. The GSPs should specifically identify the RMW owners and operators, include signed long-term access agreements, and identify a plan to obtain adequate monitoring data, if for any reason the well owners decide to not grant access to the wells or provide associated data to the SVB GSA. In order to maintain consistency for future sustainability analyses, the SVB GSA should also consider conducting its own water quality analysis of wells where access agreements have already been established to water quality RMWs.
- **Clarify that state and local small water systems will be added to the water quality monitoring network and that well construction information is no longer needed in order to fill this data gap.** Monterey County Environmental Health Bureau permits and monitors over 900 state and local small water systems in the County and have managed the data collected for decades. This dataset has advantages over the ILRP domestic well dataset in that it includes data on contaminants like arsenic and hexavalent chromium in addition to nitrate. Local small water systems serve 2-4 households and are much more similar to private domestic wells than public water systems in terms of depth, well construction, age, size, and maintenance - thus this data would provide a broader representation of shallow drinking water wells. State and local small water systems are located in areas of irrigated agricultural lands as well as rural residential and other land uses. This dataset should complement and not replace ILRP domestic well data.
    - **Clearly add state and local small water system data as a data gap in Section 7.5.2.** In Section 7.5 Water Quality Monitoring Network, the draft GSPs state: “These [state and local small] wells are not in the current monitoring system because well location coordinates and construction information are currently missing. SVB GSA will work with the County to fill this data gap. When location and well construction data become available, these wells will be added to the monitoring network and included in Appendix 7E and Figure 7-4." However Section 7.5.2 Groundwater Quality Monitoring Data Gaps states: "There is adequate spatial coverage to assess impacts to beneficial uses and users."
- SVB response: Small public water systems wells, regulated by Monterey County Health Department, include both state small water systems that serve 5 to 14 connections and local water systems that serve 2 to 4 service connections. SVBGSA had originally planned to work with the County to add data from small and local water systems into the monitoring network. These wells are not in the current proposed monitoring system because well location coordinates, construction information and quality data are not easily accessible. The Monterey County Health Department monitors water quality in the state small and local water systems and their data is not readily transferable. In addition, there is sufficient other available data to characterize the basin. There were no water quality data gaps identified per SGMA requirements for GSPs as there is adequate

spatial coverage to assess impacts to beneficial uses and users. As stated above, the water quality monitoring approach has been updated in V2 to include last time any well was sampled, not just the most current year.

  - Our response: We reaffirm our previous comments, requests, and arguments in support of including the SSWS and LSWS data. We would also like additional clarity on what the barriers are to including this important dataset and to explore how they can be resolved. SVB GSA has successfully incorporated the GIS data for the SSWS/LSWS boundaries into its dataviewer and now also into Chapter 3's recent updates. The water quality data was also included in the 180/400 foot aquifer GSP in Chapter 8 in a table indicating exceedances of nitrate and arsenic. CWC, San Jerardo Cooperative and the Greater Monterey County Regional WAter Management Group have also utilized this data successfully in past projects. The value of the full dataset, particularly that it more accurately represents domestic well conditions than any of the other current components of the water quality monitoring network, should outweigh any administrative burden to transfer the data.
  - **Do not rely solely on ILRP well data to represent private domestic wells (which are often more shallow than public water system wells).** Similar to CASGEM, the current groundwater quality monitoring network includes monitoring points on private property including ILRP domestic and irrigation wells, but it should not be restricted to ILRP sites only. While on-farm domestic and irrigation wells monitored through the ILRP provide a potentially useful, though limited, source of water quality information, additional representative monitoring wells in the shallow aquifer are important to include for several reasons: (1) The ILRP network only includes wells located on agricultural irrigated lands, and not all ILRP properties include domestic wells. Agricultural land use is not the primary land use in the Langley and Monterey Subbasins so this monitoring network offers very limited coverage. While agricultural land use is the primary land use in the East Side, Upper Valley, and Forebay Subbasins, there are private domestic wells in areas with different primary land uses (e.g. rural), and SGMA requires that monitoring networks are geographically representative. Monitoring network wells must also be sufficiently representative to cover all uses and users in the basin, (2) There are other, more robust networks established by USGS, GAMA, and Monterey County that could be drawn on and included to make the groundwater quality monitoring network more comprehensive and representative of conditions in the shallow aquifer, (3) Ag Order 4.0 was adopted on April 15, 2021, which means the first year of monitoring data will not be available until late 2022, (4) The GSA has no authority to determine the robustness or enforcement of monitoring in the irrigated lands network, and (5) while Ag Order 4.0 proposes to require testing for 1,2,3-TCP as well as nitrate, the current ILRP domestic well data only samples for nitrate, and neither Order tests for other contaminants found in the region. In our experience, not all growers are consistent with their water quality and other reporting, despite the regulatory requirements in place.

- SVB GSA response: "Section 7.5 text was revised to specify that the groundwater quality monitoring network is dependent on the existing samping and well density of the ILRP and DDW monitoring programs. Chapter 5 and 8 text include the constituents of concern that will be monitored in each type of well. SGMA Regulations only require "spatial and temporal coverage." Furthermore, the vertical coverage of the monitoring system cannot be further determined because ILRP well data do not include well depths or screen intervals, which would make it difficult to map vertical water quality."

- Our response: SGMA Regulations instruct GSAs to “[c]ollect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.”[46] Sufficient “spatial” data would include appropriate well depths in order to adequately capture potential groundwater quality trends, particularly those that would affect domestic well owners and DACs.

GSP Chapter 8: Sustainable Management Criteria

SGMA requires a GSA to define existing conditions within the basin and characterize undesirable results, including minimum thresholds and measurable objectives to determine a sustainability goal as sustainable management criteria.[47] We have grouped our comments in this section into general recommendations related to all sustainable management criteria (SMCs) followed by a section specific to the water quality SMCs.

General Recommendations

- **Undertake a drinking water well impact analysis that adequately quantifies and captures well impacts at the minimum thresholds, proposed undesirable results, and potential interim conditions.** Include this analysis during the annual reporting process. We disagree with the assumption included in all draft GSPs that the exact location of wells needs to be known in order to include them in a drinking water well impact analysis. In the 180/400 Foot Aquifer Subbasin GSP, the SVB GSA included a domestic well impact analysis. Although the SVB GSA did not describe the methods used in this analysis,[48] it is CWC’s understanding that the analysis was based on Public Land Survey System (PLSS) section location data, demonstrating that such an analysis is feasible. Similar analyses in the Water Foundation Whitepaper (June 2020)[49] and in the Kings River East GSP[50] were completed using the same PLSS section location data for private domestic wells that is available to the SVB GSA. The current analysis is incomplete as it includes

[46] 23 CCR § 354.34(c)(4).
[47] 23 CCR §§ 354.22-354.30.
[48] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020. https://sgma.water.ca.gov/portal/service/gspdocument/download/4012
[49] The Water Foundation Whitepaper, April 2020: “Estimated Numbers of Californians Reliant on Domestic Wells Impacted as a Result of the Sustainability Criteria Defined in Selected San Joaquin Valley Groundwater Sustainability Plans and Associated Costs to Mitigate Those Impacts.” April 9, 2020. http://waterfdn.org/wp-content/uploads/2020/05/Domestic-Well-Impacts_White-Paper_2020-04-09.pdf
[50] Kings River East Groundwater Sustainability Agency. Groundwater Sustainability Plan. Adopted December 13, 2019.

very few wells in all subbasins. The current analysis is also substantially inaccurate as it relies on the "average computed depth of domestic wells in the Subbasin," and groundwater elevations vary significantly across the subbasin and also on an annual basis. For example, only 8 of the 154 domestic wells in the Forebay GSP with an average depth of 292.45 feet, and only 20 of 2016 domestic wells in the East Side GSP with an average depth of 365.5 feet were included. CWC Figure 10 illustrates that the average computive depth is not representative of conditions in shallow domestic wells. Therefore, we recommend revising Section 8.6.2.2 Minimum Threshold Impact on Domestic wells following the process explained below:

- **Include a map of potentially impacted wells so the public can better assess well impacts specific to DACs, small water systems, or other beneficial users of water.**
- **Quantify impacts for all drinking water wells in the subbasin for which approximate location (PLSS section) and well depth are available.** Similar analyses based on the PLSS section location of private domestic wells have been completed by Water Foundation (June 2020)[51] and in the Kings River East GSP[52].
- **Account for well screen and pump depth when available.** When not available, well screen and pump depth should be estimated conservatively to capture potential impacts to well operability under water scarcity conditions.
- **Quantify impacts for potential unfavorable interim conditions, such as droughts and short-term lowering of groundwater levels while implementation measures are put in effect.**
- **Quantify the elevation difference (in feet) between current groundwater levels and well bottoms, screens, and pumps.** If current groundwater levels are nearing well bottoms, screens or pumps, that indicates that the wells are vulnerable to interim lowering of groundwater levels.
- **Quantify the elevation difference (in feet) between the minimum threshold groundwater levels and well bottoms, screens, and pumps.** If the minimum threshold is near the well bottom, screen or pump, that well will be impacted if groundwater levels in the vicinity drop below the minimum threshold (even if minimum thresholds are met at 90 percent of monitoring wells and an undesirable result has not technically occurred).
- **Quantify the number of potentially impacted wells of each well type (irrigation, domestic, state/local small water system, public water system) for water quality, water levels, and sea water intrusion MTs.**
- **Quantify the costs associated with impacted wells including desalinization/treatment, lowering pumps, well replacement and increased pumping costs associated with the increased lift at the projected water levels.**

[51] *Id.*
[52] *Id.*

- SVB GSA's response: Domestic well analyses were conducted for the minimum thresholds and measurable objectives. Wells that did not have accurate locations were not included, because water levels vary greatly throughout the Subbasin, thus, it is unlikely that the water level for the centroid of a PLSS section can accurately represent all wells that have the centroid of the section as their location.
- Our response: We reiterate that including the centroid of the section is a reasonable and feasible way of conducting this analysis and has been used by other GSAs and researchers. As noted, we believe that SVB GSA itself used PLSS data to conduct the well impact analysis for the 1800/400 Foot Aquifer GSP. Including such a disproportionately low number of wells in the studies is likely to produce unrepresentative results.

Groundwater Quality

We are pleased that the Salinas Valley Subbasin GSPs establish minimum thresholds based on maximum contaminant levels (MCLs) for contaminants of concern for drinking water supply systems. However, there are other areas in regards to groundwater quality sustainable management criteria that are not clear and could cause significant impacts to drinking water users if not adequately addressed. Therefore, we recommend the following revisions:

- **Add state and local small water systems to the monitoring network with the same water quality minimum thresholds and measurable objectives for reasons stated in Chapter 7 comments.** A table for state and local small water system minimum thresholds was included in the 180/400 foot aquifer GSP, but in the draft subbasin GSPs, there is no such table and Table 8-1 only mentions public supply and on-farm domestic wells.
- **If a contaminant was already above the MCL as of January 1, 2015, subbasin GSPs should set a MT to prevent further degradation or aim to improve groundwater quality conditions where possible.** Increased contamination levels can require water systems to utilize more expensive treatment methods and/or to purchase additional alternative supplies as blending may become more difficult or impossible. Communities reliant on domestic wells who are aware of contamination in their water and use point-of-use/point-of-entry (POU/POE) treatment systems may no longer be able to use their devices if contaminate levels rise too high. Higher contaminant levels can also result in higher costs of waste disposal from certain types of treatment systems. Further, residents who rely upon domestic wells, state small water systems, or local small water systems may not even know what contaminants are in their water and at what levels. Users of these drinking water sources are not required to conduct testing, and many times do not have the resources necessary to conduct regular testing. Rising contaminant levels put these users and their health at serious risk. Increased contamination levels result in unreasonable impacts to access to safe and affordable water and are, thus, inconsistent with SGMA and the Human Right to Water. This recommendation is consistent with the State Water Board's recommendations regarding this topic in their letter to DWR regarding the 180/400 foot aquifer GSP in which they state: "Increasing concentrations of nitrate, arsenic, and other constituents at monitoring wells with existing exceedances may represent worsening of existing

conditions due to groundwater pumping. Staff recommend setting concentration threshold levels for these wells in order to determine if impacts due to pumping are occurring."[53]

  - **Develop management areas to protect areas where drinking water wells have water quality that are vulnerable, including the San Jerardo area.**

- **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSPs should set MOs at 75% of the MCLs.** Subbasin GSPs should include MOs as action triggers at 75% of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold exceedance at a representative monitoring well. This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. If the GSA waits until the minimum threshold is exceeded, it may be too late or difficult for actions to be effective. Actions to prevent minimum threshold exceedances should also be clearly explained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded. We also recommend that groundwater quality and trigger levels at 75% are added to the Water Quality Partnership plans and/or a Well Impact Mitigation Program
  - SVB GSA response: The GSA is not responsible for improving water quality and 75% of MCLs would require remediation.
  - Our response: To clarify, our recommendation is, where water quality is currently below 75% of MCLs, to maintain levels below that mark instead of allowing them to progress up to the MCL. The objective should not be to allow water quality to degrade up to just below the MCL. Many contaminants, such as 123-TCP and arsenic, have public health goals far below the MCL. The MCL is not an established safe level, but rather is a legal limit that also takes into account the economic and technical feasibility of compliance for public water systems. For those contaminants, increasing from 50% to 75% of the MCL represents an increase in health risk.
- **Clearly identify and describe past and present levels of contamination and salinity at each representative monitoring well (RMW) and attribute specific numeric values for MTs/MOs at each RMW for each contaminant of concern.** Quantitative values need to be established for MTs/MOs for each applicable sustainability indicator at each RMW as required by 23 CCR § 354.28 and 23 CCR § 354.30. The GSPs should include a map and tables that include each individual RMW along with water quality data for each RMW (this data is currently summarized in Table 8-4 and Table 8-5). This information should be presented clearly so that the public can determine how the proposed monitoring network and sustainable management criteria (SMCs) relate to their own drinking water well or water supply system.
- **Include hexavalent chromium as a contaminant of concern and plan to add contaminants of emerging concern to the monitoring network.** While there is currently not a Maximum Contaminant Level for hexavalent chromium, there is still a Public Health Goal and public health

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[53] State Water Resources Control Board. (Dec. 2020). Comments to DWR regarding 180/400 Foot Aquifer GSP. Downloaded from SGMA GSP Portal. Available under the tab "Submitted After Public Comment Period" at: https://sgma.water.ca.gov/portal/gsp/comments/29.

threat posed by this contaminant in drinking water. The State is required to adopt an MCL for chromium-6 again and is in the process of updating the MCL. In addition to including hexavalent chromium, the GSPs must explain how the Plans will be updated to align groundwater monitoring efforts and the sustainable management criteria with any contaminants of emerging concern in the basin and any future new MCLs.

- The text in Section 8.6.2.3 now acknowledges that groundwater pumping can not only cause the movement of contaminant plumes, but can also cause the release of naturally occurring contaminants such as arsenic and chromium. It states:
    - 1. Changes in groundwater elevation could change groundwater gradients, which could cause poor quality groundwater to flow toward production and domestic wells that would not have otherwise been impacted. These groundwater gradients, however, are only dependent on differences between groundwater elevations, not on the groundwater elevations themselves. Therefore, the minimum threshold groundwater levels do not directly lead to a significant and unreasonable degradation of groundwater quality in production and domestic wells.
    - 2. Decreasing groundwater elevations can mobilize constituents of concern that are concentrated at depth, such as arsenic. The groundwater level minimum thresholds are near or above historical lows. Therefore, any depth dependent constituents have previously been mobilized by historical groundwater levels. Maintaining groundwater elevations above the minimum thresholds assures that no new depth dependent constituents of concern are mobilized, and are therefore protective of beneficial uses and users.
- **Include an analysis of the relationship between changes in groundwater levels and groundwater quality concentrations.** In order to clearly evaluate the relationship between changes in groundwater levels and groundwater quality, SVB GSA should undertake an analysis of the change in water quality constituent concentrations relative to change in water levels,[54] particularly over drought periods, to evaluate the potential relationship between water quality

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[54] *See* P.A.M. Bachand et. al. Technical Report: Modeling Nitrate Leaching Risk from Specialty Crop Fields During On-Farm Managed Floodwater Recharge in the Kings Groundwater Basin and the Potential for its Management https://suscon.org/wp-content/uploads/2018/10/Nitrate_Report_FInal.pdf. *See also,* Groundwater Recharge Assessment Tool, created by Sustainable Conservation to help groundwater managers make smart decisions in recharging overdrafted basins, including modeling whether a particular recharge project would result in short or long term benefits or harms to water quality, http://www.groundwaterrecharge.org/.

and groundwater management activities.[55] It is our understanding that groundwater quality issues in the Salinas Valley Basin did, in fact, worsen and continue to do so during low groundwater elevations years.[56] Arsenic in the San Jerardo well was at its highest during the lowest groundwater elevation measurement (See CWC Figure 1).

- **Add the total number of wells in each category that will be included in the water quality monitoring network and have SMCs evaluated to Table 8-4. For each constituent of concern, add the number of wells included in the chart and the number exceeding the MT/MO based on the latest sample.** This comment has the same goal as the comment we provided in Chapter 7. SMCs should be set at every public drinking water well and a representative network of drinking water wells that rely on more shallow aquifers. It is essential to track the same wells each year in the monitoring network. If a well is no longer active, it should be removed from the network. In the current representation, it is not clear which wells are included in the monitoring network, which wells have data for each constituent, and which wells are exceeding the regulatory standard.
    - We acknowledge that new information was provided in Chapter 5 that partially addresses this comment, yet we still recommend that the GSP clarify the total number wells in the water quality monitoring network in each category (DDW and ILRP) and that this information be added to Table 8-4.
- **Engage stakeholders and scientists in a transparent discussion regarding "the process the GSAs would use to decide whether or not an exceedance of an MT for water quality degradation was caused by GSP implementation."**[57] The State Water Board recommended that the 180/400 foot aquifer GSP outline this process "otherwise, it is difficult to judge how adequately the GSP addresses undesirable results related to water quality degradation." This relates to the

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[55] More information about groundwater quality and the relationship between changes in groundwater levels can be found in the following resources:
U.S. Geological Survey (USGS). (Sept 2021). *Increased Pumping in California's Central Valley During Drought Worsens Groundwater Quality.* California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA). Available at: https://www.usgs.gov/news/increased-pumping-california-s-central-valley-during-drought-worsens-groundwater-quality. *See also,* Stanford, Community Water Center (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium.* Available at: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896. *See also,* Community Water Center. (2019). *Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act*. https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.

[56] U.S. Geological Survey (USGS). (Sept 2021). *Increased Pumping in California's Central Valley During Drought Worsens Groundwater Quality.* California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA). Available at: https://www.usgs.gov/news/increased-pumping-california-s-central-valley-during-drought-worsens-groundwater-quality.

[57] State Water Board comments to DWR on 180/400 Foot Aquifer GSP (Dec. 2020). Downloaded from SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29. .

undesirable result for water quality which currently reads: "There shall be no additional minimum threshold exceedances beyond existing groundwater quality conditions during any one year as a direct result of projects or management actions taken as part of GSP implementation."

Chapter 9 Projects and Management Actions

Projects and Management Actions should benefit the basin and all beneficial users.[58] Drinking water users and DACs, who are protected as beneficial users of water under SGMA,[59] can be adversely impacted by either groundwater levels or water quality degradation. Thus, projects and management actions outlined in the GSP, including those currently referred to as implementation actions, should address sustainability issues facing drinking water and other domestic water uses, hold those who cause impacts accountable for remedying them, and address secondary impacts of the projects in order to ensure continued drinking water availability.

While determining how such benefits will be distributed based on the nature of different projects and actions, and who should bear the associated costs, the SVB GSA should keep in mind the **"polluters pay" principle.** Drinking water users should not be put into the position of shouldering additional costs to protect their basic Human Right to Water. Domestic water use has not led to overdraft conditions, as evidenced by the statutory designation of "de minimis" use. Nor should benefits be distributed based on which interested parties can most easily fund a project, but rather towards the overall sustainability of the basin and equity of benefits among beneficial users.

The SVB GSA Subbasin GSPs should (1) clearly identify potential impacts to water quality from all projects and management actions, (2) include management actions that respond to immediate needs and (3) develop a more robust implementation schedule and funding plan for projects and management actions. We acknowledge that the implementation actions are currently in the beginning stages of design but encourage incorporating these elements as soon as possible so that the public and DWR can accurately assess their benefits and feasibility.

Further, because SVB GSA defines its sustainability criteria in a way that potentially allows for drinking water well impacts and because there is so much uncertainty regarding potential domestic well impacts, we recommend incorporating a **Robust Drinking Water Well Mitigation Program.** This program should include the Dry Well Notification System as well as (1) a plan to prevent impacts to drinking water users from dewatering, increases in contaminant levels and increases in salinity, and (2) a plan to mitigate the drinking water impacts that occur even when precautions are taken.

- This type of adaptive management implementation action is crucial to ensuring that all beneficial users within the basin are protected under the GSP. As we have highlighted in previous comments[60]:

[58] As outlined in the Eastside and Upper Valley April 7 meeting materials, soliciting feedback, "[p]rojects implement the GSP and enable the subbasin to reach sustainability by 2042, then maintain sustainability for another 30 years."
[59] Cal. Water Code § 10723.2.
[60] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020. Available at: https://sgma.water.ca.gov/portal/service/gspdocument/download/4012.

- A GSP that lacks a mitigation program to curtail the effects of projects and management actions as to the safety, quality, affordability, or availability of domestic water, violates both SGMA itself and the Human Right to Water (HR2W).[61] The California legislature has recognized that water used for domestic purposes has priority over all other uses since 1913[62] in Water Code § 106, which declares it, "established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation."[63]
- The passage of the Safe and Affordable Drinking Water Fund by Governor Newsom indicates a clear State-level commitment to provide safe and affordable drinking water to California's most vulnerable residents.[64] To ensure compliance with the Legislature's long established position, the HR2W requires that state agencies, including the Department of Water Resources and the State Water Board, must consider the effects on domestic water users when reviewing and approving GSPs.[65] Therefore, GSPs that cause disparate impacts to domestic water use are in violation of the HR2W, and cannot be approved in a manner that meets DWR's requirements under SGMA, and Water Code § 106.3.
- It is important to note that SAFER should not be counted on to remedy impacts to domestic wells that result from GSA management. In order for the state to uphold the HR2W, SAFER funds need to be reserved for issues where there are currently no other responsible regulatory authorities to cover the costs. This is not the case where GSAs are managing the groundwater in their basin in a way that allows domestic wells to go dry or degrade water quality. Local prioritization of continued pumping should not be subsidized by the SAFER fund when the demand for those funds already outstrips the available funds nearly 10-fold.[66]
- The SAFER Needs Assessment Executive Summary highlights: "$10.25 billion represents the total estimated cost of implementing interim and long-term solutions for HR2W list systems, At-Risk water systems and well owners."[67]

- In order to effectively protect drinking water users during GSP implementation, we recommend that the GSA's **Drinking Water Well Impact Mitigation Program Implementation Action,** in line with and expanding upon the currently proposed Dry Well Notification System and potentially incorporated into actions carried out under the Water Quality Partnership, should include the following components:

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[61] WAT § 106.3 (a).
[62] Senate Floor Analysis, AB 685, 08/23/2012.
[63] This policy is also noted in the Legislative Counsel's Digest for AB 685.
[64] SB 200 (Monning, 2019).
[65] WAT § 106.3 (b).
[66] SWB. *SAFER Needs Assessment*. Available at: https://www.waterboards.ca.gov/drinking_water/programs/safer_drinking_water/docs/draft_white_paper_indicators_for_risk_assessment_07_15_2020_final.pdf.
[67] SWB. *SAFER Needs Assessment: Executive Summary.* P. 23 Available at: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/executive_summary.pdf

- **Include a vulnerability analysis of Disadvantaged Communities (DACs) and drinking water supplies in order to protect drinking water for these vulnerable beneficial uses and users.** Although rural domestic and small water system demand does not contribute substantially to the overdraft conditions, drinking water users could face significant impacts, particularly if the region faces another drought. Without a clear commitment and timeline for actions regarding establishing groundwater allocations or reductions in groundwater pumping, the SVB GSA may create disparate impacts on already vulnerable communities. See comments submitted by CWC and San Jerardo Cooperative on April 23, 2021 regarding Chapter 8 of SVB GSA Subbasin GSPs for further recommendations for conducting well impact analyses.
- **Develop a trigger system for both groundwater levels and quality in collaboration with stakeholders, in particular groups that are more susceptible to groundwater elevation and quality changes. Stakeholder recommendations provided back to the GSA should be incorporated into quantifiable measures, such as the GSP measurable objectives, MCLs, and numbers of partially or fully dry drinking water wells.**[68]
- **Ensure that the monitoring network is representative of conditions in all aquifers in general, including the shallow aquifer upon which domestic wells rely.**
- **Routinely monitor for all contaminants that could impact public health, including those with established MCLs, such as nitrates, and contaminants of emerging concern,through the representative water quality monitoring network.** Contaminated drinking water can cause both acute and long-term health impacts and can affect the long-term viability of impacted regions.[69] Among other causes, groundwater contamination can result through the use of man-made chemicals, fertilizers, or naturally-occurring elements in soils and sediments.[70] Routinely monitoring for contaminants will allow the GSA to accurately monitor for impacts on the most vulnerable beneficial users, and protect DACs' and domestic well owners' access to safe and affordable drinking water.[71]
    - **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSP should set MOs at 75% of the MCLs.** The GSP should include MOs as action triggers at 75% of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold

[68] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*
[69] Community Water Center. (2019). Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act.
https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.
[70] See previous Community Water Center (2019) reference.
[71] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

exceedance at a representative monitoring well.[72] This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. As discussed in previous submitted comments, water quality impacts can intensify as water levels decrease.[73] If the GSA waits until a minimum threshold set at an MCL is exceeded, it may be too late or difficult for actions to be protective of public health and prevent undesirable results. Actions to prevent minimum threshold exceedances should also be clearly explained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded.

- **Include a combination of different strategies for mitigation including: replacing impacted wells with new, deeper wells, connecting domestic well users to a nearby public water system, or providing interim bottled water.**
- **Include an implementation timeframe, budget, and funding source**.[74] As currently written, the Dry Well Notification System suggests convening "a working group to assess the groundwater situation if the number of wells that go dry in a specific area cross a specified threshold." We support emergency response if one or more wells are impacted, and also request that this section be updated to include strategies to prevent impacts from occuring in the first place. Additionally, plans to address and mitigate those impacts should be solidified beforehand so resources can be mobilized in a timely manner. Drinking water users cannot afford to wait for interim plans to be developed once their primary sources of water for drinking, cooking and hygiene are compromised.

In response to our previous comments, the SVB GSA stated:

> "Thanks for support of the program (now titled Dry Well Notification System). This program focuses on access, not quality. A robust drinking water well mitigation program falls within the responsibilities of other agencies; however, the GSA may consider supporting such a program. The text has been revised to explicitly include it as a potential program that the GSA can collaborate with other agencies on through the Water Quality Partnership. To set MOs at 75% of the MCLs for drinking water, the GSA would need to take on responsibility for cleaning up groundwater contamination present prior to 2015, which would take significant effort and is not the GSA's responsibility. The GSA does acknowledge the need for action on water quality, and will work with other agencies to determine what the GSA's role in that is."

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[72] This recommendation was also made previously in a comment letter to SVB GSA from CWC and San Jerardo Cooperative regarding Chapter 8 of the 180/400 ft Aquifer GSP on November 25, 2020, as well as in our comments to the SVB GSA on April 23, 2021 regarding Chapter 8 of drafts for the SVB GSA Subbasin GSPs.

[73] Community Water Center and Stanford University. Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium. (2019). https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

[74] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

Our response:

A drinking water well mitigation program deals with more than just water quality. Such a program also protects wells from becoming dewatered due to lowering groundwater levels. As both pertain to the GSA's mandate to manage pumping in the basin in a way to avoid undesirable results, a drinking water well impact mitigation programs would be appropriate and should be required in the SVB GSA Subbasins.

- In regard to water quality, the GSA has responsibilities, mandated by statute, to prevent significant and unreasonable degradation of water quality.[75] DWR has clarified that water quality is a meaningful component of GSA management and has specifically given corrective instructions to SVB GSA, as cited in our prior comments and above. As this is such a critical point of contention with the GSA, we again quote this section from DWR's 180/400 foot Aquifer Determination:
  - "[S]taff find that the approach to focus only on water quality impacts associated with GSP implementation, i.e., GSP-related projects, is **inappropriately narrow.** Department staff recognize that GSAs are not responsible for improving existing degraded water quality conditions. **<u>GSAs are required; however, to manage future groundwater extraction to ensure that groundwater use subject to its jurisdiction does not significantly and unreasonably exacerbate existing degraded water quality conditions."</u>**[76]
  - DWR clearly identifies the responsibility of the GSA to manage future groundwater extraction in order to prevent significant and unreasonable degradation of water quality conditions. DWR does not limit this duty to merely apply when the GSA regulates groundwater pumping for the purpose of maintaining sustainable groundwater levels, but rather posits an affirmative duty for the GSA to manage extraction in order to avoid exacerbating existing degraded water quality conditions. SVB GSA's jurisdiction does not hinge on whether or not a Subbasin Committee decides to instate allocations or pumping restrictions. SVB GSA does not have the power to discard this authority by opting against regulating pumping. Instead, SVB GSA is exercising its authority as an affirmative action to continue to allow pumping at current rates.
- DWR clarifies further:
  - "Where natural and other human factors are contributing to water quality degradation, the GSAs may have to confront complex technical and scientific issues regarding the **causal role of groundwater extraction and other groundwater management activities**, as opposed to other factors, in any continued degradation; but **<u>the analysis should be on whether groundwater extraction is causing the degradation</u>**

[75] Cal. Water Code § 10721(x)(4).
[76] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* Pp. 26-27. (Internal citations omitted; emphasis added). Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

in contrast to only looking at whether a specific project or management activity results in water quality degradation."[77]
    - SVB GSA must establish a viable plan to prevent the exacerbation of degraded water quality conditions in the basin. In response to previous comments, SVB GSA asserted, "Groundwater quality is included within the purview of the SMC TAC, so it can make recommendations of projects that mitigate groundwater quality degradation for drinking water users, including impacts due to pumping."

Recharge Projects (Direct or Indirect)

We offer the following overarching comments regarding Recharge Projects in the Subbasin GSPs:

- **Assess constituents in the ground before using land for recharge, to avoid further contamination.** Reference the Groundwater Recharge Assessment Tool (GRAT) developed by Sustainable Conservation.[78]
    - On-farm recharge has the potential to further spread contaminants. Soil contaminants should be measured before dedicating the land to recharge purposes. "Short-term" impacts on domestic wells due to recharge efforts, which can include increased leaching of certain contaminants such as uranium, or displacement of contaminant plumes, should be mitigated in order to minimize the harm to beneficial drinking water users, and to replace water sources if compromised.[79]
- **In order to achieve successful recharge management, the GSA must identify where groundwater contaminant plumes are currently located, in order to then assess whether recharge projects could cause problematic movement of plumes. Implement recommendations from our previous comment letters regarding Section 5.4:**
    - "**[I]nclude a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have been detected in the subbasin and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** This section should include water quality data (both in map and tabular form) for all constituents (where available) with primary drinking water standards that have been detected in the subbasin including, but not limited to, nitrate, 123-trichloropropane, hexavalent chromium, arsenic, uranium, and perchlorate for all public drinking water wells, state and local small water system wells, and private domestic wells. It is especially important for all groundwater stakeholders to be able to understand and visualize the location of contaminant hotspots throughout each subbasin.

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[77] *Id.*

[78] Sustainable Conservation. *Groundwater Recharge Assessment Tool.* Available at: https://suscon.org/wp-content/uploads/2016/08/GRAT-Summary-8-2017.pdf.

[79] Community Water Center and Stanford University (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium*. Available at: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

    - **Present maps and supporting data for all constituents of emerging concern.** The review of water quality data in the groundwater conditions section of the draft Section 5.4 in the subbasin GSPs is focused primarily on nitrate. The GSPs identify numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, do not present this data spatially. Even though the subbasin GSPs set water quality minimum thresholds for additional constituents (See Tables 8-4 and 8-5), the supporting data is not all presented, and no analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR § 354.16(d)).”[80]
- We appreciate the identification of multi-benefit improvements to streams, and agree that slowing the speed of groundwater in its course of movement is a useful way to increase recharge. Such improvements to multi-benefit streams are a cost-effective and low-harm recharge method.

Reoperation of Reservoirs

We offer the following overarching comments regarding Reoperation of Reservoirs projects:

- **Conduct holistic cost-benefit analyses for large-scale infrastructure projects such as the MCWRA Interlake Tunnel and Spillway Modification, taking into account the specific benefits that projects will or will not confer on underrepresented communities and DACs, including the San Jerardo Cooperative in the Eastside Subbasin.**
    - Benefits should be equitable and take into account how different climate projections would impact the potential benefits from such a project in the case of little to no rainfall.
    - Cost-benefit analyses should also consider alternatives that could provide affordable long-term benefits.
- **The MCWRA Drought TAC should ensure that all beneficial water users are considered, and that drinking water needs are particularly protected from harm during current and future droughts, in line with the Human Right to Water.**

Management Actions

Conservation and Agricultural BMPs

- **Best Management Practices (BMPs) should utilize the latest technologies and take advantage of opportunities to modify agricultural pumping needs in order to provide overall groundwater basin benefits for all beneficial users.**

[80] Community Water Center and San Jerardo Cooperative, Inc. *Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins.* (April 2021). P. 7. On file with SVB GSA and available at: https://drive.google.com/file/d/1wH7wvCMmQd4bu_PIri5o66_y5caW9ti7/view.

- **BMPs should also be used as a mechanism to improve or stabilize groundwater quality by using evapotranspiration (ET) data with soil moisture sensors and soil nutrient data to promote efficient irrigation practices and limit the application of synthetic fertilizers.**
- **BMPs should include best available science, including climate-smart approaches and nature-based solutions which have been recognized on state, national, and international levels.** For example, while written with the Central Valley in mind, FoodFirst's *Healthy Soils, Healthy Communities* outlines the following strategies and benefits which can also be applied to the Central Coast:
    - **Soil organic matter can reduce soil fumigant emissions** – Pesticides applied directly to soils form short-lived climate pollutants, and contribute to air and water pollution. Increased soil organic matter can reduce fumigant emissions and reduce the need for fumigants in the first place.
    - **Soil organic matter slows water contamination** – Synthetic fertilizer and pesticides have contaminated drinking water in the Central Valley over the last 70 years. Soils higher in organic matter leach fewer pollutants, including nitrates and pesticides. Soils high in organic matter also require less synthetic fertilizer to produce a crop. Using compost instead of synthetic fertilizer can reduce nitrogen loads in the area. Over time, increased soil organic matter and riparian restoration could help reduce groundwater contamination.
    - **Composted manure from dairies could be a source of soil organic matter** – Concentrated manure from industrial dairies is a major local air quality and water quality issue. If that manure were properly composted, it could become a source of valuable nutrients and soil organic matter instead of a pollutant, and help displace the use and manufacture of synthetic fertilizers.[81]
    - **Composting farm waste could prevent black carbon emissions** – Instead of burning orchard waste, another local air pollutant, mulches and composted farm waste could be a source of soil organic matter for farms and rangelands.
    - **BMPs are an opportunity for rural workforce development and wildfire management** – From the Conservation Corps, to ecological restoration, nursery stock production, wetland management and fire prevention, there is a lot of work to do to conserve and increase terrestrial carbon on public and private lands. This is an opportunity to both train and employ young people with low-to-moderate incomes and in communities of color in natural resource and agricultural management.
    - **Carbon-friendly practices can support small-scale and immigrant farmers** – Public support for carbon-friendly practices could help make small to mid-scale and immigrant farmers more resilient and boost their bottom line through a combination of financial support for carbon-friendly practices and more stable land access. These programs will

[81] USDA. *Manure in Organic Production Systems.* Available at: https://www.ams.usda.gov/sites/default/files/media/Manure%20in%20Organic%20Production%20Systems_FINAL.pdf. (Citation added).

have to be accessible to small-scale farmers and take into account chronic issues around access to land, credit and technical assistance.

Fallowing, Fallow Bank, and Agricultural Land Retirement

- **Dewatered drinking water wells or migration of contamination plumes should be considered as factors when deciding where to incentivize targeted agricultural fallowing or land retirement, and should trigger pumping restrictions in affected areas as necessary.**
    - This approach is further elaborated in the Drinking Water Well Impact Mitigation Framework.[82]

SMC Technical Advisory Committee (TAC)

- **Ensure that this TAC functions as a public decision-making space and not a consultative committee.** Discussions regarding SMCs and how or whether to intervene when conditions approach MTs should be fully public and held under Brown Act rules. These discussions are core to the management of the basin and necessarily must be informed by stakeholder input.
    - Additionally, plans to prevent and/or mitigate potential undesirable results should be finalized *prior* to the emergence of such conditions. We note that the formerly proposed Forebay Drought/Pumping TAC has been adapted to mirror the Upper Valley's SMC TAC and emphasize that planning for drought conditions must be done before those conditions arise, not as an improvised reaction in the moment. Such a delay in planning would be counter to the spirit and letter of SGMA.
- **Create management zones with pumping restrictions in areas with vulnerable drinking water wells.**
- **The SMC TAC should consider and recommend projects and management actions that mitigate groundwater quality degradation for drinking water users due to GSA actions, including impacts resulting from over-extraction under GSA management, as was clarified in DWR's 180/400ft Aquifer Determination Letter on pages 26 and 27.**

Pumping Allocations and Control

- **Quantify the demand reductions (pumping restrictions) necessary to meet all minimum thresholds in the short and long term, including in dry conditions.** Designing a feasible and effective allocation structure requires thorough groundwater elevation data as well as a comprehensive, ongoing assessment of the interrelated effects of SMCs on one another. Pumping allocations must be responsive to groundwater conditions throughout the basin and avoid undesirable results.
- **Parameters for pumping restrictions in times of widespread water shortages should be decided ahead of time as part of a publicly-informed, adaptive management approach.** Decisions around pumping regulation should be made as part of GSP development and not relegated to a later decision-making body which will be inherently less accountable to the public than SVB GSA's current Committees and Board. It will not be sufficient to solely bring pumping

[82] Self-Help Enterprises, Leadership Counsel for Justice and Accountability, Community Water Center. (2020). *Framework for a Drinking Water Well Impact Mitigation Program*. Available at: https://static1.squarespace.com/static/5e83c5f78f0db40cb837cfb5/t/5f3ca9389712b732279e5296/1597811008129/Well_Mitigation_English.pdf.

decisions to the public after actions have already been designed and are at the point of being approved. Lack of public input for such a critical component of the GSA's management is especially troubling in the negative—if action is not being taken.

- **As part of an adaptive management approach, pumping restrictions should be implemented by the GSA in a timely way so as to prevent harm to beneficial users, particularly vulnerable drinking water users and DACs.**
- **Consider hybrid allocation systems which account for de minimis users, regardless of homeownership status, to ensure sustainable yields for all beneficial users.** Langley GSP proposes such a hybrid allocation system in which de minimis users are included within the estimated sustainable yield. This approach will provide a more complete picture of groundwater use within the basin, to inform groundwater management decisions.

Implementation Projects

CWC and San Jerardo see value in the projects listed in this section, though we point out insufficiencies below and offer recommendations for how these proposed projects should be adjusted so that they will support SVB GSA in coming into compliance with SGMA. We also note that "Implementation Projects" is a separate category of GSA management activities that SGMA does not specify, and believe these projects should be integrated into either the Projects or the Management Actions sections.[83] GSA activities that are necessary to meet SGMA requirements, such as those intended to prevent a water quality UR, should fit within either Projects or Management Actions.

Groundwater Elevation Management System (GEMS) Expansion

- **Include data from more drinking water wells, including small water system wells and domestic wells, in order to have a sufficiently representative monitoring program.**

Water Quality Partnership (formerly Domestic Water Partnership)

CWC would like to voice conditional support for the Water Quality Partnership, as a step towards coordinating local and regional responses to water quality issues. However, the GSA remains directly responsible for recognizing and resolving water quality degradation that results from its policies and projects.

- The GSA must clarify the role that it will play in this partnership in dealing with water quality issues. Water quality is an integral part of SGMA, one of the six Undesirable Results that GSAs are tasked with preventing while achieving sustainability.[84] Impacts from extraction, including due to overdraft and projects and management actions undertaken by the GSA, fall under the purview of the GSA and should be tracked and remedied according to the GSP. Thus, the GSP must include plans to respond to problems should they arise. If, for example, a contaminant plume were to begin migrating based on pumping patterns or a project/MA, the GSA is not permitted to allow that problem to progress unchecked. If the GSA wishes to collaborate with

[83] 23 CCR § 354.44

[84] Cal. Water Code § 10721, subd. (x)(4). "Undesirable result" means one or more of the following effects caused by groundwater conditions occurring throughout the basin: ...(4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

other regulatory agencies who also deal with water quality issues as a way to fulfill its obligations, the GSA should enter into a Joint Powers Agreement (JPA) or a formal Memorandum of Understanding (MOU) in order to formalize the roles and responsibilities. Otherwise, DWR cannot determine whether the plan is sustainable.[85]

- As currently drafted, the Water Quality Partnership only guarantees one meeting per year, and a review of water quality conditions resulting in a report. These proposed actions are not sufficient to ensure that the GSA is equipped to prevent or react to exacerbated water quality should those impacts occur.
- **The GSA should work with local and regional water agencies or the county to implement groundwater quality remediation projects to prevent degradation and potentially improve both groundwater quality as well as groundwater levels to ensure groundwater management does not cause further degradation of groundwater quality.[86]** The strategic governance structure of GSAs can uniquely leverage resources, provide local empowerment, centralize information, and help define a regional approach to groundwater quality management, unlike any other regional organization. When implemented effectively, GSPs have the potential to be instrumental in reducing levels of contaminants in their regions, thus reducing the cost of providing safe drinking water to residents. GSAs are the regional agency that can best comprehensively monitor and minimize negative impacts of declining groundwater levels and degraded groundwater quality that would directly impact rural domestic well users and DACs within their jurisdictions. When potential projects are proposed, SVB GSA should consider how projects could potentially both positively and negatively impact groundwater quality conditions and should take leadership in coordinating regional solutions.
- **Include - without delay - Monterey County water quality data for state and local small water systems.** This data is readily available and would add significantly to the proposed water quality monitoring network in draft subbasin Chapters 7. We do not want this potential partnership implementation/management action to delay the incorporation of this important data source. This action can and should, however, integrate this County data into current draft subbasin plans in order to identify potentially vulnerable populations and create management actions to protect them.
- **Integrate key components of a Drinking Water Well Mitigation Program Framework in order to protect drinking water users from losing access to their drinking water during GSP implementation.** CWC was informed by SVB GSA Staff that concepts from the Mitigation Framework were being incorporated into the Water Quality Partnership language in the GSP, but we do not see evidence of this in the current draft. CWC would like to coordinate with SVB GSA Staff to incorporate this item into the agenda of one or more of the remaining 2021 Advisory and Board meetings in order to present on the Framework to the Committees and Board.

[85] Cal. Water Code §§ 10721, subd.(x)(4) and 10723.6.
[86] Community Water Center and San Jerardo Cooperative, Inc. *Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* May 15, 2020. On file with SVB GSA and available at: https://sgma.water.ca.gov/portal/service/gspdocument/download/4012.

- **Integrate water quality considerations across planning and implementation.** As now acknowledged in the GSPs, groundwater quality in the Subbasins can be influenced by pumping and the way groundwater is managed. This is of particular importance for the San Jerardo Cooperative which has experienced increases in nitrate and arsenic in their well, as highlighted in our cover letter and previous comments.[87] This relationship between groundwater levels and groundwater quality should be reflected throughout planning and implementation so that the GSA can manage the basin in a way that does not exacerbate water quality degradation.
    - Support for this recommendation is evidenced by Recommendation #5 of DWR's 180/400 GSP Determination.
- **Fill previously identified water quality data gaps in baseline information and the monitoring network.**
    - DWR assessed water quality monitoring in the 180/400 Foot Aquifer as follows: "The monitoring network to evaluate degradation of groundwater water quality is based on three existing water quality regulatory programs operating in the Subbasin: Monterey County's small community water system wells program, the State Water Resources Control Board's public supply well program, and the Central Coast Water Board's Irrigated Lands Regulatory Program. The Plan proposes to use four sets of wells that are routinely sampled under these programs. Within each set of wells, a specific set of constituents of concern will be monitored. In total, the monitoring network consists of 136 small community water system wells, 51 public supply wells, and a currently unknown number of domestic and agricultural wells from the Irrigated Lands Regulatory Program. The specific number of Irrigated Lands Regulatory Program wells will be finalized when the Central Coast Water Board adopts Agricultural Order 4.0 (anticipated in 2020). The Plan identifies the lack of well construction information (e.g., the depth of well screens or the total depth of the well) for many groundwater quality monitoring wells as a data gap. The implementation chapter of the Plan simply states that "[d]uring implementation, the SVBGSA will obtain any missing well information, select wells to include in monitoring network, and finalize the water quality network." Department staff recommend the SVBGSA provide updates on the progress toward filling this data gap in its annual reports and that more details be provided in the first five-year assessment of the Plan."[88] The remaining SVB GSA Subbasins should match a similar standard for their monitoring systems, and anticipate the need to show progress on filling data gaps in annual reports and at the five year update.

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[87] Community Water Center and San Jerardo Cooperative, Inc. *Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins.* (April 2020). Pp. 4-5. On file with SVB GSA and available at: https://drive.google.com/file/d/1wH7wvCMmQd4bu_PIri5o66_y5caW9ti7/view.

[88] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* Pp. 30-31. (Internal citations omitted). Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

Dry Well Notification System (Previously Localized Groundwater Elevation Triggers)

The Dry Well Notification System, which is designed to "assist well owners (domestic or state small and local small water systems) whose wells go dry due to declining groundwater elevations" is an important potential component of the Subbasin GSPs, for tracking and responding to impacts due to droughts and overdraft. We support the inclusion of a "notification system whereby well owners can notify the GSA or relevant partner agency if their well goes dry," particularly linking them to DWR's reporting website. We also support the proposal that the GSA "could set up a trigger system whereby it would convene a working group to assess the groundwater situation if the number of wells that go dry in a specific area cross a specified threshold. A smaller area trigger system would initiate action independent of monitoring related to the groundwater level SMC." We encourage SVB GSA to commit to incorporating this project into implementation. Implementation of the Dry Well Notification System would significantly increase the GSA's ability to track and address impacts to domestic wells. To further improve upon the program's efficacy, we recommend:

- **Integrate technical assistance into this program, facilitate access to resources through a collaboration with state agencies and/or directly administer impact mitigation funding.**
    - Tracking instances of dry or depleted wells and linking impacted beneficial users to information about potential available resources is a positive step, however services such as directing DACs and other impacted drinking water users to apply for funding would only be minimally helpful while those households are experiencing a water shortage crisis. The GSA's efforts to respond to impacts due to low groundwater elevations should go further in order to be effective. Such services should include reducing pumping in areas where groundwater supply shortages are being exacerbated by over extraction, actively facilitating coordination between residents and assistance programs, and potentially providing a conduit to state funds directed towards water resiliency—a multi-billion dollar drought & water resiliency package was recently passed by the State Legislature.

Well Registration

- **We recommend that SVB GSA require all wells that pump over two acre-feet per year to be metered and charge fees based on the amount of water pumped, to pay for future projects and incentivize voluntary reductions.**

Support Protection of Areas of High Recharge

- **Develop criteria for recharge projects that prevent unintended impacts to drinking water.**
- **As with all recharge projects, evaluate whether recharge could have any unintended consequences such as moving contaminant plumes toward wells, thus degrading the water quality, and closely monitor water quality in all areas affected by recharge.** The GSP states that "[t]hese areas are typically identified using soils and soil classification maps but would need additional investigation and data to confirm." Accurate mapping of water quality issues in the basin is also crucial in order to prevent unintended water quality impacts.
- **Where applicable, encourage use of low-impact cover crops where water is captured at the site of precipitation or flooding.** Roots in the soil help to capture more water, clean the water source, and maintain healthy soils so that less fertilizer/pesticide is used, as evidenced in organic

and regenerative agricultural practices. Cover crops and compost cycles, as well as chicken manures or natural organic-matter fertilizers can also keep nitrogen in the soil longer, providing benefits to crops and keeping nitrate out of groundwater.

<u>Deep Aquifers Study</u>

- We support the Deep Aquifers Study due to the influence that hydrogeologic interconnections between aquifers in the Salinas Valley Basin would necessarily have on influencing better sustainable management of the basins.

New Water Supply Projects

- **Quantify which combinations of projects could address projected overdraft and what the costs of those combinations would be.** With high costs, permitting and other challenges, there is a high degree of uncertainty whether each project can be implemented. As written, it is difficult to evaluate how feasible it is to address overdraft via the options provided.
    - For example, in the Eastside GSP draft, Table 6-15 in Chapter 6 projects 20,400 AF/yr overdraft in 2030 and 20,500 AF/yr overdraft in 2070. Table 9-8 in Chapter 9 lists projects that could mitigate overdraft. However, Table 9-8 only quantifies benefits for some of the projects, and often for the Salinas Valley basin as a whole as opposed to the Eastside Subbasin. The table also omits costs. This information will be critical for planning and implementing projects to address overdraft.
- **Factor in known uncertainties when determining which projects to prioritize in implementation.** At the top of pg 9-24 for 11043 Diversion at Chualar, and also for 11043 Diversion of Soledad, the GSP states that the groundwater model used to estimate Salinas River flows "does not account for the uncertainty surrounding greater variations in precipitation, timing, intensities and subsequent flows." The model should provide a sensitivity analysis for potential conditions, particularly in light of large variations between climate change predictions in the region.
    - This recommendation is also in line with DWR's 180/400 Determination which instructs SVB GSA to determine how they will define "average hydrogeological conditions," in Section 4.3.3.2 and the overarching statutory requirement to continually update the GSP to meet the statutory requirement to use the "best available information and best available science."[89]
- **Where projects overlap between subbasins, clarify what effects the project will have across subbasins.** For example, provide clarity around what effects the Eastside Irrigation Water Supply Project (or Somavia Road Project) will have on the 180/400 Foot Aquifer Subbasin where water will be pumped from. Account for any effects in the 180/400-Foot GSP in ongoing updates, including pertinent sections of Annual Reports.

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[89] 23 CCR § 355.4(b)(1). "When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following:
(1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are reasonable and supported by the best available information and best available science."

- **Quantify what the sustainable yield is for the entire basin.** This calculation should be done to ensure that the water budgets balance across all the Subbasin Plans.

GSP Chapter 10: Groundwater Sustainability Plan Implementation

Our overarching recommendations for GSP Implementation and Updates are as follows:

- **Take interim actions while working toward long-term sustainability.**
- **Address missing data for domestic wells as recommended by DWR:**
    - "[T]he GSA should inventory and better define the location of active wells in the Basin and document known impacts to drinking water users caused by groundwater management … in subsequent annual reports and periodic updates."[90]
- **Continue to include the small water system data from the County as a data gap in the subbasin GSPs, as it was in the 180/400 foot Aquifer GSP.** As Tom Berg, a DWR representative, indicated at the SVB GSA Advisory Committee meeting on June 17, 2021, the specific decisions made during the formation of the 180/400 foot Aquifer GSP allowed for it to receive DWR's approval. Mr. Berg recommended that the SVB GSA review the three other letters that DWR released on June 3, 2021, to better understand the parameters of what is required for a GSP to receive approval.
- **Engage underrepresented communities immediately.** As this section acknowledges, underrepresented communities have little or no representation in water management and have often been disproportionately less represented in public policy decision making. It is important to note that their engagement and input around their main concerns must be noted and considered during routine GSA proceedings. Their input should be (or rather should have been) solicited and received while the GSP formation process is/was still active.
- **Continually update the GSP and Implementation strategy as best available science[91] evolves.** Meaningful updates to data sources and interpretation should occur at a minimum on a yearly basis, timed with the Annual Reports.

[90] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* P. 24. Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

[91] 23 CCR § 355.4(b)(1).

October 15, 2021

Via Electronic Mail

Colby Pereira, Chairperson
Members of the Board of Directors
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924
Email: board@svbgsa.org

Subject: Comments on Draft Groundwater Sustainability Plans for the Upper Valley Aquifer, Forebay Aquifer Subbasin, Eastside Aquifer Subbasin, Langley Aquifer Subbasin, and Monterey Subbasin

Dear Chair Pereira and Members of the Board of Directors:

Thank you for the opportunity to submit comments. The following comments are offered on behalf of the members of California Coastkeeper Alliance and Monterey Waterkeeper.

Our comments are offered for all subbasin groundwater sustainability plans, including for the Upper Valley Aquifer, Forebay Aquifer Subbasin, Eastside Aquifer Subbasin, Langley Aquifer Subbasin, and Monterey Subbasin (collectively "GSPs"). Given the interdependence of the planning for all subbasins, comments are relevant to all the GSPs and the approach of the Salinas Valley Basin Groundwater Sustainability Agency ("SVBGSA") as applied to every subbasin. There is urgency to begin implementing meaningful projects and management actions which are protective of all beneficial uses of water, and we voice our agreement with the comments Community Water Center and LandWatch Monterey County have provided on plans developed by the SVBGSA and incorporate them here by reference.[1]

1. Overview of Requirements for Groundwater Sustainability Plans Under the Sustainable Groundwater Management Act.

The Sustainable Groundwater Management Act ("SGMA") requires the SVBGSA to include findings in the GSPs demonstrating the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and

[1] All comments on the GSPs and the 180/400 Foot Subbasin Plan through October 15, 2021, including comments to the Department of Water Resources.

implementation horizon.[2] Projects and management actions must be sufficient to support a determination that the GSPs will achieve the sustainability goal,[3] including descriptions of "circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation . . . and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred."[4] Time-tables for initiation and completion must be included,[5] along with an explanation of how the project or management action will be accomplished. Sustainability Plans must identify and *cause* the implementation of projects and management actions.[6] Providing concrete triggers and timetables for implementation is a critical and required component for demonstrating the GSPs are likely to meet the sustainability goal.

The GSPs are also required to support decisions with the best available science,[7] while Sustainable Management Criteria ("SMCs") and projects and management actions must be commensurate with the level of understanding of the basin setting.[8]

2. **The Disparity Between the Basin-Wide Integrated Management Approach of the 180/400 Aquifer Subbasin GSP, and The Remaining GSPs Must Be Resolved.**

The GSPs do not satisfy the SVBGSA's duty under SGMA because of conflicts between the approaches across the numerous GSPs and the 180/400 Foot Aquifer Plan. Plans for adjacent basins must not adversely affect the ability of one another to maintain their sustainability goals over the planning and implementation horizon.[9] We voice our agreement with comments LandWatch Monterey County has provided to the SVBGSA outlining concerns with consistency across the SVBGSA's GSPs, namely that inconsistency undermines the likelihood that any of the SVBGSA's subbasin plans will achieve their sustainability goals.

The groundwater sustainability plan for the 180/400 Ft Aquifer that was approved by the Department of Water Resources ("DWR") identifies 13 projects that "constitute an integrated management program for the entire Valley."[10] However, this basin-wide integrated management program has not been carried forward into the GSPs being drafted now. The GSPs each identify different sets of projects, which are also different from the projects identified in the 180/400 GSP. There is little overlap among the projects, and there are no projects that are common to all of the GSPs. Perhaps the most problematic example relates to the water charges framework. DWR relied on the feasibility and likelihood of the integrated set of basin-wide projects funded by the basin-wide water charges framework:

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[2] 23 CCR § 354.24 (requiring discussion of measures that will be implemented to ensure likely achievement of sustainability goal).
[3] 23 CCR § 354.44(a).
[4] 23 CCR §§ 354.44(b)(1)(A).
[5] 23 CCR §354.44(b)(4).
[6] 10721(u) (emphasis added).
[7] *See* Cal. Water Code § 113; 23 CCR § 355.4.
[8] 23 CCR § 350.4.
[9] 23 CCR §350.4(f),
[10] 180/400 Aquifer plan, p. 9-25.

> The water charges framework, at this time, appears feasible and reasonably likely to mitigate overdraft, which is an important management action to help prevent undesirable results and ensure that the 180/400 Foot Aquifer Subbasin is operated within its sustainable yield.[11]

DWR considers the water charges framework to be the "fundamental structure of groundwater management" for the 180/400 Foot Subbasin.[12] The framework was intended to be implemented across all the SVBGSA basins.[13] However, the Upper Valley and Forebay Plans reject the Water Charges Framework,[14] meanwhile the Eastside, Monterey, and Langley plans do not mention the water charges framework in their discussions of funding options.[15]

The disparity between the basin-wide integrated management approach of the 180/400 Aquifer Subbasin GSP and the lack of integrated approach of the remaining GSPs must be resolved. After undertaking the process of developing and approving plans, a GSP must be implemented.[16] The conflict between the GSPs and the 180/400 Foot Aquifer Plan undermines the likelihood the approved 180/400 Foot Subbasin Plan will achieve its sustainability goal.

3. **Timelines for Implementation of Plans Must Be Concrete and Conservative to Ensure the Sustainability Goal Is Fulfilled.**

The GSPs do not satisfy the SVBGSA's duty to demonstrate a likelihood of achieving the sustainability goal by describing how projects and management actions are sufficiently concrete to be relied upon. The GSPs also fail to adequately address evidence of changing water supplies.

As a result of the passage of time, the SVBGSA forecloses its options to manage the basin sustainably. The SVBGSA is responsible for managing the basin sustainably, including being responsible for its choices *not* to initiate projects in a timely manner. Said differently, the choice to allow the status quo to persist is a management decision, the consequences of which the SVBGSA is responsible for under SGMA.

The urgency to begin implementation and commit to a *viable* strategy cannot be overstated. An increasing body of climate change research shows that drought will continue to intensify. For example, NOAA summarized the updated consensus on drought last month:

> The warm temperatures that have helped make this drought so intense and widespread will continue (and increase) until stringent climate mitigation is pursued and regional warming trends are reversed. As such, continued greenhouse gas warming of the U.S.

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[11] DWR, Statement of Findings, 180/400 Foot Aquifer Subbasin, p. 2.
[12] DWR, GSP Assessment Staff Report, 180/400 Foot Aquifer Subbasin (June 3, 2021), p. 31.
[13] DWR, GSP Assessment Staff Report, 180/400 Foot Aquifer Subbasin (June 3, 2021), p. 5 ("Groundwater users will be allowed to pump more than their sustainable allocation; however, this additional pumping (supplemental pumping) will be subject to higher extraction fees. The proposed water charges framework is also proposed to be instituted in the other five groundwater subbasins overseen by the SVBGSA, representing a Salinas Valley Basin-wide management action")
[14] Forebay GSP at 10-15 to 10-16; UVA GSP at 10-15 to 10-16.
[15] Eastside GSP at 10-15; Monterey GSP at 10-23; Langley GSP at 10-15.
[16] Cal. Water Code § 10727(a)

> Southwest will make even randomly-occurring seasons of average- to below-average precipitation a potential drought trigger, and intensify droughts beyond what would be expected from rainfall or snowpack deficits alone.[17]

We concur with Community Water Center's objections to the GSPs relying on the "Central Tendency" scenario in DWR's guidance.[18] Besides the fact that expectations of future drought scenarios have changed since DWR's guidance was published in 2018, the guidance itself encourages groundwater sustainability agencies to analyze the more extreme Dry-Extreme Warming and Wet-Moderate Warming scenarios. There is no reasonable basis for not following DWR guidance and analyzing these scenarios, and choosing not to consider these scenarios constitutes a failure to consider the best available science and information as required by SGMA.

Conservative estimates and plans for water budgeting will protect front line communities from the immediate impacts of groundwater overdraft. The GSPs are expressly required to consider these impacts by SGMA[19] and to ensure consistency with California's Human Right to Water Law[20] which holds up each person's right to have safe, clean, affordable, and accessible water. Overestimating the sustainable yield will undermine the likelihood of maintaining the sustainability goal through the planning and implementation horizon as required under SGMA.[21] Unfortunately, underrepresented communities and ecological and recreational beneficial uses will be the most impacted by the GSPs' failures in the short and long-term.

The SVBGSA's reliance on projects and management actions (such as large infrastructure projects) with uncertain viability due to issues including lack of funding and unpredictable political and permitting regimes that are outside its control does satisfy its legal duties. The SVBGSA must provide concrete triggers and timelines for projects within its control, including pumping restrictions, to demonstrate a likelihood of avoiding undesirable results and meeting the sustainability goal as required under SGMA. Indeed, the State Water Resources Control Board has emphasized to the SVBGSA the importance of establishing specific and reasonable timelines with respect to projects that may be reliant on water rights, including pumping restrictions.[22] Failure to avoid undesirable results, including sea water intrusion impacts, will be devastating, and will create irreversible and expensive impacts for the entire region to deal with once they occur. Management actions that will have an immediate, quantifiable impact, including limiting new wells and taking the necessary steps to initiate pumping restrictions must be included in the GSPs because they provide certainty and therefore are reasonably likely to help meet sustainability goals for the region as SGMA requires.

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[17] NOAA Drought Task Force Report on the 2020–2021 Southwestern U.S. Drought, September 21, 2021. Available at https://www.drought.gov/documents/noaa-drought-task-force-report-2020-2021-southwestern-us-drought

[18] Community Water Center Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins, April 23, 2021, p. 11-14

[19] Cal. Water Code §10723.2.

[20] Cal. Water Code § 106.3.

[21] *See* 23 Cal Code of Reg ("CCR") § 354.24.

[22] State Water Resources Board letter to Craig Altare, Supervising Geologist, SGMA Office, Department of Water Resources, 180/400 Foot Aquifer Groundwater Sustainability Plan (December 8, 2020).

4. The Sustainable Management Criteria and Management Actions for Depletion of Interconnected Surface Waters are Deficient and Violate SGMA and Public Trust and Reasonable Use Doctrines.

Ecological and recreational surface water beneficial uses are not adequately protected under the GSPs.

A. Legal Background and SVBGSA's Duties Related to Depletion of Interconnected Surface Waters.

Plans are required to define sustainable groundwater management by first characterizing undesirable results.[23] Undesirable result number six is defined as "depletions of interconnected surface water that have significant and unreasonable adverse on beneficial uses of the surface water."[24] Plans must include sustainable management criteria ("SMCs") for undesirable results along with sufficiently concrete timelines and commitments for projects and management actions to demonstrate the sustainability goal is likely to be achieved and maintained throughout the planning and implementation horizon.[25] The GSPs' decisions must be supported by the best available science,[26] and SMCs and projects and management actions must be commensurate with the level of understanding of the basin setting.[27]

California's Reasonable Use Doctrine requires the SVBGSA to protect water resources and balance competing beneficial uses consistent with public interest. This doctrine is enshrined in SGMA.[28] Article X, section 2 requires "water resources of the State be put to beneficial use to the fullest extent of which they are capable, and the water or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare." The Reasonable Use Doctrine is the principle governing all uses of water resources in California.[29] Section 100 of the Water Code further mandates "that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare."[30]

The SVBGSA also has an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible.[31] The SVBGSA must consider public trust resources as they relate to groundwater pumping impacts to surface water beneficial uses.

To summarize, the GSPs must first establish criteria, set out measures in sufficient detail to ensure sustainability according to the criteria, and then implement the plan. The SVBGSA

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[23] *See* 23 CCR 354.22; Cal. Water Code § 10721(u).
[24] *See* Cal. Water Code § 10721(x)(6).
[25] *See* 23 CFR 354.22 et seq.
[26] *See* Cal. Water Code § 100; 23 CCR § 355.4.
[27] 23 CCR § 350.4.
[28] Cal. Water Code § 10720.1.
[29] *Joslin v. Mann Municipal Water Dist.,* (1967) 67 Cal.2d. 132, 137-38.
[30] Cal. Water Code § 100.
[31] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d. 419, 446 (1983).

must be guided by the Public Trust and Reasonable Use doctrines, especially given the significant interaction between surface water and groundwater in the Salinas Valley. These doctrines are guideposts for developing the SMCs.[32] The GSPs must undertake an analysis of the impacts to public trust resources and ensure the reasonable use of water. Any consideration of reasonableness must include analysis of the costs to public trust resources and the reasonableness of the loss of fish populations, for example. Ecological beneficial uses of the Salinas River are essential to meeting the success and viability of the South Central Southern California Steelhead.[33]

B. The Sustainable Management Criteria for Depletion of Interconnected Surface Waters Fail to Adequately Consider Impacts to Ecological Beneficial Uses Including Habitat for Steelhead Trout.

Prevention of Undesirable Result Number Six requires the SVBGSA to develop SMCs considering all impacts beneficial uses of surface water including Steelhead habitat. The overarching legal doctrine of reasonable use and public trust provide boundaries governing beneficial uses of surface water, and inform the analysis of what constitute "significant and unreasonable adverse impacts" on beneficial uses of the surface water as a result of these depletions under SGMA.

Groundwater pumping will impact surface waters and have an adverse impact on fish and wildlife. Yet the GSPs fail to provide any analysis of the impacts to public trust resources, the first step in the process to satisfy the public trust doctrine.[34] The SVBGSA has not acknowledged, let alone provided any analysis of the damage to Steelhead Trout habitat that will be caused under the proposed SMCs. This failure also violates the Reasonable Use Doctrine.

I. Reliance on the 2007 Biological Opinion Does Not Fulfill the SVBGSA's duties under SGMA, the Public Trust Doctrine, or the Reasonable Use Doctrine.

The SVBGSA has been repeatedly alerted to the damage being caused under the Biological Opinion and Incidental Take Statement for the Salinas Valley Water Project ("2007 Biological Opinion"),[35] and it should not be used to develop SMCs for the preventing of undesirable results related to the depletion of interconnected surface water. The GSPs fail to consider the impacts on Steelhead populations in particular. Steelhead are of particular importance because of their protected status, and their value as an indicator species for the health and sustainability of Salinas River management. Stakeholders, The National Marine Fisheries Service ("NMFS") in particular, have pressed the SVBGSA for changes due to concerns about

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[32] Belin, A., Guide to Compliance With California's Sustainable Groundwater Management Act: How to avoid the "undesirable result" of "significant and unreasonable adverse impacts on beneficial uses of surface waters" (2018) (available at https://stacks.stanford.edu/file/druid:kx058kk6484/Woods%20Groundwater%20Mgmt%20Act%20Report%20v06%20WEB.pdf).
[33] *See* NMFS Comment on UVA (May 7, 2021) Appendix A (Role of Salinas River in Meeting NMFS' South-Central California Coast Steelhead Viability/Recovery Criteria.**)**
[34] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d. 419, 426.
[35] June 21, 2007.

the failure of the SMCs to undertake a meaningful analysis of impacts to ecological beneficial uses, including for Steelhead Trout habitat. The status quo management strategy under the withdrawn 2007 Biological Opinion does not adequately support ecological beneficial uses and constitutes an unauthorized take of steelhead trout under federal law.[36] This amounts to a violation of both the Reasonable Use Doctrine and Public Trust Doctrine. The GSPs, including projects and management actions that depend on the establishment of valid SMCs, must be revised accordingly.

The GSA has not interrogated the question of how recreational and ecological uses, including flows for Steelhead, are impacted under recent activities managing groundwater. NMFS has commented extensively throughout proceedings on the 180/400 and the proceedings on the remaining GSPs, explaining that the current regime does not protect ecological beneficial uses. Importantly, NMFS has explained that implementation of the withdrawn 2007 Biological Opinion should not be relied on by the GSA as evidence that the current regime supports ecological beneficial uses.

The 2007 Biological Opinion was withdrawn because it did not adequately protect Steelhead and was not protective of public trust resources. For example, the Biological Opinion assumed precipitation would follow historical wet and dry year patterns,[37] and the Salinas Valley Water Project would operate as planned. Neither assumption has proved correct, however. California has experienced severe, multi-year droughts that began after NMFS issued the Biological Opinion in 2007. The Flow Prescription only contemplated water releases from the Nacimiento and San Antonio Reservoirs for steelhead flows in the Salinas River when combined water storage is above 150,000 acre-feet for smolt outmigration or 220,000 acre-feet for adult upstream migration and juvenile passage to the lagoon. The Flow Prescription does allow for 2 cfs of flow to the lagoon during dry years where flows for migration are not triggered. Due to the droughts, reservoir storage capacity has not exceeded the migration-flow trigger levels, relieving Monterey County Water Resources Agency from any obligation to provide conservation releases. Due to declining reservoir storage and low rainfall, fish passage has been impossible, effectively precluding steelhead reproduction. As a result, steelhead trout receive essentially no conservation flow benefit from the Biological Opinion that was crafted with the object of protecting the species.

Since the Biological Opinion was withdrawn, federal and state agencies have made clear that the flow regime it proposed was inadequate and must be updated.[38] The SVBGSA has not explained how it can rely on a withdrawn Biological Opinion and comply with SGMA's mandate to use the best available science and information. The SVBGSA maintains that it can wait for a revised flow regime in a yet-to-be developed Habitat Conservation Plan. Meanwhile The

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[36] "Unauthorized take" is defined as "to harass, harm pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19).
[37] *See, e.g.*, 2007 Biological Opinion, p. 12-13.
[38] *See* South-Central California Coast Steelhead Recovery Plan, National Marine Fisheries Service, West Coast Region, California Coastal Area Office, Long Beach, California (2013) (explaining the failures).

California Department of Fish and Game advise conservatism in such situations, where impacts of groundwater-surface water dynamics are either unknown or in the process of being analyzed.[39]

The Biological Opinion does not support ecological beneficial uses, and the SVBGSA has not explained how reliance on it to establish SMCs will protect ecological beneficial uses, protect public trust resources, and reasonably balance beneficial uses of water. NMFS has commented that the using the proposed SMCs are "likely a take," explaining:

> Given that 2015 pumping levels, and the corresponding impact of surface water depletion on beneficial uses, were likely some of the highest on record due to California's historic drought, preventing those impacts from worsening in the future is hardly a "benefit" to ecological users of surface water, and akin to ensuring a dry river channel doesn't get any drier.[40]

The fact that implementation of the proposed SMCs will cause a take to occurr, in and of itself, constitutes a "red light" scenario under Undesirable Result Number Six, and requires remedial steps by the SVBGSA.[41] The SVBGSA has responded to NMFS concerns, not by changing the substance of the GSPs to better protect ecological uses with meaningful action, but merely by explaining the intent to wait for a new Habitat Conservation Plan to establish a new flow regime that will be protective. This strategy does not analyze, much less incorporate the best information or science as required under SGMA. Neither has the SVBGSA provided any discussion or support for how waiting for a new Habitat Conservation Plan, a process completely outside the control of the SVBGSA, satisfies its duties to safeguard public trust resources and ensure the reasonable use of water.

The fact that the current flow regime is inadequate to support ecological beneficial uses has consequences for the GSPs' water budgets as well. The GSPs must consider the best available information and science in establishing the water budget.[42] The GSPs use of the withdrawn Biological Opinion does not satisfy the SVBGSA's duty to use the best available information and science for the purpose of water budgeting.

II. The Use of Groundwater Levels as a Proxy for Interconnected Surface Water Sustainable Management Criteria is Not Adequately Supported.

Under SGMA, the use of groundwater levels as a proxy in the depletion of interconnected surface water SMCs requires that a "significant correlation exists between groundwater elevations" and undesirable surface water depletion impacts they are designed to measure.[43] However, the GSPs do not establish a significant correlation, ignoring significant and

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[39] Fish & Wildlife Groundwater Planning Considerations. California Department of Fish and Wildlife, Groundwater Program. California Department of Fish and Wildlife (2019) p. 14 (available at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=170185&inline)
[40] NMFS Comment to Upper Valley Aquifer GSA, May 7, 2021.
[41] Belin, A., Guide to Compliance With California's Sustainable Groundwater Management Act: How to avoid the "undesirable result" of "significant and unreasonable adverse impacts on beneficial uses of surface waters" (2018).
[42] 23 CCR § 354.18(e).
[43] 23 CCR § 354.36(b).

unreasonable impacts to Steelhead, and by proxy, to the ecological health of the Salinas Basin, that are accruing under the current and projected future levels of groundwater pumping. These local circumstances, including the most relevant and current facts and impacts on recreational and ecological resources must be analyzed to establish any significant correlation. Simply citing to a 2018 Environmental Defense Fund guidance, as the SVBGSA has done, is not adequate to establish the proxy relationship. In fact, that guidance makes clear that local conditions and circumstances must be analyzed, and does not suggest that groundwater levels should be used as a proxy without such analyses.[44]

The SMCs must be reevaluated in light of the body of evidence that ecological and recreational beneficial uses are not adequately being protected. SGMA requires this information be included in the analysis of significant and unreasonable adverse impacts on beneficial uses of surface water. Despite the requirements of the Public Trust and Reasonable Use doctrines, the GSPs fail to use reasonable means available under its authority to analyze, much less limit unreasonable impacts to surface water beneficial uses and public trust resources. The SVBGSA must, as a starting point, acknowledge what those impacts are. Then the SVBGSA must determine the implications for sustainable groundwater management in the Salinas Valley.

C. Projects and Management Actions for Preventing Undesirable Result Number Six Are Not Supported by the Best Available Science.

Projects and management actions to address depletion of interconnected surface waters must consider the best available science.[45] The GSA must support its conclusions with substantial evidence after applying the best science that is available now. As explained above, the proposed SMCs, which are supposedly designed to protect against undesirable result number six, depletion of interconnected surface waters, rely on outdated findings from the 2007 Biological Opinion that has been retracted, and ignore more recent data and information. The GSP ignores ample evidence that has been submitted to the SVBGSA demonstrating the need for increased flows to support ecological beneficial uses. Relying on the Biological Opinion's flow regime while ignoring the reasons it was withdrawn and supplemental information violates SGMA regulations requiring the best available science and information support decisions in plans.

D. The GSPs Do Not Include Reasonable Steps to Develop Protective Sustainable Management Criteria, Projects, and Management Actions.

As with other SMCs, SGMA's mandate that the GSPs address depletion of interconnected surface waters requires that management actions the GSPs proposes are reasonable and supported by the best available science. In addition, the Public Trust places an affirmative duty on the SVBGSA to consider public trust resources and protect them "whenever

[44] *See* Hall, M., Babbitt, C., Environmental Defense Fund, Addressing Regional Surface Water Depletions in California, A proposed approach for compliance with SGMA (2018) p. 7 (available at https://www.edf.org/sites/default/files/documents/edf_california_sgma_surface_water.pdf).
[45] 23 CCR § 354.44(c).

feasible,"[46] and the Reasonable Use Doctrine requires that GSPs provide for "the greatest number of beneficial uses which the supply can yield."[47]

The SVBGSA's plan to "continue to coordinate with NMFS on the effect of pumping on interconnected surface water and steelhead trout" falls well short of these standards. The GSPs must set forth concrete steps that will be taken to establish legally sufficient SMCs, including impacts to Public Trust resources. SGMA requires corresponding projects and management actions, sufficient to support the determination by the SVBGSA that the sustainability goal will be met, be included in the GSP, and then implemented. The SVBGSA must separately demonstrate that it has fulfilled its duties under the Reasonable Use and Public Trust doctrines. Indeed, an attempt to avoid or minimize the harm to public trust uses is the second step required by the Public Trust Doctrine.[48]

5. **Sustainable Management Criteria and Management Actions Related to Water Quality Violate SGMA.**

The GSPs must analyze how groundwater conditions impact and degrade water quality. While the SVBGSA may not be the only agency with some responsibility over groundwater quality, the fact that other agencies including the County and the Regional Water Quality Board have authority and responsibility to address water quality degradation does not relieve the SVBGSA from its duty to ensure groundwater conditions in the basin do not create undesirable results. DWR rejected the SVBGSA's narrow interpretation of its responsibility to protect against water degradation.[49] The fact that multiple other agencies share responsibility demonstrates that the statutory scheme does not intend to rely on the regulatory actions of any single agency.

SGMA requires the GSPs to address degradation of water quality that accrues after January 1, 2015.[50] SGMA states that a plan "may, but is not required to, address undesirable results that occurred before, and have not been corrected by, January 1, 2015." Thus, the GSPs must address all worsening water quality that results from groundwater use, including instances where water quality may have already violated maximum contaminant levels in 2015.

Nothing in SGMA's mandate that the GSPs address water quality degradation permits the SVBGSA to ignore water quality degradation that results from third party pumping. The GSPs must address the effects of its regulatory acts, and its failures to act.[51]

The State Water Resources Board identified the importance of the SVBGSA sorting out its responsibilities vis-à-vis other agencies in 2020:

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[46] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d. 419, 446.
[47] *Peabody v. City of Vallejo*, 2 Cal. 3d 351, 368 (1935).
[48] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d. 419, 426.
[49] DWR GSP Assessment Staff Report, Salinas Valley – 180/400 Foot Aquifer (June 3, 2021) p. 27.
[50] Cal. Water Code §§10727.2(b)(4); 10721(x)(4).
[51] *See, e.g.,* Cal. Water Code § 10721(u) (explaining that the plans must achieve the sustainability goal by identifying and causing the implementation of projects and management actions).

> The GSP states that only water quality impacts caused by GSP implementation are unacceptable but does not explain how SGMA-related water quality changes will be distinguished from other water quality changes. The GSP should outline the process the GSAs would use to decide whether or not an exceedance of an MT for water quality degradation was caused by GSP implementation; otherwise, it is difficult to judge how adequately the GSP addresses undesirable results related to water quality degradation. Staff recommends that the GSAs consult with the Central Coast Water Board in developing this process.[52]

Not only does the SVBGSA have responsibility to consider water quality impacts, but the GSPs must also put in place concrete plans for determining which agency will take responsibility under which circumstances, to ensure that water quality issues are dealt with. The State Water Board and DWR have identified the importance of consulting with the Central Coast Water Board to ensure responsibilities are understood and water quality is adequately protected.[53]

The proposed "Water Quality Partnership" project and/or management action in the GSPs[54] does not satisfy SGMA's requirement that he SVBGSA provide findings determining the project and management actions will achieve the sustainability goal,[55] nor do the GSPs include required descriptions of circumstances under which the partnership will be implemented, criteria triggering implementation,[56] time-tables for initiation and completion,[57] or an explanation of how the project or management action will be accomplished. The GSPs must identify and *cause* the implementation of the Water Quality Partnership actions.[58] Providing these details is a critical and required component for demonstrating the GSPs are likely to meet the sustainability goal, as the SVBGSA is required to do.

The Water Quality Partnership needs to be revised to be an effective, enforceable commitment to action by the agencies with the most direct oversight of the cause of any exceedance. At minimum, a management action that addresses water quality degradation should include the following specific details, which should be negotiated and memorialized in a memorandum of understanding ("MOU") to include the SVBGSA, the Regional Water Quality Board, and the Monterey County Department of Environmental Health:

- The agencies must monitor a sufficiently representative sampling of domestic wells to reliably determine any instance of a domestic well's failure to meet water quality standards;

- An approach to reach agreement between the agencies, for each instance of failure to meet the measurable threshold for water quality, about whether the cause includes (1)

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[52] State Water Resources Board letter to Craig Altare, Supervising Geologist, SGMA Office, Department of Water Resources, 180/400 Foot Aquifer Groundwater Sustainability Plan, Groundwater Subbasin No. 3-004.01(December 8, 2020), p. 3.
[53] *Id*; DWR GSP Assessment Staff Report, Salinas Valley – 180/400 Foot Aquifer (June 3, 2021), p. 27.
[54] *See, e.g*., Eastside Aquifer Plan, pp. 9-100 - 9-101.
[55] 23 CCR § 354.44(a).
[56] 23 CCR § 354.44(b)(1)(A).
[57] 23 CCR §354.44(b)(4).
[58] Cal. Water Code § 10721(u) (emphasis added).

discharge of pollutants and/or (2) pumping activity that has concentrated, mobilized, or moved pollutants. Each instance, there must be public oversight and clear system of accountability for the agency/agencies that are assigned responsibility;

- Where the cause includes pumping activity, the SVBGSA should take action to abate the pumping that is causing the failure to meet water quality standards;
- Adequate funding for all aspects of the project, including financial support for outreach to underrepresented communities;
- Unless and until the Water Quality Partnership approach results in an improvement in the water quality for the impacted well immediately after reporting, the minimum threshold should be set at 75% of the relevant maximum contaminant level to adequately protect public health.

In addition, the MOU for the Water Quality Partnership should be finalized in a timely manner. Further, the agencies should report out to the public on those meetings regularly and the GSPs should establish a concrete timeline for when the respective requirements of the MOU will be complete, and consequences if the timelines are not met.

Lastly, we voice our agreement with the voluminous comments Community Water Center has provided to the SVBGSA on water quality impacts for disadvantaged communities in particular. We implore the SVBGSA to give attention to the robust and detailed contribution of Community Water Center staff on the GSPs.

6. The SVBGSA Should Take Meaningful Steps to Improve Representation of Underrepresented Communities

The SVBGSA must take meaningful steps to remedy the disparity of representation with the SVBGSA and its board, as required by SGMA[59] and to ensure consistency with California's Human Right to Water Law.[60]

The GSPs' discussion of Underrepresented Communities acknowledges that they "have little or no representation in water management and have often been disproportionately less represented in public policy decision making."[61] However, the SVBGSA makes no meaningful commitment to remedy this issue. The GSPs should identify funding for these projects, and provide specifics as to exactly how these plans will be executed. The GSPs should explain what metrics they will use to evaluate and demonstrate the increased "representation" for underrepresented communities. The GSPs should attach specific timelines to these metrics, and also describe binding consequences that will be triggered if the SVBGSA fails to meet its goals.

In addition, to increase the representation of underrepresented communities, we implore the SVBGSA to incorporate the suggestions and direction of organizations such as Community Water Center, an organization that has dedicated significant resources to the ongoing creation of

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[59] Cal. Water Code § 10723.2 (expressly requiring SVBGSA to consider interests of all beneficial users).
[60] Cal. Water Code § 106.3.
[61] *E.g.,* Upper Valley Aquifer Subbasin plan, p. 10-8.

SVBGSA GSPs and which has an express mission to represent underrepresented communities on the Central Coast.

Lastly, there is a systemic flaw that underlies the SVBGSA creation of its plans and will surely plague the implementation until it is resolved: the structural over-representation of agricultural interests in decision making for the SVBGSA. In addition to strong agricultural interests intrinsic to seats appointed by municipalities and the County of Monterey, four seats of the eleven-seat board are allocated to "agricultural interests." A super majority of three of those four agricultural votes are required for the most consequential decisions including to impose certain fees and impose pumping limits. To increase "representation" of underrepresented communities who often bear the burdens of unsustainable groundwater use, the SVBGSA should increase the representation of non-agricultural beneficial users, especially underrepresented communities, on the SVBGSA board to allow interests of these other beneficial users to meaningfully participate in decision making. Funding should be set aside for seats designated for underrepresented communities to ensure the seats are accessible for those with limited resources.

Thank you for your consideration, and we look forward to ongoing work with the SVBGSA to ensure our shared groundwater resources are managed sustainably.

Sincerely,

Tyler Sullivan, Staff Attorney
Drevet Hunt, Legal Director
California Coastkeeper Alliance

Sean Bothwell, Board Member
Monterey Waterkeeper

Copy via email to:
Donna Meyers, General Manager, meyersd@svbgsa.org
Emily Gardner, Deputy General Manager, gardnere@svbgsa.org

MONTEREY COUNTY

WATER RESOURCES AGENCY

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BRENT BUCHE
GENERAL MANAGER

STREET ADDRESS
1441 SCHILLING PLACE, NORTH BUILDING
SALINAS, CA 93901

October 15, 2021

Donna Meyers, General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Schilling Place
Salinas, CA 93901

Re: Draft Upper Valley Subbasin Aquifer Groundwater Sustainability Plan

Dear Ms. Meyers:

Monterey County Water Resources Agency (Agency) appreciates the opportunity to comment on the draft Upper Valley Subbasin Aquifer Subbasin Groundwater Sustainability Plan (GSP). As you know, Agency staff has been involved in reviewing this GSP in a technical role to assure that the data collected and curated by the Agency is utilized and described in an accurate manner.

What the Agency has been unable to do is to review most of management actions and projects in this document for feasibility and to verify the claims of benefits to groundwater sustainability. The management actions and projects that involve modifying many of the Agency's operations, projects, programs and/or permits have not been vetted by the Agency to ensure that Agency's goals and objectives will continue to be met if implemented. This document does not contain enough detail for an in-depth review which would be required before the Agency could provide support for these activities. Therefore, the Agency considers most of these management actions and projects as conceptual ideas that provide the Salinas Valley Groundwater Basin Sustainability Agency (SVGBSA) with a menu of options to move forward in this planning phase. What moves forward to implementation has yet to be decided. The Agency understands that feasibility studies will be conducted by the SVBGSA before any considerations for implementation of management actions or projects that utilize Agency facilities, operations or permits will proceed. Coordination and discussions between the Agency and SVBGSA are pertinent to this being successful.

SVGBSA staff has characterized this GSP as a starter document that will be revised in an iterative process and does not commit the Agency to any specific actions. The Agency looks forward to those revisions and updates that contain feasibility studies for the management actions and programs that include a complete project description that outlines specific tasks, identifies the benefits to the entire Salinas Valley Groundwater Basin and determines costs along with a sustainable funding mechanism for implementation.

MCWRA staff has reviewed the draft GSP, except for Chapter 9 – Projects & Management Actions, released by the SVGBSA on August 18, 2021 and provide the following comments for consideration:

Section 4.4.5.1, page 4-25: The discussion on interconnected surface water references results from the preliminary SVIHM (also depicted in Figure 4-11) but the USGS disclaimer about model results does not appear prior to this in the report. The disclaimer is included in Volume 2 (page 6-1), but it may be useful to include it sooner if data from the SVIHM is referenced.

Section 4.5, page 4-31: Correct Lake Nacimiento and Lake San Antonio to Nacimiento Reservoir and San Antonio Reservoir

Section 5.1.2, page 5-2: The first paragraph (and later sections, such as on page 5-12) is correct in stating when MCWRA's annual fall measurement program occurs and the reason for the timing of it. However, the second paragraph then counters this by stating that "fall measurements represent seasonal low conditions in the Subbasin." Monthly data collected by MCWRA shows that seasonal lows occur in August or September in the Upper Valley, not in November and December, which is when the MCWRA annual fall program occurs.

Section 6.1, page 6-1, paragraph 3: The watershed model in the SVIHM is referred to as the Salinas Valley Watershed Model (SVWM). It uses the HSPF code, in the same way that the SVIHM uses the MODFLOW-OWHM code, but it is known as the SVWM.

Section 6.3.2, page 6-17: The GSP states that "the 2016 current extraction in the GEMS database is 112,700 AF", however, the 2016 GEMS Annual Summary Report reported 127,669 AF of extractions in the Upper Valley Subarea. If the values stated in the GSP were re-calculated using the CA 118 Upper Valley Subbasin boundary, consider specifying this to avoid confusion with GEMS reported extractions.

Section 3.4.1 and Section 7.2: MCWRA currently monitors 33 wells, not 24, within the CA 118 Upper Valley Subbasin boundary for groundwater elevations as part of our ongoing groundwater level monitoring programs.

MCWRA appreciates the opportunity to comment on the draft GSP for the Upper Valley Subbasin. If you have any questions regarding the enclosed comments, please contact MCWRA at 831-755-4860.

Sincerely,

Elizabeth Krafft
Deputy General Manager

Salinas Valley Basin Groundwater Sustainability Agency

SVBGSA Public Comments Form

Name
Thoomas Virsik

Organization
Thomas S. Virsik, Attorney at Law

Email Address
thomasvirsiklaw@gmail.com

Subbasin
Upper Valley

Comments
The attached erratum at the bottom of page one contains a typographical correction to CCR 23 §§ 350.4(A), which should read as follows: CCR 23 §§ 350.4(f).

Please disregard the October 14, 2021 submission and replace with with this Erratum.

File Upload
pdf SVBGSA UV Erratum GSP Comment 10-14-20...

Thomas S. Virsik
ATTORNEY AT LAW

Erratum
14 October 2021

To: Salinas Valley Basin Groundwater Sustainability Agency (GSA)

Re: Public Comments - Upper Valley GSP

Please consider the within comments to the Upper Valley Groundwater Sustainability Plan (the "GSP") proffered on behalf of the Orradre family and Scheid Family Wines, which own lands in the Forebay and Upper Valley sub-basins. Part of their emphasis in prior comments is that the GSP's of the two sub-basins should parallel and complement each other. While the two sub-basins are by no means identical, e.g., there is a discreet management area in the Forebay and substantial new acreage was added to the "traditional" Upper Valley region, the sub-basins have much in common. A partial list includes:

- Physical proximity to the MCWRA managed reservoirs
- Long-term overall pumping within the range of sustainable yield
- No seawater intrusion (SWI) or subsidence issues

Accordingly, the comments submitted for the Upper Valley and the Forebay GSP's are substantially similar. For the sake of brevity, comments by others will be referenced but not repeated verbatim and prior written/oral comments will not be repeated[1]. Common SGMA abbreviations will be used.

<u>GSP's To Work With and Not Against Each Other</u>
Each sub-basin will have its own GSP with its separate criteria, triggers, and planned actions or projects. Originally, the GSA considered a "one size fits all/none" approach of one GSP for all sub-basins as a cohesive unit. <u>See</u> March 7, 2018 letter to SVBGSA re Hydrometrics contract, enclosed. The passage of time, advocacy, and some clarity from State entities changed the original approach to the current SGMA-compliant one of separate GSP's for the Bulletin 118 sub-basins.

How then are the several GSP's to work with each other? Each GSP must refrain from "adversely affecting the ability of an adjacent basin to implement its Plan or achieve or maintain its sustainability." CCR 23 §§ ~~350.4(A~~) 350.4(f) and 355.5(b)(7). For example, the Forebay GSP cannot be based on groundwater

[1] The multiple prior formal and oral comments are reflected in the "table" of comments and in the database of letters received. Prior comments ranged from the purely editorial, e.g., an error in labeling a table or an errant punctuation mark, to the substantive, e.g., present sustainability to be *maintained* rather than a future *achievement* of sustainability.

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levels in the Upper Valley that deviate from the Upper Valley GSP. The current drafts of the Upper Valley and Forebay GSP's do not appear to "adversely affect" each other in any way. The present draft of the Eastside GSP also appears not to adversely affect the Forebay GSP, so long as its potential projects do not contemplate any change to the Forebay's or Upper Valley's SMC, e.g., no project to modify Forebay or Upper Valley GW levels or transfer water from those sub-basins.

Joinder in Other Comments
Orradre and Scheid join in numerous comments and concerns proffered by the Salinas Valley Water Coalition ("SVWC") and Arroyo Seco Groundwater Sustainability Agency ("ASGSA") as noted below. They also join in the SVWC 14 October 2021 comment letter on the Upper Valley GSP.

The comments referenced in the below table by the SVWC dated 5 October 2021 are hereby incorporated. For ease of tracking and consistency between the two GSP's, the below table provides a cross-reference to the Upper Valley GSP pages, sections, and items to the SVWC 5 October 2021 Forebay GASP letter, as applicable.

SVWC Comment letter dated 5 October 2021	Forebay GSP reference	Upper Valley GSP August 12, 2021
Chapter 1	Sec 1.3 at 1-7	Sec 1.3 at 1-14
Chapter 2	Sec 2.2 at 2-4	Sec 2.3 at 2-4
Chapter 3	Sec 3.10.4 at 3-47	Sec 3.10.4 at 3-27
"achieve" to "maintain" sustainability	Page 5-1	Global, see e.g., pages 6-1, 6-23, 7-2, 8-2 et seq
Comment 2 (Chapter 6)	Page 6-22	Page 6-14*
	Page 6-2, line 11	Global, see e.g., pages 6-28, 6-33
	Page 6-7 at second bullet point	Sec 6.12 at 6-6
	Sec 6.1.2.3 at 6-9	Sec 6.1.2.3 at 6-8
	Page 6-10	Sec 6.2 at 6-9
	Sec 6.4 at 6-25	Sec 6.4 at 6-23
Chapter 7	Sec 7.6 at 7-26	Sec 7.6 at 7-14
	Sec 7.7.2.2 at 7-30	Sec 7.7.2.2 at 7-17
Chapter 8	Sec 8.2 at 8-2	Sec 8.2 at 8-2
	Sec 8.3 at 8-3	Sec 8.3 at 8-3
	Sec 8.6.2.3 at 8-16	Sec 8.6.2.3 at 8-13*
	Sec 8.6.4.1 at 8-27	Sec 8.6.4.1 at 8-19 with a change from "5 exceedances in the 39"

SVWC Comment letter dated 5 October 2021	Forebay GSP reference	Upper Valley GSP August 12, 2021
		to "2 exceedances in the 18"
Chapter 9	Introduction	Global – adding "caveat" language
	Sec 9.2.1 at 9-3	Sec 9.2.1 at 9-2
	Global "management actions and projects"	Global "management actions and projects"
	Item A7 at 9-7	Item A5 at 9-5
	Sec 9.4.7 at 9-24	Sec 9.4.5.7 at 9-24
Chapter 10	Page 10-11	Page 10-10
	Global. Replace "broad" to "technical" acceptance of model	Global – the "caveat" language about the reliability and use of the models per the ongoing ASGSA edits to the Forebay GSP.
	Sec 10.3 – striking "or if other subbasins initiate implementation of them"	Sec 10.3 at 10-9, modifying language to: "chooses to leverage management actions or projects initiated by other subbasins."

* The proposed change need *not* include any language referencing the Arroyo Seco Cone.

In support of the SVWC comment letters, please note the following additional authority:

- SGMA explicitly contemplates GSP's may conclude and analyze a basin's present sustainability, i.e., how to *maintain* sustainability. CCR §§ 350.4(e).
- A GSA must consider any current general plan. Water Code § 10726.9
- Any integration of the individual GSP's is voluntary, i.e., not required by SGMA. CCR §§ 357 et seq (re Interagency Agreements and Coordination Agreements).

- Cities or counties that amend their general plan must consider any GSP's and the information provided by a GSA in response thereto. Government Code §§ 65350.5, 65352, 65352.5.

- GSA's have the authority to limit water extractions inconsistently with any general plan. Water Code § 10726.4

In addition, the "caveat" language advocated by the ASGSA for inclusion in the Forebay GSP must also be added to the Upper Valley GSP – once it is finalized – including language addressing the limits to the present models' use and reliance thereon. The limits of the models are no different in the Forebay sub-basin as in the Upper Valley, and possible are that much more acute for the Upper Valley as additional lands with little present data were added as part of B-118's most recent revisions.

The other "caveats" in negotiation for the Forebay GSP about implementation and projects crafted to address undesirable results in other sub-basins also apply equally, if not more so, to the Upper Valley. The best example is SWI as neither the Forebay nor the Upper Valley sub-basins has experienced SWI and hydrologically its (borderline) impossible that either sub-basin ever will.

While commentors are aware that coordination on the several formulations of "caveat" language continues between the SVBGSA and the ASGSA, the below represent examples (lightly edited) of the language drawn from a recent Forebay GSP draft with respect to (1) the model(s) and (2) implementation of actions and projects for the sub-basin:

> The USGS has not yet submitted modeling files or documentation to Salinas Valley stakeholders for review. During the GSP development process, stakeholders who reviewed model output discovered apparent errors or inaccuracies relating to pumping amounts, groundwater storage changes, and simulated ~~Arroyo Seco~~ percolation. Some of the apparent errors are discussed in this chapter, and they are of a magnitude that could potentially affect conclusions or proposed management actions. Although the model was used to estimate some water budget items for this chapter, it needs more review and broader [sic] acceptance by stakeholders before it will be suitable for designing and evaluating projects or management actions.

§ 6.1.

> The implementation plan in this chapter is based on the best available data used to understand groundwater conditions in the Subbasin and the current assessment of management actions and projects described in Chapter 9. As described in Chapter 9, there is currently no need to implement management actions or projects in the ~~Forebay~~ <u>Upper Valley</u>

> Subbasin ~~or ASCMA~~. Monitoring and expansion of the data network will be a focus for the Subbasin. Implementation of management actions and projects will only be initiated in the ~~Forebay~~ Upper Valley Subbasin after the benefits and impacts of the actions have been analyzed with a publicly available groundwater model that has broad [sic] acceptance. As stated in Chapter 6, the model used for developing this GSPs groundwater budgets should be improved before it can be used for analyzing management actions in the Subbasin.

Chapter 10

The GSA is urged to conform the Upper Valley GSP to the changes/edits set out in the SVWC and the ASGSA comments (including the 14 October 2021 SVWC letter) as noted and lightly modified herein.

Very truly yours,

Thomas S. Virsik
Thomas S. Virsik

Encl.

c. Donna Meyers, SVBGSA General Manager, meyersd@svbgsa.org
   Emily Gardner, SVBGSA Deputy General Manager, gardnere@svbgsa.org

Number	Chapter	Date	Commenter	Comment	Response	Action
1	1,3,4	6/11/2020	Nancy Isakson, Salinas Valley Water Coalition	See letter attached.	Received	Section 3.2, 3.2.1, 3.4.1, 3.4.3, 3.6.1, 3.8.3, 3.8.4 and 3.8.5 text revised as recommended. Revisions for section 3.6.2 and the omission of the Chapter 9 reference in 3.8.4 and 3.8.5 are noted.
2	1,3,4	6/11/2020	Grant Cremers	See letter attached.	Received	The subsequent chapters referenced in the first few chapters had not been written yet, but the general structure of the GSP is known, thus, they were referred to as chapters are released. Comments on surface and groundwater use references are noted and were clarified in the text.
3	3	7/10/2020	Heather Lukacs, Community Water Center	See letter attached.	Received	Comment about plan area description: - Lists of 1) large public, 2) small public, and 3) local small and state small water system names and IDs were added to Appendix 3A. The number of connections for each system was included is available. - Private domestic wells are not included in "Communities Dependent on Groundwater" figure in Section 3.2.1; however, domestic wells are included in the figure showing Domestic Well Density in Section 3.3. Comment about water system maps: - Map of locations and service areas for 1) large public, 2) small public, and 3) local small and state small water systems was added to Chapter 3, symbology of map categorizes the water systems by number of connections. This map replaces the previous "Communities Dependent on Groundwater"" figure. The water systems are not labeled on the map because there are too many water systems too fit all the labels for them; however, names of the water systems are included in SVBGSA's Web Map: https://portal.elmontgomery.com/?14. - Monterey County Environmental Health was contacted and the parcel data used to make water system boundaries for maps was update. In regards to their water quality data, County Health monitors for coliform at least annually, and nitrate and arsenic sampling depends on level and history. SVBGSA had originally planned to work with the County to add data from small and local water systems into the monitoring network; however, water quality data can't be easily compiled and sent to us to analyze. Same goes for any specific well data. In addition, there is sufficient other available data to characterize the basin. There were no water quality data gaps identified per SGMA requirements for GSPs as there is adequate spatial coverage to assess impacts to beneficial uses and users. Comment on Section 3.2.2: An 'Other' category was added to the water use sectors, which includes rural residential water use added to Section 3.2.2. Comment on Chapter 3 water quality discussion: § 354.16(d) is addressed in Chapter 5. Groundwater Conditions, including groundwater quality issues that may affect the supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes. Maps of 2013 to 2019 exceedances of the Title 22 regulations in DDW and ILRP on-farm domestic wells and Basin Plan water quality objectives for ILRP irrigation supply wells are included in a new Chapter 5 Appendix.
4	3	7/26/2020	Beverly Bean, Advisory Committee Member	See letter attached.	Received	Page 1-1: Filling data gaps will make up a large part of the Implementation Chapter. Page 3-11: Table 3-2 was made using DWR's OSWCR database, and it does not provide information on the amount of agricultural and industrial wells so these categories have to be combined into the production category. This dataset is used because WCR have to be submitted to the state and thus is more likely to include the most number of wells. Page 3-15: Text in section 3.4.1 revised as recommended. Section 3.4.2 questions: There are a total of 34 groundwater elevation monitoring wells in the Upper Valley that are all part of the annual monitoring program. Out of the 34, 10 wells are also part of the monthly monitoring program. All water level data is voluntary if the well is not owned by MCWRA, and it is verified by MCWRA. Annual extraction data is required within MCWRA zones 2, 2A, and 2B if the discharge pipe is larger than 3" in diameter. 23 of the water level monitoring wells also report extraction data through GEMS.
5	3	8/23/2020	Tom Merrified, P.G., Chevron	See letter attached.	Received	The water treated by Chevron's Reverse Osmosis Plant has been added to the Water Source types in Section 3.2.1. Comment about developing projects that will add more stream gauges is noted.
6	9	9/24/2020	Thomas Virsik	See letter attached.	Received	SVBGSA does not have any authority over the operation of the reservoirs; however, reservoir releases do greatly affect groundwater conditions throughout the Salinas Valley. SVBGSA is working collaboratively with MCWRA on any potential projects or management actions that involve MCWRA infrastructure and operations and would affect groundwater conditions. Thank you for the note regarding nomenclature. This will be clarified in a future version of the GSP.
7	9	12/7/2020	Nancy Isakson, Salinas Valley Water Coalition	See letter attached.	Received	Thank you for the feedback on projects and management actions. SVBGSA will work with MCWRA and stakeholder partners on further refinement and implementation of projects and management actions, including those that result in reoperation of the reservoirs.
8		1/12/2021	Salinas Valley Water Coalition Board & Nancy Isakson	See letter attached.	Received	Thanks to stakeholder feedback, river maintenance was added as component under the Multi-Benefit Stream Channel Improvements project. SVBGSA will collaborate with the agencies and organizations already undertaking this work - MCWRA, River Management Unit Association, and the Resource Conservation District of Monterey County.

Number	Chapter	Date	Commenter	Comment	Response	Action
9		1/29/2021	Grant Cremers	See letter attached.	Received	Pumping allocations are not included in the UV GSP. River maintenance is included as a component under the Multi-benefit Stream Channel Improvements program.
10		1/29/2021	Salinas Valley Water Coalition Board & Nancy Isakson	See letter attached.	Received	Pumping allocations are not included in the UV GSP.
11	All Subbasins	3/10/2021	George Fontes, Salinas Basin Water Alliance (SBWA)	See letter attached.	Received	Concerns about the effect of water budget calculations on farming have been noted and will be considered. We understand the desire to review water budgets before discussing pumping allocations as a potential management actions. This was done to have sufficient time to discuss projects and management actions because the model that was used to develop the water budget was not available at that point. The water budget chapters were released prior to finalizing those actions. 2013 was used as an example for discussion, but the water budget uses data through 2016. Groundwater conditions chapter uses data through 2019. A key implementation action in the GSP will be GEMS expansion.
12	1-5 & 7	3/12/2021	Brent Buche, Monterey County Water Resources Agency	See letter attached.	Received	Chapter 3, Section 3.2.2 and 3.4.3 comments were noted and text was revised. Chapter 5, Section 5.2.1 comment was noted, clarifying text that refers to Chapter 7 for more information was added. Chapter 7, Section 7.3.2 and 7.9 (now 7.8) comments were noted and text was revised to address them.
13	9	4/14/2021	Nancy Isakson, Salinas Valley Water Coalition	See letter attached.	Received	The SVBGSA Board of Directors has final decision-making authority for all SVBGSA subbasins, including of GSPs and funding for projects. While the subbasins are unique, they are hydrologically connected, and therefore evaluation of the effect of a project on other subbasins is an important decision-making factor in the approval process. Being assessed for valley-wide benefits does not mean that a project needs to bring benefits to other subbasins, but rather that they will be evaluated for any potential benefits or adverse impacts to any other relevant subbasins in the valley. Correct, pumping allocations is not something under consideration for the UV, and therefore reference to extraction credits was removed. Any reservoir reoperation project funded through a Proposition 218 vote will have a benefits assessment to determine the special benefits associated with each subbasin. SVBGSA acknowledges that SVWC is working on a winter release scenario, but as there are insufficient details at this time to include it in the GSP, the text notes that when there is an additional project or management action that affects reservoir operation, it will be assessed along with the other listed projects. SVBGSA will collaborate with MCWRA and all stakeholders on reservoir reoperation projects. Lack of support for the Interlake Tunnel is noted. The GSP includes all potential projects that would affect reoperation of the reservoirs for which there is sufficient detail to include. It does not prioritize them, but note that greater evaluation and comparison is needed. As with the other reservoir reoperation projects, SVBGSA has no authority or control over the reservoir releases, but will work collaboratively with MCWRA, as reservoir releases affect groundwater conditions. Support for the multi-benefit stream channel improvements, D-TAC, voluntary fallowing, fallow back, and agricultural land retirement, GEMS expansion, and well registration is noted. Implementation will be coordinated with MCWRA and other agencies currently undertaking similar work to avoid duplication.
14	6	4/21/2021	Nancy Isakson, Salinas Valley Water Coalition	See letter attached.	Received	Current Water Budget: Noted. We recognize that 2016 is preceded by multiple dry years. The historical period was chosen to be consistent with the regulation requiring that historical water budgets be based on, "…the most recently available information and extending back a minimum of 10 years" (CCR, §354.18(c)(2)(B). The SVIHM from which the water budget data were extracted only includes reliable data through 2016. Current water budgets are merely reported and are not used for managing the GSP. Page 6-19: Noted. The GSP has been edited, and the approach for estimating sustainable yield has been adjusted to address the limitations of the provisional SVIHM. Section 6.3.3: Noted. Section 6.3.4: Noted. Current sustainable yield estimates by the SVIHM are merely reported and are not used for managing the GSP. The approach for estimating sustainable yield has been adjusted to address the limitations of the provisional SVIHM. Section 6.4.5: Noted. Section 6.6: Noted. The report does not state that the model is the best available tool "because" of the uncertainties; rather it describes that despite the uncertainties, it is the best available tool. Recommendation and Request: Noted.

Number	Chapter	Date	Commenter	Comment	Response	Action
15	7	4/21/2021	George Fontes, Salinas Basin Water Alliance (SBWA)	See letter attached.	Received	Noted. SVBGSA will work with MCWRA to determine the best way to improve the collection of groundwater pumping data in the Salinas Valley. The projects and management actions are modeled for the whole Salinas Valley to see how actions in one subbasin will affect neighboring subbasins. The current GEMS data is the best available data and thus the data that is used to inform water budgets and projects and management actions.
16	1 to 5, 7, and 8	4/23/2021	Heather Lukacs, Community Water Center & Horacio Amezquita, San Jerardo Cooperative, Inc	See letter attached.	Received	Chapter 3: A map of all DACs and a DAC appendix are added to Chapter 2. A map with all state and local small water systems for which the GSA has boundaries for is now included in Chapter 3. A table listing all water systems is added in Appendix 3A. Chapter 4: Text about the effect of groundwater pumping on groundwater quality was added to Chapter 5 in the "Distribution and Concentrations of Diffuse or Natural Groundwater Constituents" section. A discussion on the effect of lowering groundwater elevation on groundwater quality is included in Chapter 8 in the "Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators" section for groundwater elevations under the degraded water quality bullet. Chapter 5: -Nitrate trends are included based on a review of exis. ng studies. The analysis of temporal trends are not required and would entail substantial additional work that would not likely change the management approach. Water quality data for DDW wells and ILRP on-farm domestic and irrigation supply wells were used to make maps showing the spatial distribution of water quality exceedances of Title 22 or Basin Plan standards from 2013 to 2019 are now included in a new Chapter 5 Appendix. -The relationship between declining water levels and water quality degradation was evaluated for the Eastside Subbasin as presented in the December 2020 Subbasin Planning Committee Meeting. Although there seems to be a relationship between decreasing groundwater elevations and degrading water quality, within the analysis for the Eastside, subbasin-wide data does not show a strong correlation. Thus, the data is not definitive enough to determine if the decline in groundwater quality is due to additional loading of constituents or lowering of groundwater elevations. There maybe a corrleation within individual wells, like is seen in San Jerardo, however, that could be due to those other factors. -Table 5-3 list the constituents of concern (COC) with exceedances in the latest sample for each COC in each well that has not been destroyed or abandoned, and it has been updated to be consistent with Table 8-5 that lists the minimum thresholds and measurable objectives for these constituents only. Table 8-6 list all the constituents for which data is available for the 3 types of wells in the monitoring network (DDW wells, ILRP on-farm domestic, and ILRP irrigation supply wells). Table 5-3 and Table 8-5 do not list all the constituents that have had an the exceedance in these 3 sets of wells, it only includes exceedances that occured in the latest sample, while Table 8-6 includes all the constituents that were included in the analysis that have been sampled for historically in each set of wells. Chapter 6: The sustainable yield derived from the model has been adjusted based on pumping reported through the GEMS program. This GSP uses the central tendency climate scenario recommended by DWR. Although DWR encourages evaluation of the other extreme climate scenarios, they are not required and would not likely change the management approach at this time, so they are not currently included. Climate change assumptions will be reevaluated as part of the 5-year update. Chapter 7: -Groundwater Elevations: RMS wells were chosen based on geospatial distribution and well depth. Additionally, the network is dependent on the wells that are already monitored by MCWRA. This was done to aovid any overlap in monitroing of groundwater elevations. Thus, the types of wells that SVBGSA has access to is dependent on the wells that MCWRA has permission to monitor. -Water Quality: Small public water systems wells, regulated by Monterey County Health Department, include both state small water systems that serve 5 to 14 connections and local water systems that serve 2 to 4 service connections. SVBGSA had originally planned to work with the County to add data from small and local water systems into the monitoring network. These wells are not in the current proposed monitoring system because well location coordinates, construction information and quality data are not easily accessible. The Monterey County Health Department monitors water quality in the state small and local water systems and their data is not readily transferable. In addition, there is sufficient other available data to characterize the basin. There were no water quality data gaps identified per SGMA requirements for GSPs as there is adequate spatial coverage to assess impacts to beneficial uses and users. As stated above, the water quality monitoring approach has been updated in V2 to include last time any well was sampled, not just the most current year. Chapter 8: -Groundwater Elevations: Domestic well analyses were conducted for the minimum thresholds and measurable objectives. Wells that did not have accurate locations were not included, because water levels vary greatly throughout the Subbasin, thus, it is unlikely that the water level for the centroid of a PLSS section can accurately represent all wells that have the centroid of the section as their location. -Water Quality: Subbasin planning committees determined the approach to setting SMC.

Number	Chapter	Date	Commenter	Comment	Response	Action
17	9	4/28/2021	Community Water Center	See letter attached.	Received	Local Groundwater Elevation Trigger: Thanks for support of the program (now titled Dry Well Notification System). This program focuses on access, not quality. A robust drinking water well mitigation program falls within the responsibilities of other agencies; however, the GSA may consider supporting such a program. The text has been revised to explicitly include it as a potential program that the GSA can collaborate with other agencies on through the Water Quality Partnership. To set MOs at 75% of the MCLs for drinking water, the GSA would need to take on responsibility for cleaning up groundwater contamination present prior to 2015, which would take significant effort and is not the GSA's responsibility. The GSA does acknowledge the need for action on water quality, and will work with other agencies to determine what the GSA's role in that is.
						The Domestic Water Partnership: This has been expanded to be the Water Quality Partnership. Domestic water quality will be a main issue, but it will also include other collaboration needed on water quality, as identified by stakeholders and DWR.
18	8	5/7/2021	Amanda Ingham, National Marine Fisheries Service (NMFS)	See letter attached.	Received	Page 8-3: (1) With regard to 'average year conditions', SGMA is established to manage groundwater in the long-term, providing for 20 years to reach sustainability. New language has been added to the beginning of Chapter 8 to clarify and explain how this GSP is written for long-term groundwater management. Future groundwater conditions, are analyzed over a range of 47 potential hydrogeologic years, including wet and dry years, as has been elaborated on in Chapter 6 of v2. In determining MTs and MOs for SMC, stakeholders reviewed historical and current conditions. (2) In this GSP, groundwater levels are used as a proxy for measuring depletion of interconnected surface water. The established relationship between the two is added in Chapter 5 of v2. Page 8-4: This statement was provided in the introductory language to explain that the SMC will each be met simultaneously, rather than in an integrated manner. The text has been revised to read: "Maintaining groundwater levels above minimum thresholds will avoid inducing undesirable results in other sustainability indicators, but may not necessarily be sufficient for achieving sustainability in the other sustainability indicators." Page 8-6: There is no established benchmark for what amount of groundwater pumping induced depletion constitutes significant harm to steelhead. If that is established, what is reasonable for the MTs/MOs can be reevaluated and incorporated into the 5-year update. This GSP follows the EDF-approach that sets the MT based on what is required by SGMA (e.g. not responsible for what occurred prior to 2015). While this is reasonable for the MT, v2s have been revised to have a higher MO (in UV and F and L) for ISW that aligns with the GWL MO. As such, the plan manages to the MO and provides projects and management actions to get there. Page 8-43: (1) There is no established benchmark for what amount of groundwater pumping induced depletion is significant harm to steelhead. DWR agreed with the approach of setting ISW minimum thresholds at current levels in its review of the 180/400-Foot Aquifer Subbasin GSP, stating: "Department staff find the approach to maintain depletion rates at the best estimate of current depletions as a reasonable approach to maintain the current conditions in the Subbasin." However, to clarify and avoid confusion, the 'locally defined significant and unreasonable' statement was in Section 8.10.1 was revised in v2. (2) GSPs are plans and do not put in place activities that could constitute a take under the ESA. Whether individual projects or management actions result in a take will be evaluated as part of the development and approval processes. The relationship between groundwater levels and ISW depletion has been added to Chapter 5. The locations of ISW was determined through an analysis of 1967 - 2017, not 2015. Text has been clarified. Page 8-44: ISW only applies to natural flows because one purpose of conservation releases is groundwater recharge. Therefore, depletion of conservation releases is not undesirable. So it is reasonable that ISW locations were determined for non-peak conservation release periods. Areas of potential interconnection were evaluated to determine which months out of the year there is likely interconnection. There is uncertainty within model results, and as noted in the comments, locations of interconnection vary year to year, so therefore locations of interconnection are considered those areas that have been connected over 50% of time, evaluated on a monthly basis from 1967-2017. The locations of interconnected surface water identified with this threshold reflects expected locations of ISW based on other data sources. Page 8-49: The Biological Opinion has been withdrawn, and no established flow regime has been established. SVBGSA does not regulate surface water flows, only depletion of ISW from groundwater extraction. Following EDF's interpretation of SGMA (CITE), it is assumed that where surface waters are hydraulically connected to groundwater, depletion of surface waters was already occurring due to groundwater pumping by January 1, 2015, and the GSA is only responsible for managing no additional depletions of surface flows from groundwater extraction after that date, as measured by monitoring groundwater levels in the vicinity of streams. Section 8.10.2.1 has been revised. Page 8-52: There is no established determination regarding what level of surface water depletion from groundwater extraction is significant. Therefore, the statement has been changed in Section 8.10.2.3. SVBGSA will continue to coordinate with NMFS on the effect of pumping on interconnected surface water and steelhead trout.

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19		5/12/2021	Norm Groot, Salinas Basin Agricultural Water Association (SBAWA)	See letter attached.	Received	The SVBGSA does not plan to set any additional water quality objectives in the GSP, rather the existing constituents of concern exceedance thresholds for irrigation wells are set based on Ag Order 4.0. This is clarified in the GSP text.
20		5/13/2021	Fred Nolan	See letter attached.	Received	Recycled water projects in subbasins where there is a sufficient quantity of available source water have been scoped. There is an existing reverse osmosis plant owned and operated by Chevron, which has been added to the GSP. There are no other significant sources for recycled water in the UV. The GSA will continue to monitor future oppurtunities to use recycled water.
21	9	6/11/2021	Thomas Virsik	See letter attached.	Received	*Sustainability Is Either to Be Maintained or Will Be Attained in The Future* : GSP text has been edited to reflect that the UV, F, and L subbasins need to maintain (not attain) sustainability. *Adaptation Cannot Be Limited To Deference To Others' Actions* : The intent of the language was not to omit other arrays of power or GSA duties, so the GSP text has been revised to read: "…the GSA will consider the effect of any such changes in meeting sustainability goals and will act in furtherance of reaching such goals." *Distinguishing Between Basin And "Valley" Must Be Clear and Specific* : Suggested edits made. *Price Of Land Is Not Uniform* : The average cost of land and rent was derived from a source that had subbasin-specific estimates. It is understandable that even within a subbasin the cost of land acquisition is highly variable; however, this was the best available information on the average cost of land. Text was added noting that the cost of land is highly variable. *Benefits and Costs Of Projects Are Inaccurate and/or Muddled* : Text has been clarified to note when costs/benefits are "multi-subbasin", not "valley-wide" or "regional." The determination of which subbasins will pay for projects will be determined through a benefits assessment during GSP implementation. The Interlake Tunnel project includes the spillway modification, and the cost has been updated to reflect that. *Water Metering Should Follow—Or At Least Not Contradict—State Regulations* : Additional text has been added to the GEMS expansion implementation action noting that "program revisions will consider and not contradict related state regulations.""
22	9 and 10	6/16/2021	Salinas Valley Water Coalition Board & Nancy Isakson	See letter attached.	Received	All references to "attaining" sustainability have been changed to "maintaining" sustainability. Section 9.1: Projects and management actions provide options for the next 50 years, and therefore, even though the UV is sustainable now, it does not eliminate the potential need for projects and management actions, including providing incentives to constrain groundwater pumping with limits. Section 9.2.1: The 180/400-Foot Aquifer Subbasin GSP was developed as part of a Valley-wide process to identify projects and management actions throughout the Salinas Valley, and the GSP included projects that benefited the groundwater anywhere in the Valley, not just the Subbasin. SVBGSA recognizes the stakeholder engagement that went into that process and built on it for the UV Subbasin GSP, but decided to narrow the focus on the UV Subbasin GSP to those projects that directly affect the Forebay. Section 9.2.2: Water purchase costs are referred to for existing infrastructure only, not new infrastructure, that is being funded by or bonds being repaid through fees to water users. For example, this could be occurring if a water system incorporated the costs of a new well into the water purchase cost to its users. If this is already occurring, the costs are not included in the cost estimates for these projects. Section 9.3: Reach has been changed to maintain. Table 9-1: The cost breakdown between subbasins cannot be determined until the benefits breakdown is determined by an engineers report; however, the term "valley-wide" was changed to "multi-subbasin" to reflect that it is not necessarily applicable to the whole valley, nor shared equally. Section 10.3: It has not yet been determined which agency will undertake these steps. SVBGSA and MCWRA have a collaborative relationship that acknowledges that the plans, policies, and infrastructure of each agency affects the other one. The text has been edited to clarify that "SVBGSA will work with MCWRA on these steps…". Section 10.5.3 : Although a water charges framework and water marketing are potential funding mechanisms, the Forebay Subbasin Planning Committee agreed they are not their preferred funding mechanisms.

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23	2, 9, and 10	6/17/2021	Heather Lukacs, Community Water Center & Horacio Amezquita, San Jerardo Cooperative, Inc	See letter attached.	Received	Chapter 2: Outreach strategies are outlined in the ""Strategic Engagement of Disadvantaged Communities"" proposal which was approved by the Board of Directors. Short and middle term actions were identified to complete from January 2021-August 2021 and work has begun on these items during the GSP development period and will be operational for implementation in Fall 2021. Middle and long-term actions associated with working with Underrepresented communities were identified for 2022. Chapter 9: -Recharge projects: Additional text was added to address the potential water quality concerns associated with recharge projects. -Reoperation of the Reservoirs: The Interlake Tunnel and Drought TAC are MCWRA projects, and therefore MCWRA is responsible for conducting cost-benefit analyses and ensuring that all beneficial water users are considered. For any projects pursued by the SVBGSA, SVBGSA will consider impacts on underrepresented communities during the project design phase. -Conservation and Ag BMPs: text was added to communicate the environmental benefits of compost and soil organic matter. -Fallowing: Text was added that water quality and access for drinking water wells should be considered when deciding where to incentivize agricultural fallowing or land retirement. -Forebay Pumping TAC: The Subbasin Committee decided to change this project to be similar to the UV SMC TAC. -UV SMC TAC: Groundwater quality is included within the purview of the SMC TAC, so it can make recommendations of projects that mitigate groundwater quality degradation for drinking water users, including impacts due to pumping. -Pumping allocations and control: Quantification of demand reductions needed will be determined as part of project selection and design, as it depends on what other projects and management actions are implemented. -Floodplain enhancement and recharge: The following text has been added: "The effect of increased recharge on surrounding groundwater quality will be considered when selecting sites." -GEMS Expansion: Which wells are included will be determined as part of the revision of the program. -Water Quality Partnership: The suggested activities (drinking water well mitigation program, integrating water quality across planning and implementation, and filling data gaps) are all potential activities under the Partnership. SVBGSA will work with partner agencies to prioritize activities that they will collaborate on under the Partnership. -Well registration:SVBGSA cannot meter de minimis users; however, the well registration program is intended to collect needed information on the wells that are in use. -Eastside Support Protection of Areas of High Recharge: This implementation action does not develop recharge projects itself, but rather seek to protect areas of naturally high recharge from future land uses that reduce its recharge capacity. This could include the use of low-impact cover crops, where appropriate. -Eastside new water supply projects: More detailed project scoping, cost-benefit analyses that will determine the benefit to each subbasin, and project prioritization will occur during GSP implementation and are needed steps prior to determining which projects will mitigate overdraft; however, as shown in Chapter 9, there are sufficient projects and management actions to mitigate overdraft in the Eastside. Chapter 10: -Whether to undertake interim actions and what those should be will be part of the discussion during GSP implementation. -The missing data on the locations of domestic wells will be gathered through the well registration program. -Small system data - Small public water systems wells, regulated by Monterey County Health Department, include both state small water systems that serve 5 to 14 connections and local water systems that serve 2 to 4 service connections. SVBGSA had originally planned to work with the County to add data from small and local water systems into the monitoring network. These wells are not in the current proposed monitoring system because well location coordinates, construction information and quality data is not easily accessible. The Monterey County Health Department monitors water quality in the state small and local water systems and their data is not readily transferable. In addition, there is sufficient other available data to characterize the basin. There were no water quality data gaps identified per SGMA requirements for GSPs as there is adequate spatial coverage to assess impacts to beneficial uses and users. -The GSA is already engaging with underrepresented communities. -Chapter 10 has been revised to include: "Implementation of this GSP will rely on best available science and will be continually updated as new data and analyses are available"
24	9	7/6/2021	Comprehensive River Management	See 125 letters attached.	Received	Thanks to stakeholder feedback, river maintenance was added as component under the Multi-Benefit Stream Channel Improvements project. SVBGSA will collaborate with the agencies and organizations already undertaking this work - MCWRA, River Management Unit Association, and the Resource Conservation District of Monterey County.

Number	Chapter	Date	Commenter	Comment	Response	Action
25	9	7/9/2021	Grant Cremers	See letter attached.	Received	Section 1.1: Language was changed to read that sustainability is to be maintained. Section 1.3: Text has been changed to clarify that the UV needs to maintain sustainability. The list of management actions and projects show that the UV has sufficient options to maintain sustainability for 50 years. Section 4.4: The sentence about the sediments in the Upper Valley Aquifer being laterally equivalent to those of the 180/400-Foot Aquifers is not meant to equate the two subbasins, it simply points out that are correlated temporally and lithogically. It also serves to highlight that although the Salinas Valley Groundwater Basin is divided into distinct subbasins, it is still one basin. Chapter 6: For the groundwater conditions presented in Chapter 5, 2019 best represents current conditions in the Upper Valley, however, due to contraints of the modeling process 2016 had to be chosen as the current year for modeling purposes only and are simply reported and are not used for managing the GSP. There is no claim that 2016 is representative. Language was added to clarify which reservoir operations rules were used in the water budget. Groundwater extraction is a critical part of water budgets; however, groundwater elevations are monitored as a proxy to measure change in groundwater storage. Chapter 6 now states that the GEMS data is the best extraction data we have, and the chapter highlights the difference with the model-produced extraction total. Language was changed to read that sustainability is to be maintained. Chapters 8 and 9: Language was clarified to read that sustainability should be maintained. Clarifications regarding the reservoir operations have been added.
26	6	7/14/2021	Nancy Isakson, Salinas Valley Water Coalition	See letter attached.	Received	The provisional SVIHM/SVOM models have provided reasonable estimates of water budgets across the Salinas Valley. As noted in the GSP text, this model is provisional and is being updated prior to its release to the public. Once updated, the extraction discrepancy is expected to be addressed. Due to the complexity of the model, how the update will change the predicted water budgets is unknown. As the model is refined and updated during GSP implementation, the water budgets and associated sustainability estimates will likewise be updated. The updated water budgets are believed to roughly resemble the presented water budgets. As you mention, some portion of the adjustment may come as updates to the Arroyo Seco infiltration/recharge, but that is unknown at this time.
27	9	7/20/2021	James Sang	See letter attached.	Received	Infiltration and recharge to get water from the surface to the aquifer are complex mechanisms and not easily managed for a whole basin. Rainwater has the opportunity to infiltrate the soil at many places at the land surface, however this infiltrated water does not always readily translate into direct recharge to the aquifer. Water can be intercepted in the form of soil evaporation, plant roots, or clay layers, sending the water back up to the atmosphere or horizontally. At a basin-wide scale, recharge from precipitation travels more horizontally than downward because of how the sediments are layered. Additionally, water flowing in the subsurface flows significantly slower than at the surface, and may take many years or decades to reach portions of the aquifer that have been heavily impacted by human activity. Thanks for your recommendation for capturing more rainwater in the soil, and this specific conservation method may be readily incorporated into the GSP projects of Managed Aquifer Recharge of Overland Flow, Floodplain Enhancement and Recharge, Conservation and Agricultural BMPs, and the Eastside Implementation Action of Support Protection of Areas of High Recharge. Projects and management actions are intended to help raise groundwater levels. The surface water diversion projects are also important to the overall groundwater management because they provide important in-lieu recharge benefits by providing alternative water to groundwater pumping, as well as important direct recharge opportunities. With regard to the Deep Aquifers; multiple stakeholders, public figures, and managing agencies are currently hard at work to determine the best way to define and manage these important water-bearing units. The upcoming Deep Aquifers Study is to provide some answer that may address uncertainties and help manage the Aquifers.
28	Whole GSP	8/3/2021	Grant Cremers	See letter attached.	Received	Thank you for your feedback about the GSP development process. With regard to considering the Basin as a whole: SMGA requires the creation of a GSP for each Subbasin including a water budget for each Subbasin. The SVBGSA has committed to an Integrated Implementation Plan which will look at sustainability basin-wide. With regard to current reservoir operations, the following text has been added to the GSP: "The management actions and projects are based on existing infrastructure, including the reservoirs and their spillways. The reservoirs are currently operated according to the Nacimiento Dam Operations Policy (MCWRA, 2018), which reflects the Salinas Valley Water Project. The Nacimiento Spillway has an elevation of 787.75 feet mean sea level (msl), with an inflatable gate that can temporarily raise the spillway gate to 800 feet msl to accommodate flood flows. If current infrastructure is operated differently, such as required reductions if deferred maintenance is not completed or changes resulting from the planned HCP, or if other projects are implemented within the Valley that affect groundwater conditions, SVBGSA will consider the effect of any such changes in meeting sustainability goals and will act in furtherance of reaching such goals." The Interlake Tunnel Project has been moved to the "Reservoir Reoperation Management Action" which considers impacts to groundwater as a result of reservoir reoperation which could occur as a result of a MCWRA proposed project like the Interlake Tunnel.

Number	Chapter	Date	Commenter	Comment	Response	Action
29	9	8/3/2021	Grant Cremers	See letter attached.	Received	Section 9.4.1, Paragraph 2: Language in 5th line changed to read "management actions or projects." Language in 9th line changed to read that SMC TAC will first report to Upper Valley Subbasin Committee as opposed to SVBGSA. Paragraph 4: “The SMC TAC will consider and recommend SVBGSA management actions and projects” changed to read “The SMC TAC will consider and make recommendations to the Upper Valley Subbasin Committee on management actions and projects.” Section 9.4.1.4: Language in second sentence changed to read "Upper Valley Subbasin Committee recommends." Order of Managemnet Actions and Projects: There is language that describes that components of this project are currently in place. The Subbasin Committee requested that projects be listed after management actions and that it be made clear that they are not entirely necessary at this point; however, nothing precludes the GSA from pursuing the projects sooner and the Road Map in Chapter 10 acknowledges that programs are existing and some stakeholders want to continue these efforts early in GSP implementation. Interlake Tunnel and Winter Releases with ASR: As with other projects, showing preliminary estimates of project benefits and costs are included to show the general scale of the project. The text has been revised to note that benefit numbers are from preliminary modeling. Different potential options for reservoir reoperation can be included in the broader reservoir reoperation management action.
Comments above were received prior to the full public release of the GSP. Several comments led to revisions in the chapters. Comments from here on are for the public review version of the GSP.						
30	Whole GSP	8/12/2021	Nancy Isakson, Salinas Valley Water Coalition Board	See letter attached.	Received	SVBGSA is currently working on reconvening the 180/400-Foot GSP Subbasin committee to discuss implementation. The content of the Integrated Implementation Plan is still under development, but is not currently anticipated to include management actions and projects. The SVIHM is the best available tool to determine water budgets at this time, and future results will be used to update the GSPs when available. The paragraph regarding the development of projects and management actions for the 180/400-Foot Aquifer Subbasin GSP has been deleted. The support for the 11043 permit and seawater intrusion barrier projects is noted.
31	Whole GSP	8/12/2021	Stephanie Hastings, Salinas Basin Water Alliance (SBWA)	See letter attached.	Received	For now, all additional simulations and analysis of intersubbasin flow (beyond what’s in the water budgets) will be considered by the integrated implementation committee after GSP submittal.

Number	Chapter	Date	Commenter	Comment	Response	Action
32	8	9/28/2021	Rick Rogers, National Marine Fisheries Service (NMFS)	See letter attached.	Received	The letter submitted was addressed to DWR and addressed the 180/400-Foot Aquifer Subbasin GSP. In response to the online comments submitted pertaining to the Upper Valley Subbasin: Section 8.10.1: Undesirable results are defined by having exceedances of minimum thresholds, and thus, avoiding minimum thresholds avoids undesirable results. The minimum thresholds and measurable objectives were decided upon by the Subbasin Planning Committee, balancing all uses and users. The Upper Valley measurable objective for depletion of interconnected surface water are established by proxy using shallow groundwater elevations observed in a wet year (2011), and 2016 for the minimum thresholds. There is no data that determines what level of extraction has a significant adverse effect on steelhead trout or other beneficial use or user of surface water, and therefore it is not possible to determine whether there was an adverse effect on steelhead and its habitat in 2016. A note has been added to the text explain that more clearly. SVBGSA is committed to working with NMFS during GSP implementation to evaluate the effects of the ISW measurable objectives, minimum thresholds, and undesirable results on surface water flows and beneficial users, including steelhead trout. Section 8.10.2.2: We respectfully disagree and view the EDF approach as the most appropriate approach to use. This approach was presented to the Board on July 9, 2020. In addition, the GSP outlines the first principles that determine the connection between groundwater levels and streamflow depletion. There is no established benchmark for what amount of groundwater pumping induced depletion constitutes significant harm to steelhead. If that is established, what is reasonable for the MTs/MOs can be reevaluated and incorporated into the 5-year update. This GSP follows the EDF-approach that sets the MT based on what is required by SGMA. While this is reasonable for the MT, v2s have been revised to have a higher MO (in UV and F and L) for ISW that aligns with the GWL MO. As such, the plan manages to the MO and provides projects and management actions to get there. MCWRA operates the reservoirs based on the Nacimiento Dam Operation Policy, which considers ecological users, as outlined on pages 13-24. With regards to the cited memo by H. Franklin, while he noted that MCWRA had to release more water from the reservoirs when groundwater elevations were low in order to get a certain flow downstream to the SRDF, that is a surface water issue and the responsibility of MCWRA, not SVBGSA. Since reservoir operations account for existing surface water uses (including environmental) and existing surface water depletion rates, this GSP infers that stream depletion at existing levels of groundwater extraction is not unreasonable. There is currently no biological opinion or habitat conservation plan that indicates additional protection is needed for species protected under the Endangered Species Act; however, if it is determined that additional protection is needed and streamflow loss is due to groundwater extraction not surface water flows, SVBGSA will adapt as necessary to adhere to environmental laws. Section 8.10.2.3: The public information about flows needed for steelhead used to develop the GSP includes the Nacimiento Dam Operation Policy and NMFS 2007 Biological Opinion for the Salinas Valley Water Project (with the recognition that it is no longer valid). Section 8.10.2.6: See response to 8.10.2.2
33	Whole GSP	10/8/2021	Norm Groot, Monterey County Farm Bureau	See letter attached.	Received	Thank you for your support and input. The Integrated Implementation Plan will be written to with the goal of achieving sustainability in the entire Salinas Valley Basin.

Number	Chapter	Date	Commenter	Comment	Response	Action
34	Whole GSP	10/14/2021	Nancy Isakson, Salinas Valley Water Coalition Board	See letter attached.	Received	Section 1.3: The sentence was changed to read "The projects and programs presented in this GSP will be considered as part of a larger set of projects and programs designed to maintain or achieve sustainability for all subbasins within the Salinas Valley Groundwater Basin." The Board has the ultimate authority over funding management actions and projects and must consider the entire valley. Section 2.3: The first set of proposed text has been added and the sentence now reads "Subsequent to that SVBGSA will complete a Salinas Valley Basin-wide Integrated Implementation Plan that is intended to be consistent with the groundwater sustainability plans of the subbasins within the Salinas Valley Groundwater Basin." The content of this plan is still under development, but is not currently anticipated to include projects and management actions. SGMA does not state that all subsequent actions must be consistent with GSPs, and SVBGSA understands that while the GSPs guide action, efforts to maintain sustainability will be adapted as conditions change. Chapter 3: Suggestion is not necessary and Counsel has advised against the changes. Chapter 6: The provisional SVIHM is currently the best available tool to holistically calculate budgets for the Salinas Valley subbasins. Reservoir operations are not dependent on water budget results. Section 7.6: This GSP monitors depletion of interconnected surface water due to pumping. Further it focuses on depletion during the non-conservation release period since conservation releases are meant to recharge the basin. Section 8.6.2.3: The purpose of conservation releases is to recharge the groundwater system, thus, depletion of interconnected surface waters during conservation release periods are not measured against minimum thresholds. Section 8.6.4.1: Minimum thresholds will be measured using water levels from December which is not during conservation release period. Section 8.7.2: Groundwater storage minimum threshold calculations will use December groundwater levels, which is not during the conservation release period. Section 9.2.1: This paragraph was removed. Section 10.3: The following sentence was added, "Conservation and agricultural BMPs and fallowing, fallow bank, and agricultural land retirement will move forward if conditions warrant it."

Number	Chapter	Date	Commenter	Comment	Response	Action
35	Whole GSP	10/14/2021	John Farrow, LandWatch	See letter attached.	Received	A1. While the 180/400 looked at projects and management actions that involved the whole Valley, the focus was on the 180/400. During subbasin committee meetings, members agreed that while any projects and management actions will be evaluated in a valley-wide light, only the plans that would primarily help that subbasin reach or maintain sustainability should be included in the plan. To ensure projects and management actions are selected and implemented in an integrated manner, SVBGSA established the Integrated Implementation Committee. While the subbasin GSPs were developed through subbasin planning committees, GSA staff and consultants ensured the projects and management actions, as well as the plans, are not in conflict with each other. Additional steps needs to be completed before projects, management actions, or the water charges framework move forward, and the text of this GSP has clarified that the use of the word "will" is reflective of what will occur if/when a project or management action moves forward. The 180/400 GSP nor DWR's review of it commit SVBGSA to anything in other subbasins. A2. Not all the subbasins need all the projects or management actions that are planned in other subbasins. The projects included in the Eastside, Langley, Forebay, Upper Valley, and Monterey GSPs are not dependent on the water charges framework for funding. They took a different approach and described all potential funding mechanisms due to the recognition that the appropriate funding mechanism varies according to the specific project. A3. The Upper Valley and Forebay Subbasins are already sustainable and therefore the GSPs fewer projects and management actions than some other subbasins. Each GSP focuses on the specific projects or management actions that contribute to maintaining/achieving sustainability in that respective subbasin; however, the GSPs acknowledge that the impacts of any project or management action, regardless which subbasin it originated for, will be evaluated for the whole valley. Benefits assessments will determine who funds projects and management actions, if funded through a 218 vote, regardless of subbasin. D. SVBGSA in coordination with legal counsel has developed improved water quality SMC language to be included in the final draft of the GSP, which notably includes regulation of groundwater extraction. This language is in response to DWR's comments about the water quality SMC language in the 180/400-Foot Aquifer Subbasin GSP. This GSP also includes the Water Quality Coordination Group (formerly Water Quality Partnership) to elaborate on how SVBGSA will work with other agencies responsible for aspects of water quality.

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36	Whole GSP	10/14/2021	Pablo Ortiz Partida, on behalf of Audubon California, Clean Water Action, Clean Water Fund, Local Government Commission, The Nature Conservancy, Union of Concerned Scientists, and Community Water Center	See letter attached.	Received	1. A. DACS and Drinking Water Users: Average domestic well depths were added to Section 3.3 and the populations of identified DACs were added to Figure 2-3 in Chapter 2. ISW: The approach taken in the GSPs to determine ISW locations relies on the accuracy of the model calibration to measured water levels and streamflows, while the recommended approach relies on manually contoured data based on measured water levels. Both approaches depend on available data and assumptions. The approach in the GSPs was used because it is based on simulation of the entire complex groundwater system and incorporates a temporal factor as well. Furthermore, the recommended approach will not provide depletion rates due to pumping through time. At best, it could provide snapshots between years when water level contours and pumping data are available, but it would be full of assumptions. I think the recommended approach is better suited for GSPs that do not have a numerical model tool. Regarding Figure 4-11, the ISW analysis applied a threshold of 50% of total months of the entire simulation period to represent approximate reaches with persistent connection with groundwater. No basinwide mapping of ISW locations in Salinas Valley existed in publicly available format prior to this analysis. Thus, this analysis provides an initial understanding of ISW locations throughout the basin. Assigning all cells with >0% connection as ISW could erroneously include isolated cells or reaches that might meet the threshold solely due to uncertainties within the model that caused water levels to be near land surface for a single or a few months over the entire 47-year simulation period. The GSP is not intended to manage those types of locations. Some reaches identified as having <50% connection could be identified in future GSP updates as being important ISW locations based on new information or results of future updates to the SVIHM. There are no data gaps in the ISW analysis; however, more perennial data is needed to improve calibration which in turn would improve the ISW analysis. This data could be amplified by the ISW monitoring network once it is fully developed including the proposed new wells. The monitoring network is set to measure shallow groundwater elevations near areas of interconnection that will be used to measure SMC. GDEs: The NC dataset only presents potential GDEs which are included in the GSP as potential GDEs. SVBGSA may consider field verifying these during GSP implementation. A higher depth-to-groundwater threshold may be considered if/when SVBGSA verifies that valley oaks are present. Text was added to re-emphasize that rooting depth data are limited. GSP Regulations do not require a complete list of fauna and flora in the Subbasin. 1. B. The Communication and Public Engagement Plan can be updated with more detail on the extensive outreach that has been carried out. When appropriate, DAC and environmental stakeholder feedback has been incorporated into the GSP - see responses to those comments. 1. C. DACS and Drinking Water Users: DACs are included in the GSP according to their water supply source, categorized according to the beneficial user types. The impact of chronic lowering of groundwater level minimum thresholds on domestic well analysis uses PLSS section location data. The reasons for the exclusion of wells are outlined in the GSP. Undesirable results are not defined in the GSP Regulations, but they are a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the subbasin. Minimum thresholds are set at sites that "reflect general conditions in the Basin" (354.36(C). Regarding degraded water quality, Chapter 8 contains sufficient description of the minimum thresholds, measurable objectives, and undesirable results on "beneficial uses and users of groundwater or land uses and property interests" (354.28(b)(4), 354.26(b)(3)). Minimum thresholds and measurable objectives were developed by the Subbasin Planning Committee. Minimum thresholds and measurable objectives are based on Title 22 drinking water standards and Basin Plan irrigation water quality objectives. The Subbasin Planning Committees agreed to the minimum thresholds and measurable objectives. GDEs and ISW: The impacts on all beneficial uses and users were considered in establishing this SMC. What is significant and unreasonable is locally defined, balancing all uses and users. The effect of undesirable results on beneficial users are discussed in Section 8.10.4.3 of the GSP. 2. This GSP meets SGMA regulations with its use of DWR-recommended 2030 and 2070 climate scenarios for the future water budgets, including the base for the sustainable yield. Use of extremely wet and dry scenarios is not required. SVBGSA will reevaluate appropriate climate scenarios to use prior to the 5-year Update. Incorporation of climate change scenarios into project and management action benefits will be done as part of project feasibility and scoping for those selected to move forward. 3. The monitoring networks are to monitor groundwater conditions across the subbasin for all beneficial uses and users, not be prioritized for certain users. Additionally, monitoring networks were developed following DWR BMPs. Monitoring of shallow groundwater elevations near areas of interconnected surface water is sufficient to assess significant and unreasonable impacts to beneficial users. SGMA requires monitoring groundwater conditions that may impact beneficial uses and users, not monitoring the users themselves. The water quality monitoring network is adequate and sufficient to monitor changing conditions in the principal aquifer. Monitoring networks do not need to cover every part of the Subbasin, however, data gaps in the monitoring networks were identified and will be filled during GSP implementation as outlined in Chapters 7 and 10. The identified data gaps are located in areas where theres are many domestic wells; thus, the new monitoirng wells that SVBGSA plans to install will be drilled at depths that consider average domestic well depths from PLSS section location data. This will fill some of the areas highlighted in Attachment E. 4. The projects and management actions chosen by Subbasin Planning Committees are the ones that are included in the GSP. The GSA may consider this program in the future if it so chooses. Degradation of water quality due to GSA impact will be monitored as outlined in the GSP. As the GSP states, avoiding water quality impacts will be considered as part of project selection and design. Project-specific monitoring will be established as needed to ensure projects don't cause minimum thresholds to be exceeded. Recharge projects locations and site specifications have not been completely developed yet but this will be considered. Subbasin Planning Committees chose the management actions for each subbasin. The climate resilience of specific management actions will be considered during project selection and design.

Number	Chapter	Date	Commenter	Comment	Response	Action
37	Whole GSP	10/14/2021	Douglas Deitch, Monterey Bay Conservation	See letter attached.	Received	1. SVBGSA has funded the Deep Aquifers Study and is co-funding the development of a Seawater Intrusion Model with MCWRA. The SVOM climate change simulation include sea level rise. DWR Climate Change guidance recommends using values of +15 cm for 2030 projected conditions and +45 cm for 2070 projected conditions. 2. SVBGSA is undertaking a study of the Deep Aquifers to better understand the Aquifers, their current condition, and management options. This is distinct from the Monterey One Water ASR wells, which are located in the Seaside Basin.

Number	Chapter	Date	Commenter	Comment	Response	Action
38	Whole GSP	10/15/2021	Stephanie Osler Hastings and Christopher R. Guillen on behalf of the Salinas Basin Water Alliance	See letter attached.	Received	I. SVBGSA replaced the Integrated Sustainability Plan for the the Integrated Implementation Plan. The Integrated Implementation Committee will outline the implementation of the 6 GSPs in the Salinas Valley Basin and address questions of groundwater relationship between the subbasins. This Committee will help ensure all subbasins get to sustainability. II. A. The SVIHM is the best avialable tool to compute water budgets for the subbasins in the Salinas Valley. The 180/400-Foot Aquifer Subbasin GSP will be updated using the SVIHM to be consistent with the rest of the subbains in the 2-Year Update currently underway. The SVIHM was used to develop water budgets for the Langley, Eastside, 180/400, Forebay, and Upper Valley using the same model simulations so that they would be consistent. The Monterey Subbasin used a different model due in part to poor calibration of the SVIHM in the Monterey Subbasin; however, it adopted boundary conditions from the SVIHM to increase compatibility and the Monterey Subbasin GSP includes an implementation action to integrate the Monterey Subbasin Model into the SVIHM when it is released. SVBGSA ran a no pumping scenario with the SVIHM to determine locations of surface water depletion due to pumping; however, it is a static model that does not shed light on how intersubbasin flow would have changed. It is a static dataset that reflects how reservoirs were actually operated, not how they would have been operated with no pumping. The Integrated Implementation Committee will consider the flow and relationship between subbasins early in 2022. II. B. 1. a & b. Sustainable yields were defined according to SGMA regulations. The water budgets measure inflows and outflows of the groundwater system, and both interbasin flow and groundwater extraction are accounted for. Minimum thresholds are meant to be prevented to avoid undesirable results. If each subbasin avoids their minimum thresholds, then neighboring subbasins will likely not be prevented from reaching or maintaining sustainability. The GSP does not dispute that its conditions affect adjacent subbasins; however, it does not prevent them from reaching sustainability. The sediment relationships between the 180/400-Foot Aquifer Subbasin, and the adjacent Langley/Eastside Subbasin demonstrate a dynamic environment where different sediments were deposited over time and subsequently, impact groundwater flow. The boundary with the Eastside Subbasin generally represents the furthest extents of the alluvial fans, which are characterized by clays and other fine sediments. These sediments frequently act as an impediment to flow, if not fully a barrier in certain locations. Subsequently, the gradient relationship is not the only influence to groundwater flow between the 180/400-Foot and Eastside Subbasins, and needs to be considered along with all subsurface characteristics. While there is a relationship between the groundwater contours developed for the 180/400 and Eastside Subbasins, the contours themselves are not fully representative of flow between the subbasins. As the model is further refined with additional and expanded data during Implementation, the SVBGSA and stakeholders will have a clearer view of the groundwater flow relationships, particularly as they relate to the recorded sediments in this area. The boundary with the Langley Subbasin was selected based on topographical changes, and the GSP fully acknowledges there is no hydrogeologic boundary that coincides with the administrative boundary. The key characteristic of the Langley Subbasin is the Aromas Sands, which are very permeable. Despite this connection and high permeability along with lowered groundwater elevations, the seawater intrusion front is not advancing in the direction of the Langley Subbasin. Subsequently, it would be premature to conclude that groundwater elevations in the Langley Subbasin are inducing or facilitating seawater intrusion in the 180/400-Foot Aquifer Subbasin. The groundwater flow relationship between the Langley and the Eastside Subbasins is largely uncharacterized as a result of a lack of data both about the sediment changes and the groundwater elevations in the area. This is a data gap that will be addressed during implementation. It is important to note that the 180/400-Foot Aquifer Subbasin GSP includes a plan in place to halt and reverse seawater intrusion and increase groundwater elevations, which will also serve to prevent adverse seawater intrusion impacts to the Eastside Subbasin. Both the Eastside Subbasin and the Langley Subbasin have developed projects and management actions to raise groundwater levels in their subbasins. The SMC were largely developed to be both achievable, as well as provide for operational flexibility during future droughts. Furthermore, these subbasins will be a part of the Integrated Implementation Plan, which will work to address seawater intrusion through a variety of strategies, which include increasing groundwater elevations. Additionally, the SWIG has been meeting regularly to learn and strategize projects to address seawater intrusion. The subbasins under the SVBGSA will be integrated during implementation, data acquisition, further data development, and coordinated stakeholder engagement. II. B. 1. c. Subbasin Planning Committees for each subbasin chose how they wanted to measure reduction in groundwater storage. The definition of storage for groundwater is expressly based on a change in pressure heads, or groundwater elevations, within an aquifer. Freeze and Cherry, in their seminal 1979 textbook Groundwater state, “The specific storage Ss of a saturated aquifer is defined as the volume of water that a unit volume of aquifer releases from storage under a unit decline in hydraulic head.” Hydraulic head is the sum of all pressures acting on water in the subsurface, which in unconfined aquifers, is generally summarized as elevation. Therefore, given the direct relationship between groundwater elevations and specific storage, groundwater elevations are appropriate as a proxy for storage. This is also explained in chapter 4.4.2 of the GSP, and a reference to that section has been added into Ch 8. Using the groundwater elevations as a proxy for storage is a reasonable alternative in Subbasins with less GEMS data available for estimating groundwater production. Additionally, the Langley, Eastside, Forebay, and Upper Valley Subbasins are characterized as having one principal aquifer, instead of multiple. This allows for the estimation of storage based on groundwater levels, since it is assumed that the groundwater is generally all connected in those Subbasins, and groundwater elevations are subsequently representative of groundwater conditions. II. B. 2. A description of how minimum thresholds will affect adjacent subbasins were provided per GSP Regulations. The Forebay and Upper Valley Subbaisn Planning Committees defined how the SMC for all sustainability indicators in their subbasins will be measured. The SMC in the Forebay and Upper Valley are set at similar levels to the other subbasins and will not prevent adjacent subbasins from reaching sustainability. Text was added to clarify how the minimum thresholds were developed based on the significant and unreasonable statement and why they are not in conflict. II. B. 3. SVBGSA has considered the interest of all beneficial users in the Salinas Valley. The GSA does not "allocate the burden of sustainability" nor undertake any actions that threaten or impinge on water rights.

						Action (cont.)
						III. Projects and managment actions were chosen by Subbasin Planning Committees, and are sufficient to maintain or achieve sustainability. the project mentioned was not brought up in any of the Subbasin Committee discussions on projects and management actions; however, the GSP does not preclude additional projects to be considered in the future. The Integrated Implementation Committee will determine which projects will be used to maintain or achieve sustainability in the Salinas Valley. Aquilogic Memo: The SVBGSA agrees that impacts on adjoining basins or subbasins must be addressed before implementing any management actions or projects. SVBGSA plans to conduct these analyses, which will include, among other things, updating the water budgets and sustainable management criteria in the 5-year updates if necessary, to account for inter-basin flows and impacts on adjoining basins or subbasins, when an appropriate tool becomes available. SVBGSA additionally agrees that the superposition approach included in the comment is a reasonable approach for addressing any action's or project's impact on inter-basin flows. This type of approach lessens the influence of model errors by addressing changes between simulations, and not absolute values in any simulation. SVBGSA will use this approach to address both intra and inter-basin impacts from any action or project. SVBGSA further agrees that the additional simulations proposed in the comment letter will facilitate a deeper understanding of the Salinas Valley Groundwater Basin, even though the additional simulations are not associated with specific actions or projects. To that end, SVBGSA staff will propose to the SVBGSA Board of Directors that the requested simulations would be informative, that these simulations be conducted before the next GSP assessment, and that the additional simulations will provide essential background understanding that will allow a thorough vetting of any potential management actions or projects. If and when approved by the SVBGSA Board of Directors, SVBGSA staff will work with all interested parties and stakeholders through the Integrated Implementation Committee to develop the assumptions and approaches for these simulations.

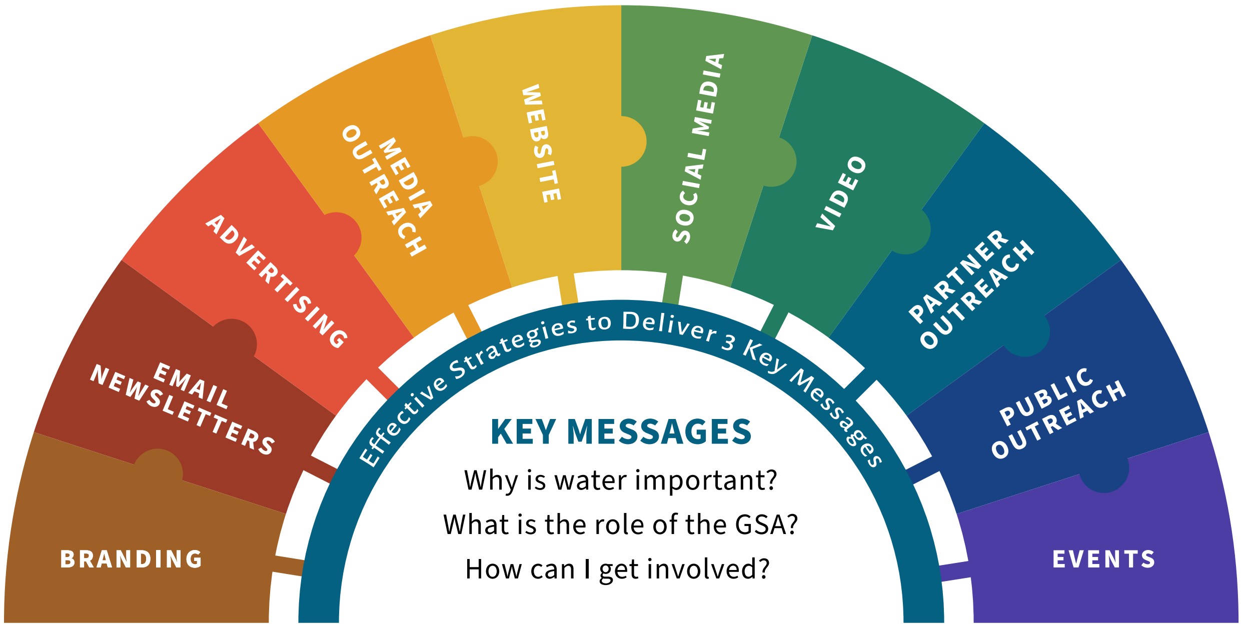
Number	Chapter	Date	Commenter	Comment	Response	Action
39	Whole GSP	10/15/2021	Heather Lukacs, Justine Massey, and Mayra Hernandez, Community Water Center & Horacio Amezquita, San Jerardo Cooperative, Inc	See letter attached.	Received	See responses to letters by CWC and San Jerardo dated 7/10/20, 4/23/21, 4/28/21, and 6/17/21. SVBGSA in coordination with legal counsel has developed improved water quality SMC language to be included in the final draft of the GSP. This language is in response to DWR's comments about the water quality SMC language in the 180/400-Foot Aquifer Subbasin GSP. In addition, during the public comment period, an analysis on the Central Valley on groundwater extraction during droughts and nitrates was released. During GSP implementation, SVBGSA can consider this new analysis and whether it has potential applicability in the Salinas Valley. SVBGSA will look at climate change assumptions as part of 5-year update.
40	Whole GSP	10/15/2021	California Coastkeeper Alliance, and Sean Bothwell, Monterey Waterkeeper	See letter attached.	Received	2 and 3. While the 180/400 looked at projects and management actions that involved the whole Valley, the focus was on the 180/400. During subbasin committee meetings, members agreed that while any projects and management actions will be evaluated in a valley-wide light, only the plans that would primarily help that subbasin reach or maintain sustainability should be included in the plan. To ensure projects and management actions are selected and implemented in an integrated manner, SVBGSA established the Integrated Implementation Committee. While the subbasin GSPs were developed through subbasin planning committees, GSA staff and consultants ensured the projects and management actions, as well as the plans, are not in conflict with each other. SVBGSA will look at climate change assumptions as part of 5-year update. The GSP includes both projects and management actions. Subbasin committees preferred to pursue projects prior to pumping reductions; however, the Plan does include the potential for demand management if needed. SVBGSA is aware of its legal responsibilities and has developed plans that include sufficient options to meet sustainability goals. 4. Under SGMA, what constitutes 'significant and unreasonable' conditions are locally defined and balance uses and users. The subbasin committee established the SMC. According to the Belin article, the Salinas Valley constitutes an 'yellow light' - there are no ESA-related in-stream flow requirements, but impacts from groundwater extraction on both ESA-protected steelhead and other GDEs should be evaluated to see if there are adverse impacts. This GSP no longer relies on the biological opinion, including for water budgets. SVBGSA is only responsible for depletion of interconnected surface water due to groundwater extraction, not for reservoir releases or surface water flows. In addition to working with NMFS to determine what constitutes an adverse impact to steelhead in relation to groundwater extraction, this GSP includes both supply-side and demand-side management options to maintain sustainability. In particular, following each annual report, the SMC TAC will evaluate sustainability and recommend actions if necessary. 5. After careful consideration and consultation with attorneys, the final GSP includes revised water quality undesirable results text that addresses DWR's comments on the 180/400-Foot Aquifer Subbasin GSP. The Partnership (now called the Coordination Group), includes space to coordinate with the CCRQCB, as suggested. SVBGSA intends to establish that Coordination Group during the first two years of GSP implementation. 6. SVBGSA has made a concerted effort to address DAC issues and involve DACs in decision making. SVBGSA has met with CWC several times, and has also incorporated several of their suggestions into the GSPs. In a discussion regarding groundwater levels, at a workshop one DAC community member highlighted that the farmworkers depend on agriculture for their livelihoods in this basin, and they don't want to set groundwater level goals at a level that will significantly harm agriculture, so there must be a balance. SVBGSA has sought that balance, involving DACs all the way up to their permanent seat on the Board of Directors. Additionally, SVBGSA worked to assess the needs and barriers to DAC involvement and developed the DAC Engagement Strategy to guide outreach and involvement going forward. The GSP addresses the Human Right to Water and highlights how in Ch 3, 8, and 10.
41	Whole GSP	10/18/2021	Elizabeth Krafft, Monterey County Water Resources Agency	See letter attached.	Received	SVBGSA appreciates the support for the conceptual projects and management actions within the GSP, and during GSP implement will work with the MCWRA on the refinement and implementation of any that involve MCWRA infrastructure or water management. Section 5.1.2: Water levels were averaged per month for the whole subbasin for the last 20 years showing that December groundwater levels were the lowest although averages from August to December are generally within 1-2 feet of each other. Section 3.4.1 and Section 7.2: Only 24 of the 33 groundwater elevation monitoring wells were chosen for the Upper Valley monitoring network because some of the wells are near other wells; the 24 wells chosen provide sufficient spatial coverage of the area where current MCWRA monitoring takes place. Additional Volume 1 and 2 text was revised as suggested.
42	Whole GSP	10/18/2021	Thomas Virsik	See letter attached.	Received	GSP's to work with and not against each other: Thanks for the agreement that the Salinas Valley subbasin GSPs should avoid adversely impacting adjacent subbasins' sustainability. Joinder in Other Comments: See responses to SVWC [10/14/2021] for similar points. ASGSA caveats were adapted for Upper Valley and added as suggested. Chapters 10 text was changed as suggested.

Chapter 2
Appendix 2-B

Agency-Wide Marketing & Communications Plan

Appendix 2B. Agency-Wide Marketing & Communications Plan

Marketing & Communications Plan



Chapter 2
Appendix 2-C

Key Messages

Appendix 2C. Key Messages

Initially, our message points focus on: (1) **getting to know your GSA**; (2) **an overview of groundwater sustainability planning for our community**; and (3) **how we got here**. The key messages will be expanded as the work evolves.

Key Messages: Get to Know Your GSA

- The SVBGSA is on a mission to develop a Salinas Valley Integrated Groundwater Sustainability Plan by 2023 and achieve groundwater sustainability in the Salinas Valley by 2040.
- Our groundwater basin is comprised of 6 subbasins one of which is identified as "Critically Over-Drafted" – the 180/400-Foot Aquifer.
- The rate of the community's current water use is unsustainable. To meet our community's ongoing water supply needs now and into the future we must balance the basin.
- The State has put us on a tight timeline to fix the problem. We ambitiously accept the challenge.
- As of 2020, we have GSP for the 180/400-Foot Aquifer Subbasin and have scoped projects and programs to bring the subbasin back into balance.
- From 2020 through 2022 we will work on GSPs for the other five basins.
- We will start implementing our plans immediately and efficiently use our GSA sustainability fee to work towards sustainability.
- Developing a sustainability plan for groundwater impacts everyone. That's why the SVBGSA Board and our Advisory Committee are diverse and include stakeholders from every walk of life in the Salinas Valley.
- We have an unprecedented opportunity, and responsibility, to work together collaboratively and develop a science-based Groundwater Sustainability Plan.
- Join us! Visit our website, sign up for updates, attend the next meeting and follow us on Facebook.

Key Messages: Groundwater Sustainability Plan

The Eastside Subbasin Groundwater Sustainability Plan and Salinas Valley Integrated Sustainability Plan are our 20-year plans to ensure that the Salinas Valley Groundwater Basin (SVGB) will be managed sustainably for our current and future generations.

- Aquifer subbasin planning is not only critical to our future - it's mandatory. SGMA mandates that science-based GSPs be developed for the Basin by 2020 and 2022, and that the plan be implemented by 2040.
- The stakes are high. Should we choose not to act, or fail to meet the 2020, 2022, or 2040 milestones, the State can intervene with required (and hefty) pumping restrictions and extraction fees.
- To meet these milestones, we have been granted the authority to develop GSPs, monitor and measure the basin and individual wells within the basin, implement capital projects, and assess necessary fees for planning and implementation.
- Six "Sustainability Indicators" will be evaluated in the GSPs and used to gauge what we need to do to bring our groundwater supply and demand back into balance.
- Given the hydrologic and geographic diversity of the SVGB, the ISP will identify overlapping projects and programs which benefit the basins. Our planning process includes initiating planning committees for the subbasins and maintains our governance structure of the Board, advisory committee, and planning committee.
- Stakeholder engagement is a key component to the development and implementation of the GSP. We encourage and invite the community to get involved. Attend our monthly Board meetings, attend a Subbasin Planning Committee meeting, sign up for our newsletter.

Key Messages: Our History

- The Salinas Valley Basin GSA is firmly rooted in stakeholder engagement.
- From 2015-2017, local agencies and stakeholders worked with the Consensus Building Institute (CBI) to facilitate the formation of the GSA.
- In 2015, CBI began by conducting a Salinas Valley Groundwater Stakeholder Issue Assessment, which included interviews and surveys. This process resulted in recommendations for a transparent, inclusive process for the local implementation of SGMA and the formation of the GSA.
- Following the Issue Assessment, The Collaborative Work Group of stakeholders representing a broad range of interests met from March 2016 through April 2017 and developed recommendations on the governance structure, voting, and legal structure of the GSA.
- The Stakeholder Forum was simultaneously held throughout 2016 and served as a critical element for interested stakeholders and the public to learn about and provide input on the GSA.

- After nearly two years of community engagement led by the top consensus-building professionals in the nation, the Salinas Valley Basin Groundwater Sustainability Agency was formed in April 2017 with a broad and diverse foundation of support.

Chapter 2
Appendix 2-D

Media Policy

Appendix 2D. Media Policy

The press is an important partner for getting our message out to the community. To maximize our effectiveness in working with the media, a consistent protocol will be followed by staff, consultants, board members, and committee members.

Agency Spokesperson(s)

- The primary spokesperson for all media inquiries is the General Manager (GM). Media inquiries should first be directed to the GM to coordinate a response.
- Reporters may want to also interview board and community members. Some board members may enjoy media conversations, while others do not. The SVBGSA will maintain a standby list of a few board and community members, who will be prepared and can be called on for media inquiries.
- In preparation for the interview, the GM and Public Information Officer (PIO) will work closely with the spokespeople in preparation for media interviews. Factual and coordinated talking points will be provided in advance of the interview.

Responding Quickly

- Reporters work on tight deadlines. To ensure an opportunity is not missed, all media inquiries should receive an immediate response and referred to the GM at the earliest possible opportunity.

The Back-Up Plan

- If the GM is unavailable and cannot be reached for comment, media inquiries should be directed to the Board's back-up media representative. The Board's representative will contact the PIO to determine whether a response is necessary. If the response is not urgent, offer the media an appointment time for when the GM is available. If it is a time sensitive and urgent matter, a statement will be released from the Board representative in close coordination with the PIO.

News Monitoring and Tracking

- Following the interview or statement, if published, the GM or PIO will circulate the coverage to the Board and committee members.

Chapter 2
Appendix 2-E

Disadvantaged Communities (DACs)

APPENDIX 2E. DISADVANTAGED COMMUNITIES (DACs)

Introduction and Purpose of Appendix

Many of the communities in the Salinas Valley Groundwater Basin are classified as Disadvantaged Communities (DACs) and Severely Disadvantaged Communities (SDACs), as well as Economically Distressed Areas (EDAs). The SVBGSA jurisdictional area has well documented DAC-designated areas including seven Census Designated Places (CDPs), 60 Block Groups, and 20 Tracts. Additionally, work conducted by the Greater Monterey County Integrated Regional Water Management (IRWM) Program identified 25 small disadvantaged, severely disadvantaged, and suspected disadvantaged communities in unincorporated areas of the IRWMP region (Greater Monterey County Regional Water Management Group, 2018), which includes the entire SVBGSA area. As many of these communities are dependent on groundwater for drinking water, they face challenges associated with drinking water quality.

The State of California has recognized challenges in providing clean, safe, and affordable drinking water to all of its citizens, especially low-income and minority communities. In 2012, California law AB 685, the Human Right to Water, declared that every person has a right to clean, safe, and affordable drinking water. In 2019, the State further made it a priority by passing SB 200, the Safe and Affordable Drinking Water Fund. In Fiscal Year 2019-2020 alone, it will dedicate $130 million for safe drinking water solutions in DACs that do not have access to safe drinking water.

The Salinas Valley Groundwater Basin is one of the most productive agricultural regions in the world. However, over several decades seawater intrusion and intensive fertilizer use resulting in nitrate contamination have compromised drinking water quality in parts of the Basin. Nitrate contamination in groundwater can pose serious health risks to pregnant women and infants if consumed at concentrations above the maximum contaminant level (MCL) of 10 milligrams per liter (mg/L) nitrate as nitrogen (NO_3-N). Nitrate contamination not only poses health risks, but also results in major costs for small rural communities. This is particularly challenging for the many economically disadvantaged communities in the Basin.

SGMA has limited requirements with regards to improving groundwater quality; the SGMA regulations are written in terms of avoiding degradation (CWC, §354.28 (c)(4)). However, the SVBGSA seeks to engage more constructively with disadvantaged communities moving forward in the subbasin planning processes. SVBGSA maintains excellent relationships with agencies monitoring and addressing water quality issues in the Basin. The purpose of this appendix is to provide background information on the relationship between DACs (including SDACs and EDAs) and groundwater, particularly with respect to the drinking water challenges in the Basin. Unless otherwise noted, the information in this appendix is based on and much is excerpted from the Integrated Regional Water Management (IRWM) Plan for the Greater Monterey County Region (Greater Monterey Regional Water Management Group, 2018).

Identifying DACs in the Salinas Valley

A Disadvantaged Community (DAC) is defined in the California Water Code (§79505.5(a)) as a community with an annual median household income that is less than 80% of the statewide annual median household income, based on five-year estimates. Further, a Severely Disadvantaged Community (SDAC) is defined as a community with an annual median household income that is less than 60% of the statewide annual median household income, based on five-year estimates. For information on how these designations are determined, see the Greater Monterey County Integrated Regional Water Management Plan (Greater Monterey County Regional Water Management Group, 2018). These designations are significant because in order for a community to be eligible for State grant funds specially allocated for disadvantaged communities, or to be eligible for reduced matching fund requirements, a community must meet one of these strict definitions.

At the same time, the California Department of Water Resources (DWR) also recognizes the existence of communities that are economically challenged but that are not designated as being disadvantaged according to U.S. Census data. These communities have been labeled Suspected Disadvantaged Communities until their status can be proven either way.

In addition to disadvantaged communities, DWR recognizes Economically Distressed Areas. An economically distressed area (EDA) is defined as:

> *…a municipality with a population of 20,000 persons or less, a rural county, or a reasonably isolated and divisible segment of a larger municipality where the segment of the population is 20,000 persons or less, with an annual median household income that is less than 85 percent of the statewide median household income, and with one or more of the following conditions as determined by the department: (1) financial hardship, (2) unemployment rate at least 2 percent higher than the statewide average, or (3) low population density (Water Code §79702(k)).*

Figure 1 shows the communities currently designated as DACs, SDACs, or EDAs in the Salinas Valley. This figure combines census tracts, blocks, and places to give a more complete representation of the communities within this area. Currently, the statewide median household income is $63,783. Therefore, the calculated DAC and SDAC thresholds are $51,026 and $38,270, respectively (see [https://water.ca.gov/Work-With-Us/Grants-And-Loans/Mapping-Tools)](https://water.ca.gov/Work-With-Us/Grants-And-Loans/Mapping-Tools). For example, Castroville has a median household income of $35,000 (Rural Community Assistance Corporation, 2017). Moss Landing is not currently designated as a DAC; however, according to a survey by the California Rural Water Association (2018), its median household income is $47,600.

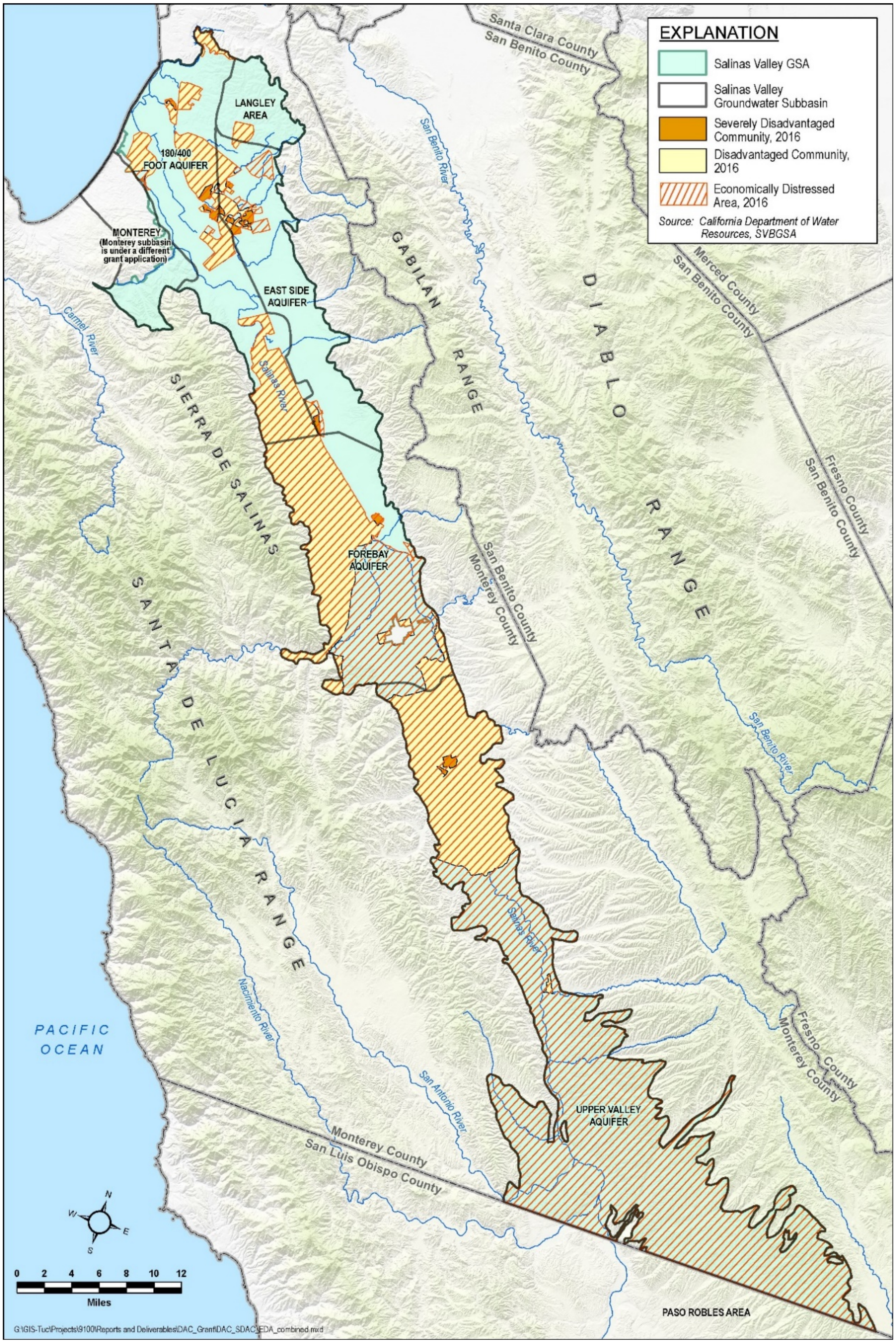


Figure 1. Map of DACs, SDACs, and EDAs in the Salinas Valley Groundwater Basin

As highlighted in the IWRM Plan, small disadvantaged communities in unincorporated areas often have small public water systems that serve fewer than 200 connections. The smallest of these communities have State Small Water Systems (SSWS), which serve between five and 14 connections); Local Small Water Systems (LSWS), which serve between two and four connections; and/or households served by private domestic groundwater wells. There is a significant difference in capacity, water supply, and infrastructure needs between a DAC served by a large water system (e.g., a large disadvantaged community of several thousand people, or a small disadvantaged community served by a large water utility) and a small disadvantaged community served by a small water system or by private wells. The State Water Resources Control Board (SWRCB) summarized these differences in its 2015 report, Safe Drinking Water Plan for California (SWRCB, 2015):

- Small water systems have the greatest difficulty in providing safe drinking water because they are least able to address the threats to public health associated with water quality.
- Larger water systems are better equipped to deal with water quality issues because they have more customers to fund the necessary improvements, have economy of scale, more technical expertise, better management skills and knowledge, are able to solve operational problems internally, and have dedicated financial and business-related staff. They generally have more sophisticated treatment and distribution system operators who are able to react to incidents and changes in treatment conditions that may occur during operations.
- On the other hand, small systems, especially those in disadvantaged communities, have only a small number of customers, which provides them with limited fiscal assets and no economy of scale. They often lack technical expertise, the ability to address many of the issues pertinent to operating a water system, as well as qualified management and financial and business personnel. In many instances, especially for very small water systems, the system operator may be just a part-time position.

Following the Greater Monterey County IRWM Plan, this Appendix includes DACs, SDACs, and EDAs and places an emphasis on small disadvantaged communities for the reasons highlighted by the SWRCB.

Jurisdictional Responsibilities

A number of agencies and groups have existing jurisdictional responsibility over groundwater quality. The SVBGSA will collaborate with these agencies and groups so as to not duplicate efforts or overstep its institutional authority. The following agencies and groups have responsibility over various aspects of groundwater (Greater Monterey County Regional Water Management Group, 2018):

- **Greater Monterey County IRWM Regional Water Management Group** – AB1630 appropriated State grant funds to enable this Group to develop solutions for DACs to be integrated into the broader IRWM planning effort. IRWM is a voluntary, collaborative effort to identify and implement water management solutions on a regional scale to increase regional self-reliance, reduce conflict, and manage water resources. The IRWM planning process brings together water and natural resource managers along with other community stakeholders to collaboratively plan for and ensure the region's continued water supply reliability, improved water quality, flood management, and healthy functioning ecosystems. The Department of Water Resources manages grant programs specifically designated for adopted IRWM Plans including funding for water quality improvement projects.
- **State Water Resources Control Board (SWRCB)** – The SWRCB administers the state's Drinking Water Program as the federally-designated Primary Agency responsible for the administration and enforcement of the Safe Drinking Water Act requirements in California. Prior to July 1, 2014, the California Department of Public Health was designated as the Primary Agency. These requirements are defined in the California Health and Safety Code and Titles 17 and 22, California Code of Regulations. The CDPH continues to maintain the State's Drinking Water and Radiation Laboratory, which serves as the state's principal laboratory as required for primacy under the Safe Drinking Water Act. The SWRCB is responsible for the regulatory oversight of over 7,600 public water systems in California. It may delegate oversight responsibility of public water systems with less than 200 service connections to local county health departments, which it has done in Monterey County.
- **Monterey County Department of Environmental Health (MCDEH)** – Delegated oversight responsibility by the SWRCB, MCDEH is the Local Primary Agency and its Drinking Water Protection Services regulates domestic water systems in the County that serve between two and 199 connections. There are approximately 160 such systems in the County regulated under this program. MCDEH also regulates all well construction in Monterey County.
- **SWRCB and Central Coast Regional Water Quality Control Board** – State policy on water quality control falls under the SWRCB, which is the state water pollution control agency for all purposes under the Clean Water Act (CWC §13160), including drinking water sources from both surface water and groundwater. The SWRCB has nine regional boards, including the Central Coast Regional Water Quality Control Board (CCRWQCB), which is responsible for the day-to-day implementation of the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act in the Central Coast. Together, the State Water Board and Regional Boards are responsible for the protection of the quality of ambient surface and groundwater up to the point where the water enters a drinking water well or surface water intake. The Regional Boards are

responsible for developing and enforcing water quality objectives and implementation plans to protect the beneficial uses of the State's waters. The Regional Boards enforce water quality regulations through the following means.

- **Basin Plan –** Each Regional Board is directed to formulate a water quality control plan, called a Basin Plan, that includes water quality standards under the Clean Water Act. The CCRWQCB implements the Basin Plan in the Central Coast Region, in part by issuing and enforcing waste discharge requirements to individuals, communities, or businesses whose waste discharges can affect water quality, including surface water, groundwater, or wetlands.
- **Waste Discharge Requirements (WDRs) –** WDRs, sometimes simply known as Orders, for discharges to waters of the United States also serve as National Pollutant Discharge Elimination System (NPDES) permits. The SWRCB and CCRWQCB regulate discharges from wastewater treatment and disposal systems under general WDRs. Small, domestic wastewater treatment systems having a maximum daily flow of 100,000 gallons per day (gpd) or less that discharge to land are covered under a statewide general WDR permit for small systems (Order WQ 2014-0153-DWQ). The State and Regional Boards are also responsible for plans and permits related to other uses, such as farming, septic tanks, and larger scale sewage treatment that can also impact the quality of surface and ground waters.
- **Irrigated Lands Regulatory Program (ILRP) –** The SWRCB initiated the ILRP in 2003 to control agricultural runoff's impairment of surface waters. In 2012, groundwater regulations were added to the program. Waste discharge requirements, which protect both surface water and groundwater, address agricultural discharges throughout the Central Coast. Anyone who irrigates land to produce crops or pasture commercially must seek ILRP permit coverage and maintain in good standing with their coalitions.

- **Department of Pesticide Regulation** – The California Department of Pesticide Regulation is responsible for ensure that pesticides do not contaminate the groundwater.
- **Office of Environmental Health Hazard Assessment** – The California Office of Environmental Health Hazard Assessment is responsible for providing the SWRCB with health-based risk assessments for contaminants. These assessments are used to develop primary drinking water standards.
- **California Public Utilities Commission (CPUC)** – The CPUC is responsible for ensuring that California's investor-owned water utilities deliver clean, safe, and reliable water to their customers at reasonable rates. The Water Division regulates over 100 investor-owned water and sewer utilities under the CPUC's jurisdiction; providing water service to about 16 percent of California's residents.

- **Local Agency Formation Commissions (LAFCOs)** – These commissions oversee the expansion of service areas of public agencies, including cities that own or operate public water systems. They can review public agencies to determine if the agency is providing municipal services in a satisfactory manner, including the delivery of safe drinking water.
- **Central Coast Groundwater Coalition (CCGC)** – The CCGC is a non-profit 501(c)5 mutual benefit organization that represents landowners and growers who operate in Monterey, San Benito, Santa Clara, Santa Cruz, San Luis Obispo, and Santa Barbara counties, as well as the northern portion of Ventura County in the Central Coast Region. The CCGC is not a governmental organization like the other jurisdictional agencies, and therefore does not have legal jurisdictional authority. However, the CCGC is the primary organization tasked with fulfilling the groundwater quality regulatory requirements in the Irrigated Lands Regulatory Program (ILRP) of the Central Coast Regional Water Quality Control Board. The organization combines the resources of its members to achieve economies of scale to comply with the regulatory requirements of the CCRWQCB. Between 2013 and 2015, the CCGC characterized the rural drinking water supply and shallow groundwater aquifer in the CCGC region which includes the previously noted six counties. In addition to using data from member wells, CCGC gathered publicly available data generated by the counties and data submitted by landowners and growers who perform individual monitoring as part of the current ILRP. Information collected on tested wells included depth to groundwater and well perforation levels where available. For many wells, quality parameters were collected, such as nitrates and total dissolved solids (TDS). In the groundwater characterization report, the information from the six counties was compiled and analyzed to produce maps showing areas where groundwater quality exceeds drinking water limits for nitrates. This information enabled CCGC to develop an accurate groundwater characterization in 2015 which provides growers, regulators and the public with a better understanding of local aquifers and geology in the six-county region.

DAC Drinking Water Challenges

Drinking water systems are categorized according to the number of service connections:

- Public water systems, which are referred to as municipal public water systems in this GSP for clarity, are water systems that provide drinking water to at least 15 service connections or serve an average of at least 25 people for at least 60 days a year,
- State small water systems are water systems that provide piped drinking water to between five and 14 service connections, and do not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year,
- Local small water systems are water systems that provide drinking water to between two and four service connections, and

- Private domestic wells usually provide water to only one or two connections.

Since state small water systems, local small water systems, and private domestic wells face more severe drinking water challenges than public water systems, they are the focus for the following discussion.

Private domestic wells are not regulated by the State. MCDEH requires one-time nitrate testing of newly installed private domestic wells, but there are no additional requirements. The SWRCB's Groundwater Ambient Monitoring and Assessment (GAMA) Domestic Well Project was developed in order to address the lack of domestic well water quality data. The GAMA Groundwater Information System includes numerous datasets that can be downloaded by users. The CCRWQCB also collects domestic well data per Irrigated Lands Regulatory Program (ILRP) groundwater monitoring requirements.

Between October 2013 and August 2014, the CCGC compiled water quality data from 229 samples from domestic and irrigation wells in the Salinas Valley. Data were collected from the GeoTracker GAMA database that includes data from the California Department of Public Health, GAMA-SWRCB data collection efforts and Regulated Sites. Additional data were collected from the USGS National Water Information System data, and data were extracted from the GAMA special study carried out by Lawrence Livermore National Laboratory. In its 2015 *Groundwater Characterization Report* (CCGC, 2015), CCGC made the following conclusions regarding nitrate in the Salinas Valley:

- 41% of wells with nitrate concentrations (or 309 of 758 total wells sampled) had maximum concentrations over the MCL.
- 34% of the land area within the Salinas Valley has nitrate concentrations over the MCL.
- 55% of domestic wells or 121 of 221 total sampled on CCGC-member properties had concentrations exceeding the MCL.

Domestic wells and wells associated with local small and state small water systems are generally more susceptible to nitrate contamination since they are typically shallow and are more likely to be located in rural areas within or adjacent to agricultural areas. They are also more susceptible to potential nitrate contamination from nearby septic systems. Public water systems, on the other hand, tend to access deeper groundwater and are more likely to be located in areas that are less susceptible nitrate contamination. Public water system operators implement regular water quality testing and treatment as necessary, and wells are usually taken out of service once they become contaminated. Funding programs are often available for public water systems, and costs are spread out over a large number of ratepayers over time. When contamination is detected in private domestic wells, treatment options are limited and the individual homeowner will typically have to bear the full cost of addressing the problem (CCGC, 2015).

According to the IRWM Plan, only a very small percentage of domestic wells in Monterey County have been tested through the Central Coast Regional Water Quality Board's groundwater monitoring programs. MCDEH has recently adopted a policy to begin requiring well testing when an application for repair or replacement of a septic system is proposed, which will provide new additional data.

MCDEH Drinking Water Protection Services regulates state small and local small water systems through their Small Water System Program. There are currently 694 local small and 276 state small water systems in Monterey County, which serve about 4,232 connections (Greater Monterey County Regional Water Management Group, 2018).

DACs in the Basin rely primarily on groundwater for their drinking water supply, except for those who rely on bottled water due to unsafe or poor water quality conditions. The primary drinking water problems experienced by small DACs in Monterey County are related to nitrate contamination, seawater intrusion, or other contaminants of concern. Numerous studies over the decades have documented these challenges.

Insufficient water quantity is generally less of a problem in the Salinas Groundwater Basin than poor or unsafe water quality; although poor water quality effectively results in insufficient water supply. During the recent prolonged drought, while Monterey County was classified as experiencing "exceptional" drought, very few water users in the Greater Monterey County IRWM region actually suffered from a lack of water availability. While the drought had immediate impacts on surface water supplies throughout the State, it tended to have a more gradual impact on groundwater supplies. Groundwater quality, rather than quantity, is of primary concern for drinking water supplies in the Salinas Valley Groundwater Basin, particularly nitrate contamination and seawater intrusion.

Nitrate Contamination

Nitrate contamination is particularly problematic in the Salinas Valley Groundwater Basin, where agriculture dominates the landscape. Nitrate is currently extensively monitored and evaluated by the CCGC and is documented in a report submitted to the CCRWQCB (CCGC, 2015). Nitrate contamination in the Salinas Valley was first documented in a report published by the Association of Monterey Bay Area Governments (AMBAG) in 1978. In 1988, a report by the State Water Board documented that nitrate levels in the Salinas Valley groundwater had impaired its beneficial use as a drinking water supply. In a July 1995 staff report, the SWRCB ranked the Salinas Valley as their number one water quality concern due to the severity of nitrate contamination. All of the Salinas Valley cities have had to replace domestic water wells due to high nitrate levels that exceed the drinking water MCL. Maps prepared by the MCWRA indicate that elevated nitrate concentrations in groundwater were locally present through the 1960s, but significantly increased in the 1970s and 1980s.

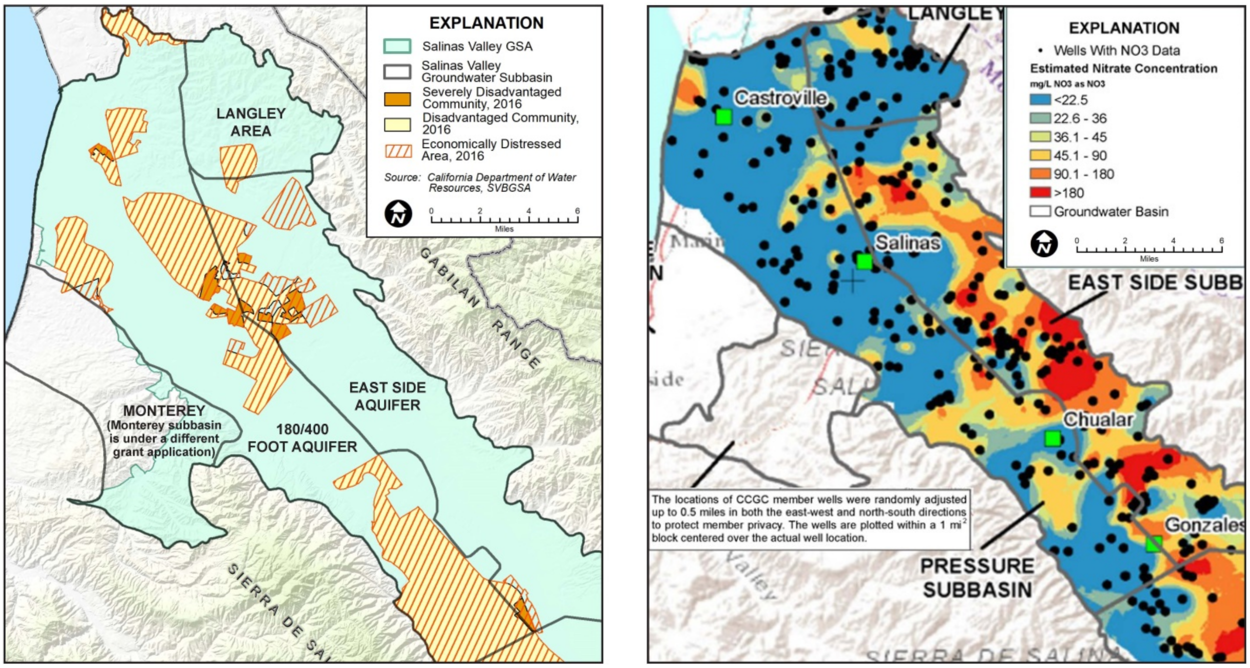


Figure 2. DACs, SDACs, and EDAs in the 180/400-Foot Aquifer Subbasin and Nitrate Concentration Map developed by CCGC (2015)

Seawater Intrusion

Seawater Intrusion is another major water quality concern for DACs and SDACs, primarily impacting coastal communities in the northern part of the Salinas Valley Groundwater Basin. Seawater intrusion has been observed in the 180-Foot and 400-Foot Aquifer Subbasin for over 70 years, and was documented in DWR Bulletin 52 in 1946. By the 1940s, many agricultural wells in the Castroville area had become so salty that they had to be abandoned (Greater Monterey County Regional Water Management Group, 2018). Seawater is high in chlorides. EPA defines the 500 mg/L threshold as an Upper Limit Secondary Maximum Contaminant Level (SMCL). Seawater intrusion is the primary threat to drinking water supplies for many DACs located in the northern coastal portion of the Basin.

Seawater has intruded inland in the 180-Foot and 400-Foot Aquifers, as shown on Figure 3 and Figure 4. Seawater intrusion in the 180-Foot Aquifer covered approximately 20,000 acres in 1995 and had expanded to approximately 28,000 acres by 2010. Since then, the rate of expansion has decreased, with an overlying area of 28,300 acres in 2017. The area overlying intrusion into the 400-Foot Aquifer is not as extensive, with an overlying area of approximately 12,000 acres in 2010. However, between 2013 and 2015, the 400-Foot Aquifer experienced a significant increase in the area of seawater intrusion, from approximately 12,500 acres to approximately 18,000 acres, likely resulting from localized downward migration between aquifers.

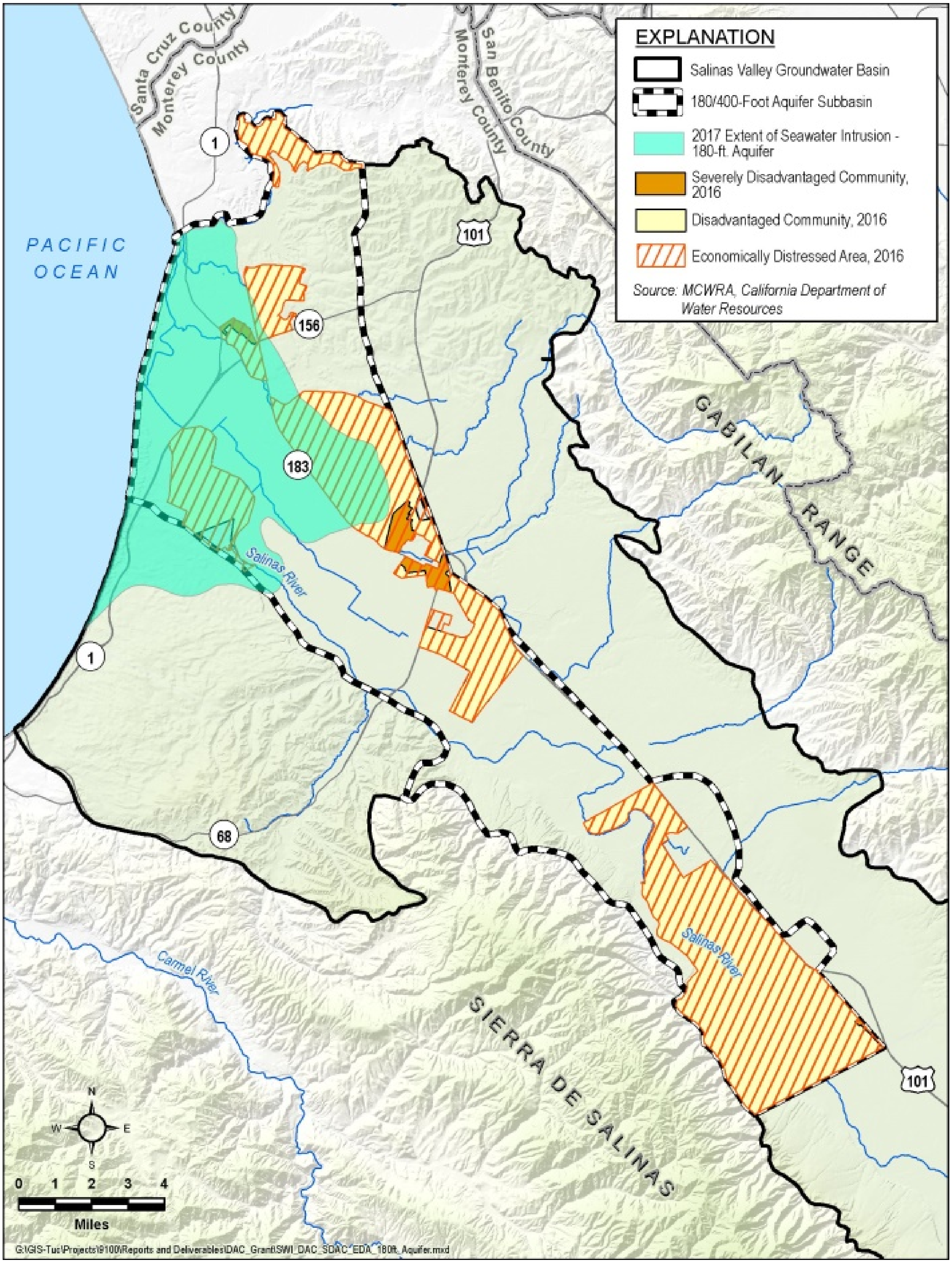


Figure 3. 2017 Extent of Seawater Intrusion in the 180-Foot Aquifer

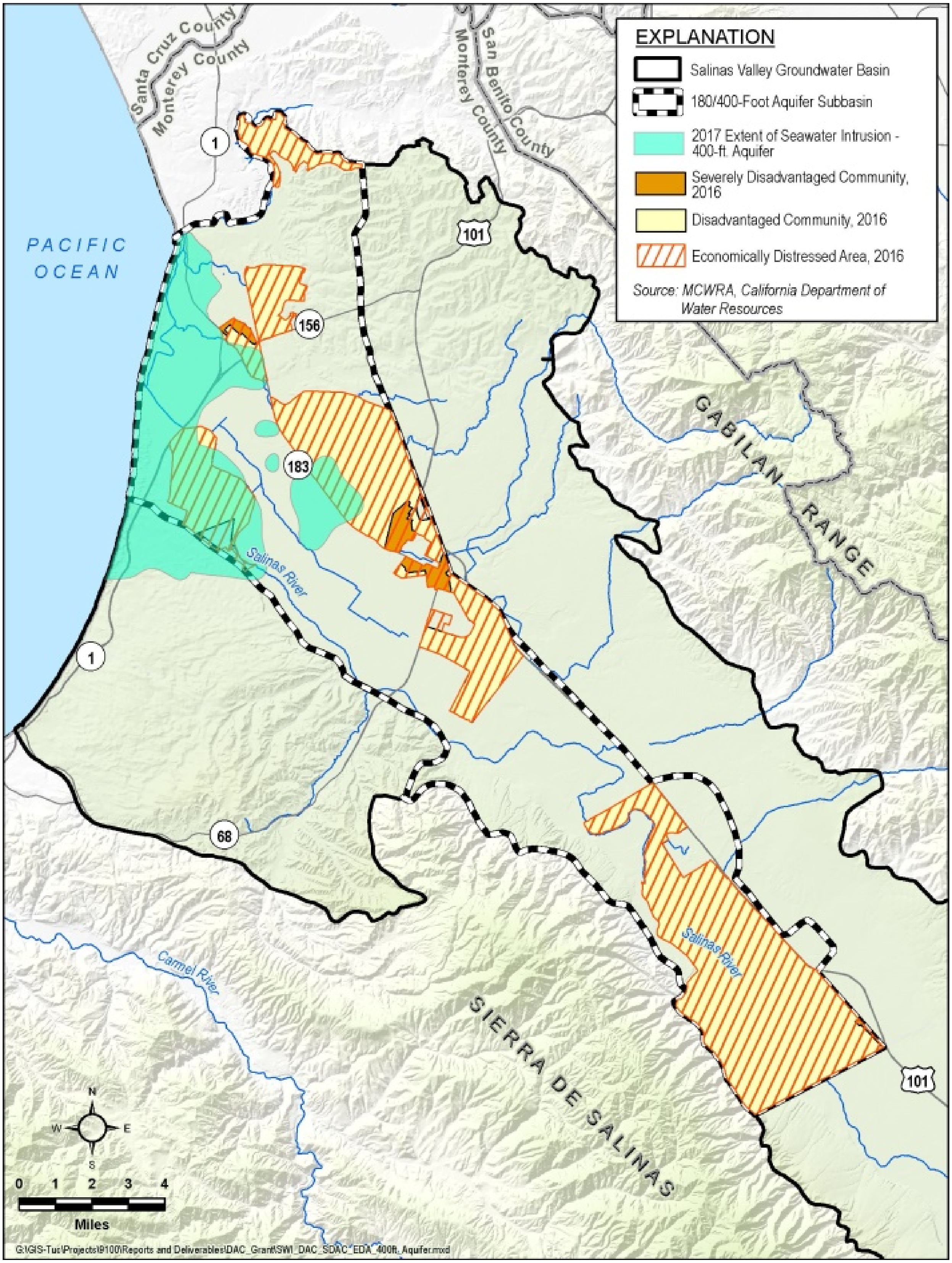


Figure 4. 2017 Extent of Seawater Intrusion in the 400-Foot Aquifer

Other Contaminants of Concern

In addition to nitrates and seawater intrusion, there are a few other contaminants of concern. With the recent passage of Assembly Bill (AB) 1249 (Salas, Chapter 717, Statutes of 2014), the State has recognized the prevalence, and urgency to address, the contamination of drinking water supplies in California by not only nitrate, but specifically by arsenic, perchlorate, and hexavalent chromium. The Greater Monterey County IRWM Regional Water Management Group is currently working with a Technical Advisory Committee, which includes MCDEH and the Central Coast Regional Water Quality Control Board, to identify the extent of nitrate, arsenic, perchlorate, and hexavalent chromium contamination in communities throughout the region. This group will develop a plan to address the contamination from these additional contaminants of concern.

Conclusion

The State of California has recognized the severity of drinking water challenges for DACs with the passage of the 2012 Human Right to Water Act (AB 685), which declared that every person has a right to clean, safe, and affordable drinking water. Further, it emphasized this state-wide focus with the Safe and Affordable Drinking Water Fund in 2019, which provides funding specifically for safe drinking water solutions in DACs that do not have access to safe drinking water.

This appendix highlights the relationship between DACs and groundwater in the Salinas Valley Groundwater Basin, particularly with respect to drinking water. It provides a base for the SVBGSA to engage DACs in a strategic dialogue and support state and local efforts related to drinking water.

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MONTGOMERY & ASSOCIATES

Chapter 4

Appendix 4A

ISW Seasonality Analysis

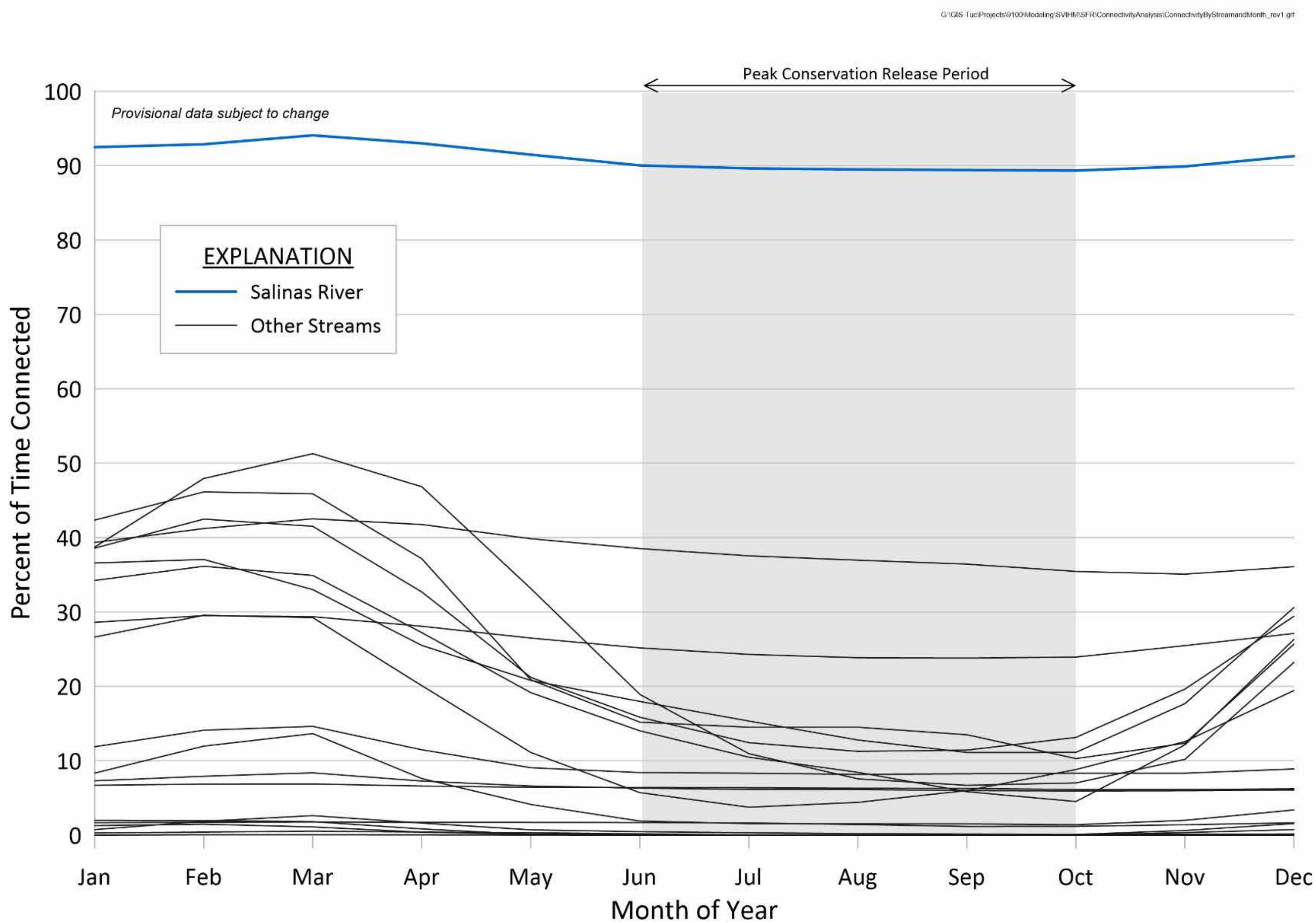
Appendix 4a. ISW Seasonality Analysis

Surface water and groundwater can be hydrologically connected along a stream reach during some months of the year and not others. These temporal variations of interconnected surface water (ISW) during a given year are the result of variations in recharge, precipitation, groundwater pumping, and riparian evapotranspiration. Along the Salinas River, monthly changes in reservoir operations also influence ISW reaches. Hydrologic connectivity in the Salinas Valley is estimated using results from the provisional SVIHM. Along the Salinas River, the timing of reservoir releases is used to determine the months that the ISW sustainable management criteria applies since releases during the peak conservation period (June through September) are intended for groundwater recharge. The ISW delineated along the Salinas River in section 4.4.5.1 of the GSP represent reaches that are connected during a majority (greater than 50%) of months during the non-peak conservation release period (October through May) over the full SVIHM simulation period from 1967 to 2017. However, model results indicate that the ISW length along the Salinas River is virtually the same throughout the year, connected the vast majority of time.

For tributaries or streams away from the Salinas River, reservoir releases have less impact on ISW, if any, than for the Salinas River. To estimate the seasonal variability of ISW for stream reaches away from the Salinas River, a monthly analysis. These locations are the best estimates of where persistent hydrologic connections occur along streams in the Salinas Valley. However, the lateral extents (lengths) of these reaches vary from month to month during the year, as well as from year to year.

To understand whether surface water is connected to groundwater only during certain months, a monthly analysis was undertaken. The monthly analysis produces 2 pieces of information for each month of the year: (1) the average percent of years simulated by the SVIHM that a stream has hydrologic connection, based on the average monthly connectivity of every model grid cell identified as ISW along the stream, and (2) the average extent of where hydrologic connection occurs. Figure 1 shows the average percent of time when connectivity occurs at any location along a given stream in Salinas Valley. These data show the average temporal connectivity along the entire length of a stream; however, some reaches of the stream have much lower or higher connectivity then indicated by the average values. The results on Figure 1 are most useful for identifying the seasonal trends of connectivity for streams. Tributaries to the river and streams away from the river show seasonal variation in connectivity, with higher average connectivity in the Winter and Spring months and lower average connectivity in the Summer months.

Consistent with the seasonal variations in average time of connectivity, the lengths of ISW along the streams away from the Salinas River are generally longest during the late Winter and Spring months and shortest during the late Summer months. The average ISW length varies during the year in the Langley Area Subbasin and along Arroyo Seco in Forebay Subbasin, with the locations of ISW in 4.4.5.1 representing the stream reaches with more consistent connection. The lengths of average ISW away from Salinas River in Upper Valley vary very little, if at all, during the year. The average monthly variations and extents are based on results from the provisional SVIHM and are subject to change in future updates to the GSP as additional data increases the understanding regarding ISW extents.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Peak Conservation Release Period
Provisional data subject to change
EXPLANATION
Salinas River
Other Streams
Percent of Time Connected
100
90
80
70
60
50
40
30
20
10
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month of Year

Chapter 3
Appendix 3-A

Water Systems

Table 1. Small Water Systems (2-14 connections)

Water System Name	ID	Connections	Population Served	Subbasin
ALISAL RD WS #01	2702233	N/A	N/A	EASTSIDE AQUIFER
ALISAL RD WS #02	2702497	N/A	N/A	EASTSIDE AQUIFER
ALISAL RD WS #03	2702519	N/A	N/A	EASTSIDE AQUIFER
BORONDA RD WS #07	2702557	N/A	N/A	EASTSIDE AQUIFER
CHUALAR CANYON WS #01	2701188	N/A	N/A	EASTSIDE AQUIFER
CHUALAR CANYON WS #03	2701523	N/A	N/A	EASTSIDE AQUIFER
CHUALAR CANYON WS #04	2701775	N/A	N/A	EASTSIDE AQUIFER
CHUALAR CANYON WS #05	2701810	N/A	N/A	EASTSIDE AQUIFER
CHUALAR CANYON WS #07	2701478	N/A	N/A	EASTSIDE AQUIFER
CHUALAR CANYON WS #09	2702136	N/A	N/A	EASTSIDE AQUIFER
CHUALAR CANYON WS #11	2702386	N/A	N/A	EASTSIDE AQUIFER
CORONA RD WS 3	2702505	N/A	N/A	EASTSIDE AQUIFER
EL CAMINO REAL WS #01	2700560	N/A	N/A	EASTSIDE AQUIFER
EL CAMINO REAL WS #28	2701758	N/A	N/A	EASTSIDE AQUIFER
EL CAMINO REAL WS #33	2701108	N/A	N/A	EASTSIDE AQUIFER
EL CAMINO REAL WS #34	2700508	N/A	N/A	EASTSIDE AQUIFER
EL CAMINO REAL WS #35	2701218	N/A	N/A	EASTSIDE AQUIFER
EL CAMINO REAL WS #37	2701920	N/A	N/A	EASTSIDE AQUIFER
EL CAMINO REAL WS #43	2702282	N/A	N/A	EASTSIDE AQUIFER
ESPINOSA RD WS #08	2702012	N/A	N/A	EASTSIDE AQUIFER
ESPINOSA RD WS #09	2702298	N/A	N/A	EASTSIDE AQUIFER
GLORIA RD WS #01	2701678	N/A	N/A	EASTSIDE AQUIFER
GOULD RD WS #01	2701064	N/A	N/A	EASTSIDE AQUIFER
HARRISON RD WS #02	2701433	N/A	N/A	EASTSIDE AQUIFER
HARRISON RD WS #03	2701746	N/A	N/A	EASTSIDE AQUIFER
HARRISON RD WS #04	2701994	N/A	N/A	EASTSIDE AQUIFER
HARRISON RD WS #06	2702128	N/A	N/A	EASTSIDE AQUIFER
HARRISON RD WS #07	2702297	N/A	N/A	EASTSIDE AQUIFER
HARRISON RD WS #08	2702401	N/A	N/A	EASTSIDE AQUIFER
HARRISON RD WS #09	2702549	N/A	N/A	EASTSIDE AQUIFER
HARTNELL RD WS #01	2702681	N/A	N/A	EASTSIDE AQUIFER
HWY 101 WS #05	2702436	N/A	N/A	EASTSIDE AQUIFER
IVERSON RD WS #01	2701846	N/A	N/A	EASTSIDE AQUIFER
KOHARA NURSERY WS	2702161	N/A	N/A	EASTSIDE AQUIFER
MARTINES RD WS #03	2702119	N/A	N/A	EASTSIDE AQUIFER
MIDDLEFIELD RD WS #02	2700651	N/A	N/A	EASTSIDE AQUIFER
MIDDLEFIELD RD WS #03	2700652	N/A	N/A	EASTSIDE AQUIFER
MIDDLEFIELD RD WS #04	2700653	N/A	N/A	EASTSIDE AQUIFER
MIDDLEFIELD RD WS #09	2702515	N/A	N/A	EASTSIDE AQUIFER

Water System Name	ID	Connections	Population Served	Subbasin
MONTEREY ROSES WS	2700851	N/A	N/A	EASTSIDE AQUIFER
NATIVIDAD RD WS #03	2701456	N/A	N/A	EASTSIDE AQUIFER
OLD STAGE RD WS #06	2702107	N/A	N/A	EASTSIDE AQUIFER
OLD STAGE RD WS #07	2701993	N/A	N/A	EASTSIDE AQUIFER
OLD STAGE RD WS #08	2702366	N/A	N/A	EASTSIDE AQUIFER
OLD STAGE RD WS #13	2701780	N/A	N/A	EASTSIDE AQUIFER
OLD STAGE RD WS #14	2702017	N/A	N/A	EASTSIDE AQUIFER
OLD STAGE RD WS #15	2702191	N/A	N/A	EASTSIDE AQUIFER
OLD STAGE RD WS #16	2702310	N/A	N/A	EASTSIDE AQUIFER
OLD STAGE RD WS #17	2702443	N/A	N/A	EASTSIDE AQUIFER
OLD STAGE RD WS #19	2702548	N/A	N/A	EASTSIDE AQUIFER
RANCHO SALINAS PACKING WS	2702067	N/A	N/A	EASTSIDE AQUIFER
SAN JUAN GRADE WS #01	2701521	N/A	N/A	EASTSIDE AQUIFER
SAN JUAN GRADE WS #02	2700737	N/A	N/A	EASTSIDE AQUIFER
SPENCE RD WS #04	2701964	N/A	N/A	EASTSIDE AQUIFER
SPENCE RD WS #08	2701729	N/A	N/A	EASTSIDE AQUIFER
UTO GREENHOUSE WS	2701716	N/A	N/A	EASTSIDE AQUIFER
WHITE RD WS #01	2700805	N/A	N/A	EASTSIDE AQUIFER
ZABALA RD WS #01	2700860	N/A	N/A	EASTSIDE AQUIFER
ZABALA RD WS #02	2702518	N/A	N/A	EASTSIDE AQUIFER
APPLE AVE WS #01	2701580	N/A	N/A	FOREBAY AQUIFER
APPLE AVE WS #04	2705021	N/A	N/A	FOREBAY AQUIFER
AROYO SECO RD WS #04	2701831	N/A	N/A	FOREBAY AQUIFER
ARROYO SECO RD WS #08	2701045	N/A	N/A	FOREBAY AQUIFER
ARROYO SECO RD WS #13	2702352	N/A	N/A	FOREBAY AQUIFER
ARROYO SECO RD WS #14	2702376	N/A	N/A	FOREBAY AQUIFER
BOEKENOOGAN WINERY WS	2702744	N/A	N/A	FOREBAY AQUIFER
BRYAN EQUIP/VALLEY ELECT WS	2702359	N/A	N/A	FOREBAY AQUIFER
CENTRAL AVE WS	2701419	N/A	N/A	FOREBAY AQUIFER
DOUD RD WS #01	2701790	N/A	N/A	FOREBAY AQUIFER
DOUD RD WS #02	2702062	N/A	N/A	FOREBAY AQUIFER
EL CAMINO REAL WS #32	2701794	N/A	N/A	FOREBAY AQUIFER
ELM AVE WS #01	2701845	N/A	N/A	FOREBAY AQUIFER
FAIRVIEW RD WS #01	2702181	N/A	N/A	FOREBAY AQUIFER
FORT ROMIE RD WS #01	2700562	N/A	N/A	FOREBAY AQUIFER
FORT ROMIE RD WS #02	2701830	N/A	N/A	FOREBAY AQUIFER
KITZMILLER RD WS #01	2701574	N/A	N/A	FOREBAY AQUIFER
LUCERNE RD WS	2701900	N/A	N/A	FOREBAY AQUIFER
MAESTRI RANCH WS	2701110	N/A	N/A	FOREBAY AQUIFER
METZ RD WS #01	2701713	N/A	N/A	FOREBAY AQUIFER

Water System Name	ID	Connections	Population Served	Subbasin
METZ RD WS #02	2701209	N/A	N/A	FOREBAY AQUIFER
METZ RD WS #04	2701147	N/A	N/A	FOREBAY AQUIFER
METZ RD WS #06	2702016	N/A	N/A	FOREBAY AQUIFER
METZ RD WS #09	2701180	N/A	N/A	FOREBAY AQUIFER
MILE END RD WS #01	2700603	N/A	N/A	FOREBAY AQUIFER
MILE END RD WS #02	2702367	N/A	N/A	FOREBAY AQUIFER
MISSION RD WS #02	2702170	N/A	N/A	FOREBAY AQUIFER
MISSION RD WS #03	2702543	N/A	N/A	FOREBAY AQUIFER
MISSION RD WS #04	2702619	N/A	N/A	FOREBAY AQUIFER
MORISOLI RD WS	2701038	N/A	N/A	FOREBAY AQUIFER
PINE ST WS #03	2701916	N/A	N/A	FOREBAY AQUIFER
PRYOR FARMS INC WS	2702911	N/A	N/A	FOREBAY AQUIFER
RIVER RD WS #27	2702419	N/A	N/A	FOREBAY AQUIFER
RIVER RD WS #33	2702754	N/A	N/A	FOREBAY AQUIFER
SAN VICENTE RD WS #01	2700774	N/A	N/A	FOREBAY AQUIFER
THIRD ST WS #01	2701730	N/A	N/A	FOREBAY AQUIFER
UNDERWOOD RD WS #01	2702340	N/A	N/A	FOREBAY AQUIFER
VIDA RD WS #01	2702603	N/A	N/A	FOREBAY AQUIFER
WALNUT AVE WS #01	2701999	N/A	N/A	FOREBAY AQUIFER
WALNUT AVE WS #02	2702099	N/A	N/A	FOREBAY AQUIFER
AVERY LN WS #01	2701620	N/A	N/A	LANGLEY AREA
AVERY LN WS #02	2701834	N/A	N/A	LANGLEY AREA
AVERY LN WS #03	2702159	N/A	N/A	LANGLEY AREA
AVERY LN WS #04	2702580	N/A	N/A	LANGLEY AREA
BERTA CANYON WS #03	2700513	N/A	N/A	LANGLEY AREA
BERTA CANYON WS #04	2702570	N/A	N/A	LANGLEY AREA
BERTA CANYON WS #06	2700985	N/A	N/A	LANGLEY AREA
BERTA CANYON WS #07	2702167	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #04	2700517	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #06	2700843	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #07	2701524	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #08	2701555	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #09	2701594	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #10	2701607	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #11	2701651	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #15	2702218	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #16	2702139	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #17	2702142	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #19	2702341	N/A	N/A	LANGLEY AREA
BLACKIE RD WS #20	2701602	N/A	N/A	LANGLEY AREA
CASTROVILLE BLVD WS #01	2700524	N/A	N/A	LANGLEY AREA

Water System Name	ID	Connections	Population Served	Subbasin
CASTROVILLE BLVD WS #03	2700526	N/A	N/A	LANGLEY AREA
CASTROVILLE BLVD WS #04	2700527	N/A	N/A	LANGLEY AREA
CASTROVILLE BLVD WS #06	2700529	N/A	N/A	LANGLEY AREA
CASTROVILLE BLVD WS #09	2702385	N/A	N/A	LANGLEY AREA
CASTROVILLE BLVD WS #10	2702423	N/A	N/A	LANGLEY AREA
CASTROVILLE BLVD WS #11	2702463	N/A	N/A	LANGLEY AREA
CASTROVILLE BLVD WS #14	2702632	N/A	N/A	LANGLEY AREA
COKER RD WS #01	2700533	N/A	N/A	LANGLEY AREA
COKER RD WS #02	2701148	N/A	N/A	LANGLEY AREA
COKER RD WS #03	2702228	N/A	N/A	LANGLEY AREA
CRAZY HORSE WS #01	2700537	N/A	N/A	LANGLEY AREA
CRAZY HORSE WS #05	2702124	N/A	N/A	LANGLEY AREA
CRAZY HORSE WS #06	2701720	N/A	N/A	LANGLEY AREA
CRAZY HORSE WS #07	2702278	N/A	N/A	LANGLEY AREA
CRAZY HORSE WS #08	2702582	N/A	N/A	LANGLEY AREA
CROSS RD WS #01	2701509	N/A	N/A	LANGLEY AREA
CROSS RD WS #02	2701585	N/A	N/A	LANGLEY AREA
CROSS RD WS #03	2701771	N/A	N/A	LANGLEY AREA
CROSS RD WS #04	2701807	N/A	N/A	LANGLEY AREA
CROSS RD WS #05	2701818	N/A	N/A	LANGLEY AREA
CROSS RD WS #06	2701817	N/A	N/A	LANGLEY AREA
CROSS RD WS #08	2700951	N/A	N/A	LANGLEY AREA
CROSS RD WS #09	2701921	N/A	N/A	LANGLEY AREA
CROSS RD WS #10	2702095	N/A	N/A	LANGLEY AREA
CUNHA LN WS #01	2702126	N/A	N/A	LANGLEY AREA
DEL MONTE FARMS RD WS #09	2702054	N/A	N/A	LANGLEY AREA
DESMOND RD WS #01	2700545	N/A	N/A	LANGLEY AREA
DESMOND RD WS #02	2700546	N/A	N/A	LANGLEY AREA
DESMOND RD WS #05	2701571	N/A	N/A	LANGLEY AREA
DESMOND RD WS #06	2701644	N/A	N/A	LANGLEY AREA
DESMOND RD WS #08	2702109	N/A	N/A	LANGLEY AREA
DESMOND RD WS #09	2702117	N/A	N/A	LANGLEY AREA
DESMOND RD WS #10	2702207	N/A	N/A	LANGLEY AREA
DESMOND RD WS #11	2702536	N/A	N/A	LANGLEY AREA
DYER RD WS #02	2700550	N/A	N/A	LANGLEY AREA
DYER RD WS #03	2701559	N/A	N/A	LANGLEY AREA
DYER RD WS #04	2701610	N/A	N/A	LANGLEY AREA
DYER RD WS #05	2701646	N/A	N/A	LANGLEY AREA
DYER RD WS #06	2702618	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #01	2700553	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #02	2700554	N/A	N/A	LANGLEY AREA

Water System Name	ID	Connections	Population Served	Subbasin
ECHO VALLEY RD WS #03	2700555	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #04	2700556	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #06	2701893	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #07	2701210	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #08	2701424	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #09	2701235	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #10	2701425	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #11	2701556	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #12	2701640	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #13	2701642	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #14	2701662	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #15	2701749	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #18	2701808	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #19	2701914	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #22	2702234	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #25	2702400	N/A	N/A	LANGLEY AREA
ECHO VALLEY RD WS #26	2702417	N/A	N/A	LANGLEY AREA
EDEN LN WS #01	2701650	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #02	2700561	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #07	2700566	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #08	2700567	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #15	2700574	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #19	2701426	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #23	2701427	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #25	2702362	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #26	2701536	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #29	2701785	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #31	2701429	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #36	2701934	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #38	2702201	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #39	2702106	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #40	2702127	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #42	2702158	N/A	N/A	LANGLEY AREA
EL CAMINO REAL WS #48	2702808	N/A	N/A	LANGLEY AREA
EL DORO WS #01	2700576	N/A	N/A	LANGLEY AREA
ERMCO WATER SYSTEM	2702721	N/A	N/A	LANGLEY AREA
EXECUTIVE DR WS #01	2700583	N/A	N/A	LANGLEY AREA
FRISCH RD WS #01	2700584	N/A	N/A	LANGLEY AREA
FRISCH RD WS #02	2700588	N/A	N/A	LANGLEY AREA
HIDDEN VALLEY RD WS #13	2701534	N/A	N/A	LANGLEY AREA
HOLLY HILLS MOTEL WS #01	2700582	N/A	N/A	LANGLEY AREA

Water System Name	ID	Connections	Population Served	Subbasin
HOLLY HILLS MOTEL WS #02	2700604	N/A	N/A	LANGLEY AREA
HOLLY HILLS WS #01	2701141	N/A	N/A	LANGLEY AREA
HOLLY HILLS WS #02	2701979	N/A	N/A	LANGLEY AREA
HOLLY HILLS WS #03	2702424	N/A	N/A	LANGLEY AREA
HWY 156 WS #01	2701844	N/A	N/A	LANGLEY AREA
HWY 156 WS #02	2705582	N/A	N/A	LANGLEY AREA
JOSHUA LN WS	2701007	N/A	N/A	LANGLEY AREA
KING RD WS #01	2702288	N/A	N/A	LANGLEY AREA
KING RD WS #02	2702307	N/A	N/A	LANGLEY AREA
KING RD WS #03	2702313	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #01	2700617	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #02	2700618	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #03	2700619	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #04	2700620	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #05	2700621	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #06	2701440	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #08	2701243	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #09	2701244	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #10	2701762	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #12	2701437	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #13	2701908	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #15	2701441	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #16	2702346	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #17	2702232	N/A	N/A	LANGLEY AREA
LANGLEY CANYON WS #18	2702309	N/A	N/A	LANGLEY AREA
LAVENDER LN WS #01	2700623	N/A	N/A	LANGLEY AREA
LAVENDER LN WS #02	2701548	N/A	N/A	LANGLEY AREA
LINDA VISTA MWC	2701400	N/A	N/A	LANGLEY AREA
MAHER RD WS #04	2700637	N/A	N/A	LANGLEY AREA
MAHER RD WS #07	2701395	N/A	N/A	LANGLEY AREA
MAHER RD WS #09	2701883	N/A	N/A	LANGLEY AREA
MAHER RD WS #11	2702162	N/A	N/A	LANGLEY AREA
MAHER RD WS #14	2702281	N/A	N/A	LANGLEY AREA
MAHER RD WS #18	2701781	N/A	N/A	LANGLEY AREA
MAHER RD WS #21	2702301	N/A	N/A	LANGLEY AREA
MAHER RD WS #22	2702433	N/A	N/A	LANGLEY AREA
MAHER RD WS #23	2702447	N/A	N/A	LANGLEY AREA
MAHER RD WS #24	2702589	N/A	N/A	LANGLEY AREA
MAHER RD WS #25	2702683	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #01	2701917	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #02	2700640	N/A	N/A	LANGLEY AREA

Water System Name	ID	Connections	Population Served	Subbasin
MALLORY CANYON WS #03	2700641	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #04	2701637	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #05	2701448	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #07	2701840	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #08	2701546	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #09	2701723	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #10	2702114	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #11	2702435	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #12	2705586	N/A	N/A	LANGLEY AREA
MALLORY CANYON WS #20	2701137	N/A	N/A	LANGLEY AREA
MARJORIE RD WS	2700921	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #01	2700644	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #03	2701409	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #05	2701596	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #06	2702355	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #07	2702096	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #08	2701449	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #09	2701632	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #10	2702236	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #11	2701643	N/A	N/A	LANGLEY AREA
MCGUFFIE RD WS #12	2702160	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #02	2700646	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #03	2700647	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #04	2701091	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #06	2701451	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #07	2701494	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #08	2701502	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #10	2701875	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #11	2701135	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #12	2701664	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #13	2701919	N/A	N/A	LANGLEY AREA
MERIDIAN RD WS #14	2702092	N/A	N/A	LANGLEY AREA
MESSICK RD WS #01	2700649	N/A	N/A	LANGLEY AREA
MESSICK RD WS #02	2701953	N/A	N/A	LANGLEY AREA
MESSICK RD WS #03	2702112	N/A	N/A	LANGLEY AREA
MESSICK RD WS #04	2702459	N/A	N/A	LANGLEY AREA
MORO RD WS #01	2700657	N/A	N/A	LANGLEY AREA
MORO RD WS #02	2700658	N/A	N/A	LANGLEY AREA
MORO RD WS #03	2700659	N/A	N/A	LANGLEY AREA
MORO RD WS #04	2701925	N/A	N/A	LANGLEY AREA
MORO RD WS #06	2701238	N/A	N/A	LANGLEY AREA

Water System Name	ID	Connections	Population Served	Subbasin
MORO RD WS #07	2701454	N/A	N/A	LANGLEY AREA
MORO RD WS #08	2701453	N/A	N/A	LANGLEY AREA
MORO RD WS #10	2702357	N/A	N/A	LANGLEY AREA
MORO RD WS #13	2701528	N/A	N/A	LANGLEY AREA
MORO RD WS #15	2701764	N/A	N/A	LANGLEY AREA
MORO RD WS #16	2700744	N/A	N/A	LANGLEY AREA
MORO RD WS #17	2702725	N/A	N/A	LANGLEY AREA
MUSTANG WA	2701801	N/A	N/A	LANGLEY AREA
OAK ESTATES DR WS #01	2700661	N/A	N/A	LANGLEY AREA
OAK RD WS #01	2700666	N/A	N/A	LANGLEY AREA
OAKRIDGE DR WS #02	2702272	N/A	N/A	LANGLEY AREA
OLD STAGE RD WS #18	2702446	N/A	N/A	LANGLEY AREA
ORCHARD LN WS #01	2700668	N/A	N/A	LANGLEY AREA
ORCHARD LN WS #03	2700670	N/A	N/A	LANGLEY AREA
ORCHARD LN WS #04	2701387	N/A	N/A	LANGLEY AREA
ORCHARD LN WS #06	2701514	N/A	N/A	LANGLEY AREA
PARADISE RD WS #02	2700675	N/A	N/A	LANGLEY AREA
PARADISE RD WS #03	2700676	N/A	N/A	LANGLEY AREA
PARADISE RD WS #04	2700677	N/A	N/A	LANGLEY AREA
PARADISE RD WS #06	2700679	N/A	N/A	LANGLEY AREA
PARADISE RD WS #07	2700680	N/A	N/A	LANGLEY AREA
PARADISE RD WS #11	2701134	N/A	N/A	LANGLEY AREA
PARADISE RD WS #12	2701460	N/A	N/A	LANGLEY AREA
PARADISE RD WS #13	2701461	N/A	N/A	LANGLEY AREA
PARADISE RD WS #22	2701634	N/A	N/A	LANGLEY AREA
PARADISE RD WS #23	2701638	N/A	N/A	LANGLEY AREA
PARADISE RD WS #28	2701462	N/A	N/A	LANGLEY AREA
PARADISE RD WS #29	2701696	N/A	N/A	LANGLEY AREA
PARADISE RD WS #31	2702263	N/A	N/A	LANGLEY AREA
PARADISE RD WS #33	2702337	N/A	N/A	LANGLEY AREA
PESANTE RD WS #01	2701021	N/A	N/A	LANGLEY AREA
PESANTE RD WS #03	2700688	N/A	N/A	LANGLEY AREA
PESANTE RD WS #04	2700689	N/A	N/A	LANGLEY AREA
PESANTE RD WS #07	2700692	N/A	N/A	LANGLEY AREA
PESANTE RD WS #08	2701083	N/A	N/A	LANGLEY AREA
PESANTE RD WS #12	2700734	N/A	N/A	LANGLEY AREA
PESANTE RD WS #13	2701399	N/A	N/A	LANGLEY AREA
PESANTE RD WS #14	2700616	N/A	N/A	LANGLEY AREA
PESANTE RD WS #15	2701923	N/A	N/A	LANGLEY AREA
PESANTE RD WS #16	2701990	N/A	N/A	LANGLEY AREA
PESANTE RD WS #17	2702006	N/A	N/A	LANGLEY AREA

Water System Name	ID	Connections	Population Served	Subbasin
PESANTE RD WS #18	2701983	N/A	N/A	LANGLEY AREA
PESANTE RD WS #19	2702111	N/A	N/A	LANGLEY AREA
PESANTE RD WS #21	2701788	N/A	N/A	LANGLEY AREA
PESANTE RD WS #22	2702131	N/A	N/A	LANGLEY AREA
PESANTE RD WS #24	2707025	N/A	N/A	LANGLEY AREA
PESANTE RD WS #25	2702333	N/A	N/A	LANGLEY AREA
PESANTE RD WS #27	2702648	N/A	N/A	LANGLEY AREA
PESANTE RD WS #29	2702794	N/A	N/A	LANGLEY AREA
PEZZINI LN WS #01	2701392	N/A	N/A	LANGLEY AREA
PINE TREE WAY WS #01	2700695	N/A	N/A	LANGLEY AREA
PINE TREE WAY WS #02	2700696	N/A	N/A	LANGLEY AREA
PLAZA SERENA WS	2701636	N/A	N/A	LANGLEY AREA
POLLOCK LN WS #01	2700697	N/A	N/A	LANGLEY AREA
POLLOCK LN WS #02	2701129	N/A	N/A	LANGLEY AREA
POLLOCK LN WS #03	2700699	N/A	N/A	LANGLEY AREA
POLLOCK LN WS #04	2701088	N/A	N/A	LANGLEY AREA
POLLOCK LN WS #05	2702005	N/A	N/A	LANGLEY AREA
POLLOCK LN WS #06	2702051	N/A	N/A	LANGLEY AREA
POLLOCK LN WS #07	2702051	N/A	N/A	LANGLEY AREA
PRUNEDALE RD WS #02	2700704	N/A	N/A	LANGLEY AREA
PRUNEDALE RD WS #03	2701469	N/A	N/A	LANGLEY AREA
PRUNEDALE RD WS #04	2702360	N/A	N/A	LANGLEY AREA
PRUNEDALE RD WS #06	2702425	N/A	N/A	LANGLEY AREA
REESE CIR WS #01	2700712	N/A	N/A	LANGLEY AREA
REESE CIR WS #03	2702222	N/A	N/A	LANGLEY AREA
REESE CIR WS #04	2702591	N/A	N/A	LANGLEY AREA
SAN JUAN GRADE WS #03	2702775	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #02	2700739	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #06	2700743	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #08	2700745	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #13	2700750	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #18	2701680	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #20	2700767	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #26	2701474	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #29	2701501	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #30	2701506	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #31	2701530	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #37	2701988	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #38	2701567	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #39	2701962	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #43	2701674	N/A	N/A	LANGLEY AREA

Water System Name	ID	Connections	Population Served	Subbasin
SAN MIGUEL WS #44	2701715	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #45	2701748	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #49	2702120	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #54	2702420	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #59	2702599	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #62	2702690	N/A	N/A	LANGLEY AREA
SAN MIGUEL WS #64	2702731	N/A	N/A	LANGLEY AREA
SANDY HILL DR WS #01	2701787	N/A	N/A	LANGLEY AREA
STRAWBERRY RD WS #01	2700761	N/A	N/A	LANGLEY AREA
STRAWBERRY RD WS #03	2700763	N/A	N/A	LANGLEY AREA
STRAWBERRY RD WS #10	2700770	N/A	N/A	LANGLEY AREA
STRAWBERRY RD WS #22	2702389	N/A	N/A	LANGLEY AREA
STRONG CIR WS	2702264	N/A	N/A	LANGLEY AREA
TARAWILD CT WS #01	2701657	N/A	N/A	LANGLEY AREA
TIMEVIEW WAY WS #01	2702504	N/A	N/A	LANGLEY AREA
TUCKER RD WS #01	2701554	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #01	2700776	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #02	2700777	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #03	2700778	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #04	2701484	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #05	2701380	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #07	2702380	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #08	2700569	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #09	2701366	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #10	2701485	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #14	2701591	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #15	2701724	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #16	2701767	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #17	2701728	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #18	2701970	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #19	2701992	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #20	2702177	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #21	2702178	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #22	2702260	N/A	N/A	LANGLEY AREA
TUSTIN RD WS #23	2702415	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #01	2700780	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #02	2700781	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #03	2700782	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #04	2700783	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #05	2700784	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #09	2702168	N/A	N/A	LANGLEY AREA

Water System Name	ID	Connections	Population Served	Subbasin
VALLE PACIFICO WS #11	2702379	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #12	2702025	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #14	2702152	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #15	2702470	N/A	N/A	LANGLEY AREA
VALLE PACIFICO WS #16	2702695	N/A	N/A	LANGLEY AREA
VIA DEL SOL WS #01	2701652	N/A	N/A	LANGLEY AREA
VIA DEL SOL WS #02	2700814	N/A	N/A	LANGLEY AREA
VIA DEL SOL WS #03	2702153	N/A	N/A	LANGLEY AREA
VIA DEL SOL WS #04	2702499	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #01	2701719	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #02	2700791	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #04	2700793	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #05	2700794	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #06	2700795	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #07	2700796	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #08	2701119	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #09	2701488	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #10	2701512	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #11	2701531	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #12	2701532	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #13	2701533	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #14	2700667	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #15	2701565	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #16	2701601	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #17	2701611	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #18	2701617	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #20	2701660	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #21	2701895	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #23	2701725	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #24	2701747	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #27	2701401	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #28	2700722	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #32	2702129	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #33	2702169	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #34	2702249	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #35	2702402	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #36	2702489	N/A	N/A	LANGLEY AREA
VIERRA CANYON WS #37	2702429	N/A	N/A	LANGLEY AREA
WILD HORSE WS #01	2701933	N/A	N/A	LANGLEY AREA
WILD PINTO WS #01	2701795	N/A	N/A	LANGLEY AREA
WILD PINTO WS #02	2701913	N/A	N/A	LANGLEY AREA

Water System Name	ID	Connections	Population Served	Subbasin
WILDER CT WS #01	2702287	N/A	N/A	LANGLEY AREA
CATTLEMEN RD WS #01	2701677	N/A	N/A	UPPER VALLEY AQUIFER
DELICATO VINEYARD WS	2702538	N/A	N/A	UPPER VALLEY AQUIFER
INDIAN VALLEY RD WS #01	2702547	N/A	N/A	UPPER VALLEY AQUIFER
LOS LOBOS RD WS	2701693	N/A	N/A	UPPER VALLEY AQUIFER
MESA VERDE RD WS #01	2701741	N/A	N/A	UPPER VALLEY AQUIFER
MONTEREY-DIXIE WS	2701960	N/A	N/A	UPPER VALLEY AQUIFER
NACIMIENTO LAKE DR WS #01	2701936	N/A	N/A	UPPER VALLEY AQUIFER
RANCHITA CANYON RD WS #01	2705555	N/A	N/A	UPPER VALLEY AQUIFER
SARGENTS RD WS #01	2701710	N/A	N/A	UPPER VALLEY AQUIFER
SARGENTS RD WS #03	2701710	N/A	N/A	UPPER VALLEY AQUIFER
SPRECKELS RD WS - KING CITY	2702075	N/A	N/A	UPPER VALLEY AQUIFER
TEAGUE AVE WS #04	2702465	N/A	N/A	UPPER VALLEY AQUIFER
TOPO RANCH WS	2701162	N/A	N/A	UPPER VALLEY AQUIFER
VINEYARD CANYON WS	2701930	N/A	N/A	UPPER VALLEY AQUIFER

Table 2. Public Water Systems (15 < connections or serving more than 25 peoplefor at least 60 days out of the year)

Water System Name	PWSID	Connections	Population Served	Subbasin	State Water System Classification
ALBA WS	CA2702572	4	40	EASTSIDE AQUIFER	NC
ALCO WATER SERVICE	CA2710001	9,272	29,179	EASTSIDE AQUIFER	C
ALTMAN PLANTS WS #01	CA2700856	5	45	EASTSIDE AQUIFER	NTNC
ALTMAN PLANTS WS #02	CA2702616	3	25	EASTSIDE AQUIFER	NTNC
ASSISI MWC	CA2700503	42	126	EASTSIDE AQUIFER	C
CAL AM WATER COMPANY - RALPH LANE WS	CA2702004	30	66	EASTSIDE AQUIFER	C
COLOR SPOT NURSERY WS #01	CA2700853	4	200	EASTSIDE AQUIFER	NTNC
COLOR SPOT NURSERY WS #02	CA2702482	1	25	EASTSIDE AQUIFER	NTNC
CWSC FOOTHILL ESTATES	CA2702198	45	183	EASTSIDE AQUIFER	C
CWSC SALINAS	CA2710010	24,036	106,858	EASTSIDE AQUIFER	C
EL CAMINO WC INC	CA2702409	31	90	EASTSIDE AQUIFER	C
ENCINAL RD WS #01	CA2701241	18	41	EASTSIDE AQUIFER	C
ESPERANZA RD WS	CA2702615	1	160	EASTSIDE AQUIFER	NTNC
FOOTHILL ESTATES WS	CA2702198	61	183	EASTSIDE AQUIFER	C
FREE WILL BAPTIST CHURCH WS	CA2702475	2	80	EASTSIDE AQUIFER	NC
GABILAN WC	CA2700586	162	454	EASTSIDE AQUIFER	C

Water System Name	PWSID	Connections	Population Served	Subbasin	State Water System Classification
GREEN VALLEY FLORAL WS	CA2701151	1	25	EASTSIDE AQUIFER	NTNC
GROWERS COMPANY INC WS	CA2702202	6	200	EASTSIDE AQUIFER	NTNC
HARRISON RD WS #01	CA2700592	4	40	EASTSIDE AQUIFER	NTNC
IVERSON & JACKS APTS WS	CA2701068	31	150	EASTSIDE AQUIFER	C
IVERSON RD WS #03	CA2702621	1	40	EASTSIDE AQUIFER	NTNC
JOHNSON CYN WS #01	CA2702626	8	28	EASTSIDE AQUIFER	NTNC
LHOIST NORTH AMERICA WS	CA2702259	1	100	EASTSIDE AQUIFER	NTNC
MATSUI NURSERY WS	CA2701931	2	75	EASTSIDE AQUIFER	NTNC
MISIONERO VEGETABLES WS	CA2701946	3	60	EASTSIDE AQUIFER	NTNC
NATIVIDAD RD WS #02	CA2701922	3	35	EASTSIDE AQUIFER	NTNC
OLD NATIVIDAD RD WS #01	CA2701232	3	25	EASTSIDE AQUIFER	NC
PENTECOSTAL WS	CA2700558	1	25	EASTSIDE AQUIFER	NTNC
PREMIUM PACKING WS	CA2702537	1	5	EASTSIDE AQUIFER	NC
ROSEHART INDUSTRIAL PARK WS	CA2702121	13	28	EASTSIDE AQUIFER	NTNC
SAN JERARDO COOP WS	CA2701904	67	249	EASTSIDE AQUIFER	C
SPENCE RD WS #05	CA2701726	4	25	EASTSIDE AQUIFER	NTNC
SUNNY ACRES MWS	CA2701589	15	45	EASTSIDE AQUIFER	C
APPLE AVE WS #02	CA2701034	18	75	FOREBAY AQUIFER	C
APPLE AVE WS #03	CA2701036	20	60	FOREBAY AQUIFER	C
ARROYO SECO ESTATES MWS	CA2702520	20	70	FOREBAY AQUIFER	C
CAMPHORA APARTMENTS	CA2701046	42	126	FOREBAY AQUIFER	C
CAMPHORA STATION WS	CA2701579	5	25	FOREBAY AQUIFER	NTNC
CAMPHORA-GLORIA RD WS #01	CA2702642	2	25	FOREBAY AQUIFER	NC
CORRECTIONAL TRAINING FACILITY - SOLEDAD	CA2710850	2,769	5,500	FOREBAY AQUIFER	C
DOLE FRESH VEGETABLES WS	CA2702412	1	80	FOREBAY AQUIFER	NTNC
ESTANCIA WINERY WS	CA2702613	1	70	FOREBAY AQUIFER	NTNC
FOOTHILL RD WS #01	CA2702431	4	25	FOREBAY AQUIFER	NTNC
GOLDEN STATE VINTNERS WS	CA2701550	1	30	FOREBAY AQUIFER	NTNC
GONZALES, CITY OF	CA2710007	1,930	8,383	FOREBAY AQUIFER	C
GREENFIELD, CITY OF	CA2710008	3,720	17,517	FOREBAY AQUIFER	C
KENDALL-JACKSON WINERY WS	CA2702496	2	45	FOREBAY AQUIFER	NTNC
MCCOY RD WS #05	CA2701040	24	72	FOREBAY AQUIFER	C
MISSION SCHOOL WS	CA2702317	1	100	FOREBAY AQUIFER	NTNC
OAK PARK WS	CA2700999	1	29	FOREBAY AQUIFER	NC
OASIS CAFE WS	CA2701000	5	31	FOREBAY AQUIFER	NC

Water System Name	PWSID	Connections	Population Served	Subbasin	State Water System Classification
PARADISE RD WS #21	CA2701633	16	48	FOREBAY AQUIFER	C
PARAISO HOT SPRINGS WS	CA2701001	5	25	FOREBAY AQUIFER	NC
PINE ST WS #01	CA2701403	17	65	FOREBAY AQUIFER	C
SALINAS VALLEY STATE PRISON	CA2710851	2,208	3,386	FOREBAY AQUIFER	C
SAN SABA WINERY WS	CA2702609	2	29	FOREBAY AQUIFER	NC
SAN VICENTE MWC	CA2702466	21	90	FOREBAY AQUIFER	C
SOLEDAD MISSION WS	CA2701176	2	25	FOREBAY AQUIFER	NC
SOLEDAD, CITY OF	CA2710011	3,669	16,729	FOREBAY AQUIFER	C
AMERICAN LEGION #593 WS	CA2702679	2	25	LANGLEY AREA	NC
BLACKIE RD WS #05	CA2700837	18	54	LANGLEY AREA	C
BLACKIE RD WS #18	CA2702094	21	60	LANGLEY AREA	C
CABANA HOLIDAY WS	CA2700522	146	400	LANGLEY AREA	C
CALVARY CHURCH INC WS	CA2700703	5	150	LANGLEY AREA	NTNC
CENTRAL BAY HIGH SCHOOL WS	CA2702490	1	250	LANGLEY AREA	NTNC
CHETMOORE ACRES WA	CA2700634	24	50	LANGLEY AREA	C
COLONIAL OAK WC INC	CA2700534	66	198	LANGLEY AREA	C
COUNTRY MEADOWS MWC	CA2701929	107	621	LANGLEY AREA	C
COUNTRYSIDE ESTATES MWC	CA2702374	18	73	LANGLEY AREA	C
CWSC COUNTRY MEADOWS	CA2701929	107	294	LANGLEY AREA	C
CWSC OAK HILLS	CA2710019	894	3,904	LANGLEY AREA	C
ECHO VALLEY RD WS #05	CA2701423	16	48	LANGLEY AREA	C
ECHO VALLEY SCHOOL WS	CA2700552	1	579	LANGLEY AREA	NTNC
GARLEN COURT WS	CA2700686	23	69	LANGLEY AREA	C
GLENN AVE WS #01	CA2700589	26	78	LANGLEY AREA	C
HIDDEN CANYON RANCH MWC	CA2702554	27	102	LANGLEY AREA	C
HIDDEN VALLEY WA	CA2700594	31	51	LANGLEY AREA	C
HOLLY HILLS MWC	CA2701789	27	108	LANGLEY AREA	C
LA TAPATIA TAQUERIA WS	CA2702382	1	25	LANGLEY AREA	NC
LANGLEY/VALLE PACIFICO WS	CA2701670	31	81	LANGLEY AREA	C
MAHER RD WS #05	CA2700638	17	51	LANGLEY AREA	C
MANZANITA PARK WS	CA2702229	1	300	LANGLEY AREA	NC
MERIDIAN RD WS #09	CA2701837	2	35	LANGLEY AREA	NTNC
MONTEREY BAY NURSERY WS	CA2702336	3	25	LANGLEY AREA	NTNC
MONTEREY DUNES MWA	CA2701452	137	280	LANGLEY AREA	C
MONTEREY MUSHROOMS WS	CA2701940	1	450	LANGLEY AREA	NTNC
MORO COJO MWA	CA2700656	19	67	LANGLEY AREA	C

Water System Name	PWSID	Connections	Population Served	Subbasin	State Water System Classification
MORO RD WS #09	CA2701926	65	210	LANGLEY AREA	C
NORMCO	CA2700511	267	928	LANGLEY AREA	C
OAK HEIGHTS W & R CO INC	CA2700665	35	105	LANGLEY AREA	C
OAK MANOR WS	CA2700509	28	71	LANGLEY AREA	C
ORCHARD LN WS #02	CA2700669	16	32	LANGLEY AREA	C
ORCHARD LN WS #09	CA2702165	5	25	LANGLEY AREA	NC
PAJARO/SUNNY MESA COMMUNITY SERVICES DISTRICT	CA2710020	457	6,500	LANGLEY AREA	C
PARADISE RD WS #05	CA2700678	15	42	LANGLEY AREA	C
PARADISE RD WS #09	CA2700682	18	250	LANGLEY AREA	C
PESANTE RD WS #02	CA2700687	40	120	LANGLEY AREA	C
PESANTE RD WS #06	CA2700691	16	48	LANGLEY AREA	C
POND-DEROSA OAKS WC	CA2701553	72	216	LANGLEY AREA	C
PRUNEDALE CHEVRON WS	CA2701630	1	25	LANGLEY AREA	NC
PRUNEDALE MWC	CA2700702	84	252	LANGLEY AREA	C
PRUNEDALE PLAZA WS	CA2701814	11	90	LANGLEY AREA	NC
PRUNEDALE SCHOOL WS	CA2700705	1	400	LANGLEY AREA	NTNC
PRUNEDALE SHOPPING CENTER WS	CA2701231	1	150	LANGLEY AREA	NTNC
PRUNETREE SHOPPING CENTER WS	CA2702368	38	200	LANGLEY AREA	NTNC
RANCHO BORROMEO MWS	CA2700709	36	100	LANGLEY AREA	C
ROLLING HILLS RANCHO WA	CA2700713	59	177	LANGLEY AREA	C
ROYAL OAK PLACE WS	CA2702388	20	60	LANGLEY AREA	C
ROYAL OAKS PARK WS	CA2700636	1	25	LANGLEY AREA	NC
SALINAS TRANSPLANT WS	CA2702021	1	58	LANGLEY AREA	NC
SAN MIGUEL WS #01	CA2700738	34	100	LANGLEY AREA	C
SAN MIGUEL WS #03	CA2700740	16	48	LANGLEY AREA	C
SAN MIGUEL WS #22	CA2702073	31	93	LANGLEY AREA	C
SPRING CANYON WA	CA2700838	33	99	LANGLEY AREA	C
SUMMERHILL MHP WS	CA2700792	34	102	LANGLEY AREA	C
THIMIO MWC	CA2702608	21	60	LANGLEY AREA	C
VIERRA CANYON WS #29	CA2701942	2	25	LANGLEY AREA	NC
VIERRA ESTATES WS	CA2702007	53	164	LANGLEY AREA	C
VIERRA KNOLLS MWC	CA2702055	22	66	LANGLEY AREA	C
VIERRA MEADOWS MWC	CA2702003	25	75	LANGLEY AREA	C
WOODLAND HEIGHTS MWC	CA2702439	19	57	LANGLEY AREA	C
AERA ENERGY LLC WS	CA2701187	1	75	UPPER VALLEY AQUIFER	NTNC

Water System Name	PWSID	Connections	Population Served	Subbasin	State Water System Classification
BERNARDO RD WS #02	CA2702486	3	25	UPPER VALLEY AQUIFER	NC
BRADLEY UNION SCHOOL WS	CA2700964	1	100	UPPER VALLEY AQUIFER	NTNC
CALIFORNIA ORCHARD WS	CA2701742	50	150	UPPER VALLEY AQUIFER	C
CAMP ROBERTS - CALIFORNIA NATIONAL GUARD	CA2710705	342	385	UPPER VALLEY AQUIFER	NTNC
CHEVRON OIL FIELD WS	CA2701171	1	75	UPPER VALLEY AQUIFER	NTNC
CWSC KING CITY	CA2710009	2,778	14,441	UPPER VALLEY AQUIFER	C
LITTLE BEAR WATER COMPANY	CA2710016	705	2,303	UPPER VALLEY AQUIFER	C
SAN ARDO WD	CA2700728	162	550	UPPER VALLEY AQUIFER	C
SAN LUCAS WD	CA2701676	96	500	UPPER VALLEY AQUIFER	C
SCHEID VINEYARD WS	CA2702539	1	45	UPPER VALLEY AQUIFER	NTNC
WILDHORSE CAFE WS	CA2701172	6	50	UPPER VALLEY AQUIFER	NTNC

Chapter 3
Appendix 3-B

Land Use Plans

APPENDIX 3-A. LAND USE PLANS IN THE SUBBASIN

3-A (a) Monterey County General Plan

Relevant elements of the Monterey County General Plan (Monterey County, 2010) are summarized in Table 3-3.

Table 3-1 Monterey County General Plan Summary

Element	Goal / Policy	
Land Use	LU-1.4	Growth areas shall be designated only where an adequate level of services and facilities such as water, sewerage, fire and police protection, transportation, and schools exist or can be assured concurrent with growth and development. Phasing of development shall be required as necessary in growth areas in order to provide a basis for long-range services and facilities planning.
Open Space	OS-3.8	The County shall cooperate with appropriate regional, state and federal agencies to provide public education/outreach and technical assistance programs on erosion and sediment control, efficient water use, water conservation and re-use, and groundwater management. This cooperative effort shall be centered through the Monterey County Water Resources Agency.
et seq. Public Services	GOAL PS-2	Assure an adequate and safe water supply to meet the county's current and long-term needs.
	PS-2.1	Coordination among, and consolidation with, those public water service providers drawing from a common water table to prevent overdrawing the water table is encouraged.
	PS-2.2	The County of Monterey shall assure adequate monitoring of wells in those areas experiencing rapid growth provided adequate funding mechanisms for monitoring are established in the CIFP.
	PS-2.3	New development shall be required to connect to existing water service providers where feasible. Connection to public utilities is preferable to other providers.
	PS-2.4	Regulations for installing any new domestic well located in consolidated materials (e.g., hard rock areas) shall be enacted by the County.
	PS-2.5	Regulations shall be developed for water quality testing for new individual domestic wells on a single lot of record to identify: a) Water quality testing parameters for a one-time required water quality test for individual wells at the time of well construction. b) A process that allows the required one-time water quality test results to be available to future owners of the well. Regulations pursuant to this policy shall not establish criteria that will prevent the use of the well in the development of the property. Agricultural wells shall be exempt from the regulation.
	GOAL PS-3	Ensure that new development is assured a long-term sustainable water supply.

Element		Goal / Policy
	PS-3.1	Except as specifically set forth below, new development for which a discretionary permit is required, and that will use or require the use of water, shall be prohibited without proof, based on specific findings and supported by evidence, that there is a long-term, sustainable water supply, both in quality and quantity to serve the development [see Plan for list].
	PS-3.2	Specific criteria for proof of a Long-Term Sustainable Water Supply and an Adequate Water Supply System for new development requiring a discretionary permit, including but not limited to residential or commercial subdivisions, shall be developed by ordinance with the advice of the General Manager of the Water Resources Agency and the Director of the Environmental Health Bureau. A determination of a Long-Term Sustainable Water Supply shall be made upon the advice of the General Manager of the Water Resources Agency. The following factors shall be used in developing the criteria for proof of a long-term sustainable water supply and an adequate water supply system: [see Plan for list]
	PS-3.3	Specific criteria shall be developed by ordinance for use in the evaluation and approval of adequacy of all domestic wells. The following factors shall be used in developing criteria for both water quality and quantity including, but not limited to: [see Plan for list]
	PS-3.4	The County shall request an assessment of impacts on adjacent wells and instream flows for new high-capacity wells, including high-capacity urban and agricultural production wells, where there may be a potential to affect existing adjacent domestic or water system wells adversely or in-stream flows, as determined by the Monterey County Water Resources Agency. In the case of new high-capacity wells for which an assessment shows the potential for significant adverse well interference, the County shall require that the proposed well site be relocated or otherwise mitigated to avoid significant interference. The following factors shall be used in developing criteria by ordinance for use in the evaluation and approval of adequacy of all such high-capacity wells, including but not limited to: a) Effect on wells in the immediate vicinity as required by the Monterey County Water Resources Agency or Environmental Health Bureau. b) Effects of additional extractions or diversion of water on in-stream flows necessary to support riparian vegetation, wetlands, fish, and other aquatic life including migration potential for steelhead, for the purpose of minimizing impacts to those resources and species. This policy is not intended to apply to replacement wells.
	PS-3.5	The Monterey County Health Department shall not allow construction of any new wells in known areas of saltwater intrusion as identified by Monterey County Water Resources Agency or other applicable water management agencies: a) Until such time as a program has been approved and funded that will minimize or avoid expansion of saltwater intrusion into useable groundwater supplies in that area; or b) Unless approved by the applicable water resource agency. This policy shall not apply to deepening or replacement of existing wells, or wells used in conjunction with a desalination project.
	PS-3.6	The County shall coordinate and collaborate with all agencies responsible for the management of existing and new water resources.

Element		Goal / Policy
	PS-3.7	A program to eliminate overdraft of water basins shall be developed as part of the Capital Improvement and Financing Plan (CIFP) for this Plan using a variety of strategies, which may include but are not limited to: a) Water banking; b) Groundwater and aquifer recharge and recovery; c) Desalination; d) Pipelines to new supplies; and/or e) A variety of conjunctive use techniques. The CIFP shall be reviewed every five years in order to evaluate the effectiveness of meeting the strategies noted in this policy. Areas identified to be at or near overdraft shall be a high priority for funding.
	PS-3.8	Developments that use gray water and cisterns for multi-family residential and commercial landscaping shall be encouraged, subject to a discretionary permit.
	PS-3.9	A tentative subdivision map and/or vesting tentative subdivision map application for either a standard or minor subdivision shall not be approved until the applicant provides evidence of a long-term sustainable water supply in terms of yield and quality for all lots that are to be created through subdivision.
	PS-3.10	In order to maximize agricultural water conservation measures to improve water use efficiency and reduce overall water demand, the County shall establish an ordinance identifying conservation measures that reduce agricultural water demand.
	PS-3.11	In order to maximize urban water conservation measures to improve water use efficiency and reduce overall water demand, the County shall establish an ordinance identifying conservation measures that reduce potable water demand
	PS-3.12	The County shall maximize the use of recycled water as a potable water offset to manage water demands and meet regulatory requirements for wastewater discharge, by employing strategies including, but not limited to, the following: a) Increase the use of treated water where the quality of recycled water is maintained, meets all applicable regulatory standards, is appropriate for the intended use, and re-use will not significantly impact beneficial uses of other water resources. b) Work with the agricultural community to develop new uses for tertiary recycled water and increase the use of tertiary recycled water for irrigation of lands currently being irrigated by groundwater pumping. c) Work with urban water providers to emphasize use of tertiary recycled water for irrigation of parks, playfields, schools, golf courses, and other landscape areas to reduce potable water demand. d) d. Work with urban water providers to convert existing potable water customers to tertiary recycled water as infrastructure and water supply become available.
	PS-3.13	To ensure accuracy and consistency in the evaluation of water supply availability, the Monterey County Health Department, in coordination with the MCWRA, shall develop guidelines and procedures for conducting water supply assessments and determining water availability. Adequate availability and provision of water supply, treatment, and conveyance facilities shall be assured to the satisfaction of the County prior to approval

Element		Goal / Policy
		of final subdivision maps or any changes in the General Plan Land Use or Zoning designations.
	PS-3.14	The County will participate in regional coalitions for the purpose of identifying and supporting a variety of new water supply projects, water management programs, and multiple agency agreements that will provide additional domestic water supplies for the Monterey Peninsula and Seaside basin, while continuing to protect the Salinas and Pajaro River groundwater basins from saltwater intrusion. The County will also participate in regional groups including representatives of the Pajaro Valley Water Management Agency and the County of Santa Cruz to identify and support a variety of new water supply, water management and multiple agency agreement that will provide additional domestic water supplies for the Pajaro Groundwater Basin. The County's general objective, while recognizing that timeframes will be dependent on the dynamics of each of the regional groups, will be to complete the cooperative planning of these water supply alternatives within five years of the adoption of the General Plan and to implement the selected alternatives within five years after that time.
	PS-3.15	The County will pursue expansion of the Salinas Valley Water Project (SVWP) by investigating expansion of the capacity for the Salinas River water storage and distribution system. This shall also include, but not be limited to, investigations of expanded conjunctive use, use of recycled water for groundwater recharge and seawater intrusion barrier, and changes in operations of the reservoirs. The County's overall objective is to have an expansion planned and in service by the date that the extractions from the Salinas Valley groundwater basin are predicted to reach the levels estimated for 2030 in the EIR for the Salinas Valley Water Project. The County shall review these extraction data trends at five-year intervals. The County shall also assess the degree to which the Salinas Valley Groundwater Basin (Zone 2C) has responded with respect to water supply and the reversal of seawater intrusion based upon the modeling protocol utilized in the Salinas Valley Water Project EIR. If the examination indicates that the growth in extractions predicted for 2030 are likely to be attained within ten years of the date of the review, or the groundwater basin has not responded with respect to water supply and reversal of seawater intrusion as predicted by the model, then the County shall convene and coordinate a working group made up of the Salinas Valley cities, the MCWRA, and other affected entities. The purpose will be to identify new water supply projects, water management programs, and multiple agency agreements that will provide additional domestic water supplies for the Salinas Valley. These may include, but not be limited to, expanded conjunctive use programs, further improvements to the upriver reservoirs, additional pipelines to provide more efficient distribution, and expanded use of recycled water to reinforce the hydraulic barrier against seawater intrusion. The county's objective will be to complete the cooperative planning of these water supply alternatives within five years and to have the projects on-line five years following identification of water supply alternatives.

The Monterey County General Plan does not include population projections; however, the Association of Monterey Bay Area Governments (AMBAG) has developed population projections through 2050, as shown in Table 3-4.

Table 3-2. Monterey County Population Projections
(AMBAG, 2018)

Geography	2015	2020	2025	2030	2035	2040	Change 2015-2040 Numeric	Percent
AMBAG Region	**762,676**	**791,600**	**816,900**	**840,100**	**862,200**	**883,300**	**120,624**	**16%**
Monterey County	**432,637**	**448,211**	**462,678**	**476,588**	**489,451**	**501,751**	**69,114**	**16%**
Carmel-By-The-Sea	3,824	3,833	3,843	3,857	3,869	3,876	52	1%
Del Rey Oaks	1,655	1,949	2,268	2,591	2,835	2,987	1,332	80%
Gonzales	8,411	8,827	10,592	13,006	15,942	18,756	10,345	123%
Greenfield	16,947	18,192	19,425	20,424	21,362	22,327	5,380	32%
King City	14,008	14,957	15,574	15,806	15,959	16,063	2,055	15%
Marina	20,496	23,470	26,188	28,515	29,554	30,510	10,014	49%
Marina balance	19,476	20,957	22,205	22,957	23,621	24,202	4,726	24%
CSUMB (portion)	1,020	2,513	3,983	5,558	5,933	6,308	5,288	518%
Monterey	28,576	28,726	29,328	29,881	30,460	30,976	2,400	8%
Monterey balance	24,572	24,722	25,324	25,877	26,456	26,972	2,400	10%
DLI & Naval Postgrad	4,004	4,004	4,004	4,004	4,004	4,004	0	0%
Pacific Grove	15,251	15,349	15,468	15,598	15,808	16,138	887	6%
Salinas	159,486	166,303	170,824	175,442	180,072	184,599	25,113	16%
Sand City	376	544	710	891	1,190	1,494	1,118	297%
Seaside	34,185	34,301	35,242	36,285	37,056	37,802	3,617	11%
Seaside balance	26,799	27,003	27,264	27,632	28,078	28,529	1,730	6%
Fort Ord (portion)	4,450	4,290	4,340	4,490	4,690	4,860	410	9%
CSUMB (portion)	2,936	3,008	3,638	4,163	4,288	4,413	1,477	86%
Soledad	24,809	26,399	27,534	28,285	29,021	29,805	4,996	20%
Soledad balance	16,510	18,100	19,235	19,986	20,722	21,506	4,996	30%
SVSP & CTF	8,299	8,299	8,299	8,299	8,299	8,299	0	0%
Balance Of County	104,613	105,361	105,682	106,007	106,323	106,418	1,805	2%
San Benito County	**56,445**	**62,242**	**66,522**	**69,274**	**72,064**	**74,668**	**18,223**	**32%**
Hollister	36,291	39,862	41,685	43,247	44,747	46,222	9,931	27%
San Juan Bautista	1,846	2,020	2,092	2,148	2,201	2,251	405	22%
Balance Of County	18,308	20,360	22,745	23,879	25,116	26,195	7,887	43%
Santa Cruz County	**273,594**	**281,147**	**287,700**	**294,238**	**300,685**	**306,881**	**33,287**	**12%**
Capitola	10,087	10,194	10,312	10,451	10,622	10,809	722	7%
Santa Cruz	63,830	68,381	72,091	75,571	79,027	82,266	18,436	29%
Santa Cruz balance	46,554	49,331	51,091	52,571	54,027	55,266	8,712	19%
UCSC	17,276	19,050	21,000	23,000	25,000	27,000	9,724	56%
Scotts Valley	12,073	12,145	12,214	12,282	12,348	12,418	345	3%
Watsonville	52,562	53,536	55,187	56,829	58,332	59,743	7,181	14%
Balance Of County	135,042	136,891	137,896	139,105	140,356	141,645	6,603	5%

Sources: Data for 2015 are from the U.S. Census Bureau and California Department of Finance. Forecast years were prepared by AMBAG and PRB.

3-A (b) King City General Plan

The King City General Plan (King City, 1998) indicates that the water system is adequate for current use, but that a new well site would be needed for future development. Relevant elements of the King City General Plan are summarized in Table 3-9.

Table 3-3: King City General Plan Summary

Element	Goal / Policy	
Housing	Policy 1.8	Regulate land uses and housing design to minimize the consumption of water and energy usage and encourage the design and construction of high-quality housing products.

References

AMBAG (Association of Monterey Bay Area Governments). 2018. 2018 Regional Growth Forecast, Technical Documentation. June 13, 2018. 61p.

King City. 1998. *King City General Plan.* http://www.kingcity.com/wp-content/uploads/2016/01/City-of-King-General-Plan-with-2007-2014-Housing-Element.pdf

Monterey County. 2010. "2010 Monterey County General Plan." https://www.co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/resources-documents/2010-general-plan.

Chapter 4
Appendix 4-A

ISW Seasonality Analysis

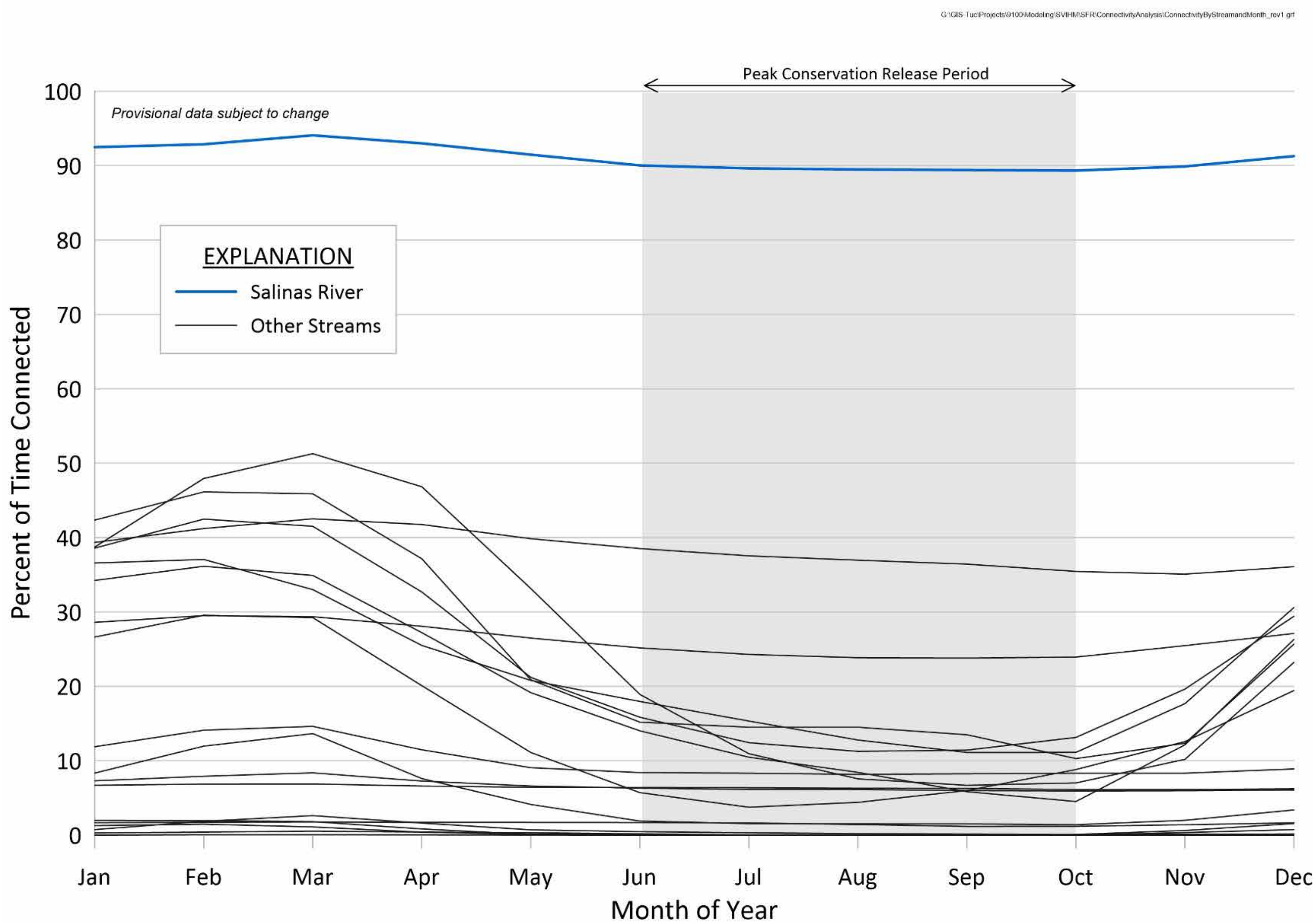
Appendix 4a. ISW Seasonality Analysis

Surface water and groundwater can be hydrologically connected along a stream reach during some months of the year and not others. These temporal variations of interconnected surface water (ISW) during a given year are the result of variations in recharge, precipitation, groundwater pumping, and riparian evapotranspiration. Along the Salinas River, monthly changes in reservoir operations also influence ISW reaches. Hydrologic connectivity in the Salinas Valley is estimated using results from the provisional SVIHM. Along the Salinas River, the timing of reservoir releases is used to determine the months that the ISW sustainable management criteria applies since releases during the peak conservation period (June through September) are intended for groundwater recharge. The ISW delineated along the Salinas River in section 4.4.5.1 of the GSP represent reaches that are connected during a majority (greater than 50%) of months during the non-peak conservation release period (October through May) over the full SVIHM simulation period from 1967 to 2017. However, model results indicate that the ISW length along the Salinas River is virtually the same throughout the year, connected the vast majority of time.

For tributaries or streams away from the Salinas River, reservoir releases have less impact on ISW, if any, than for the Salinas River. To estimate the seasonal variability of ISW for stream reaches away from the Salinas River, a monthly analysis. These locations are the best estimates of where persistent hydrologic connections occur along streams in the Salinas Valley. However, the lateral extents (lengths) of these reaches vary from month to month during the year, as well as from year to year.

To understand whether surface water is connected to groundwater only during certain months, a monthly analysis was undertaken. The monthly analysis produces 2 pieces of information for each month of the year: (1) the average percent of years simulated by the SVIHM that a stream has hydrologic connection, based on the average monthly connectivity of every model grid cell identified as ISW along the stream, and (2) the average extent of where hydrologic connection occurs. Figure 1 shows the average percent of time when connectivity occurs at any location along a given stream in Salinas Valley. These data show the average temporal connectivity along the entire length of a stream; however, some reaches of the stream have much lower or higher connectivity then indicated by the average values. The results on Figure 1 are most useful for identifying the seasonal trends of connectivity for streams. Tributaries to the river and streams away from the river show seasonal variation in connectivity, with higher average connectivity in the Winter and Spring months and lower average connectivity in the Summer months.

Consistent with the seasonal variations in average time of connectivity, the lengths of ISW along the streams away from the Salinas River are generally longest during the late Winter and Spring months and shortest during the late Summer months. The average ISW length varies during the year in the Langley Area Subbasin and along Arroyo Seco in Forebay Subbasin, with the locations of ISW in 4.4.5.1 representing the stream reaches with more consistent connection. The lengths of average ISW away from Salinas River in Upper Valley vary very little, if at all, during the year. The average monthly variations and extents are based on results from the provisional SVIHM and are subject to change in future updates to the GSP as additional data increases the understanding regarding ISW extents.



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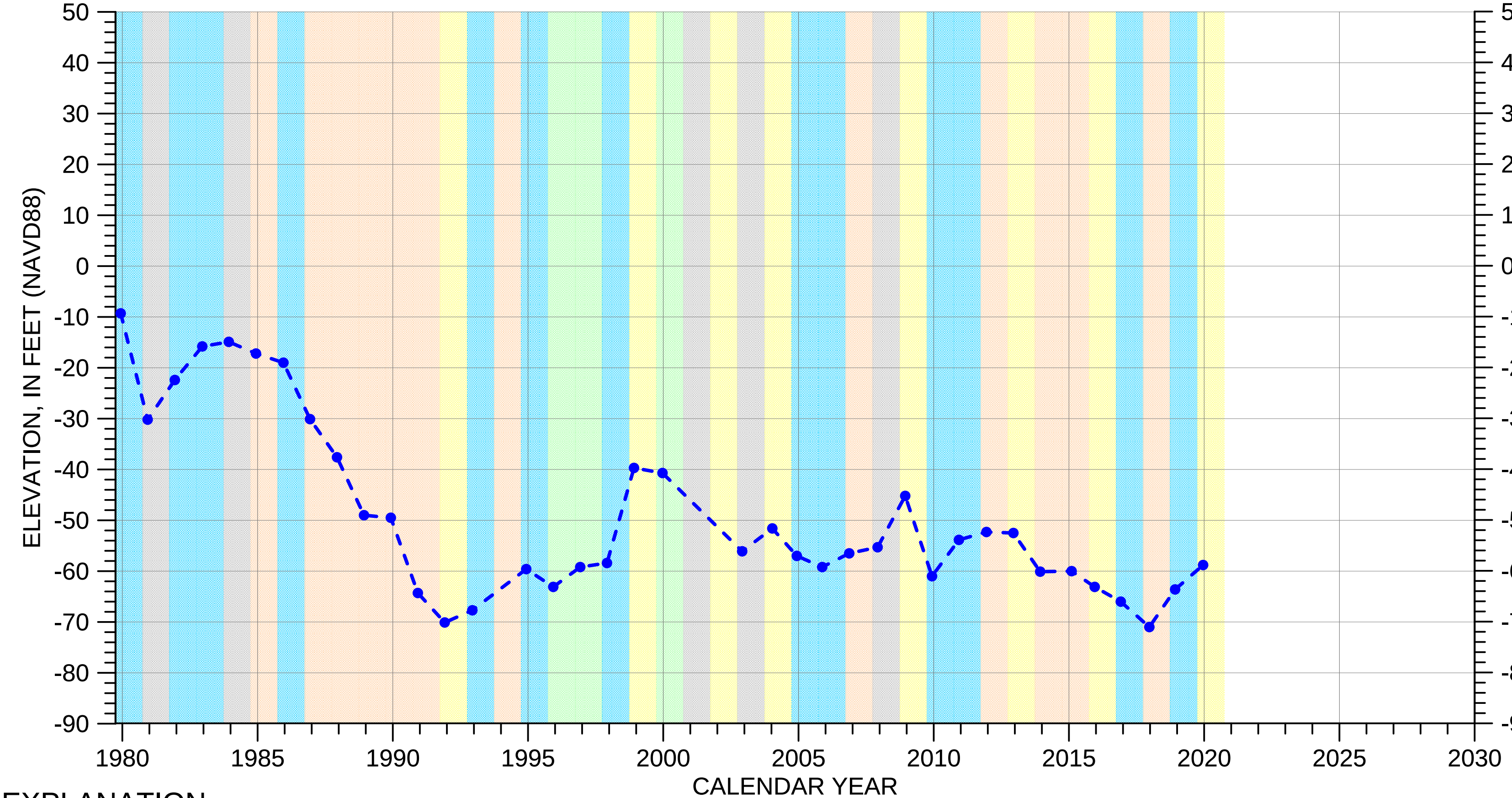
Peak Conservation Release Period
Provisional data subject to change
EXPLANATION
Salinas River
Other Streams
Percent of Time Connected
0
10
20
30
40
50
60
70
80
90
100
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month of Year

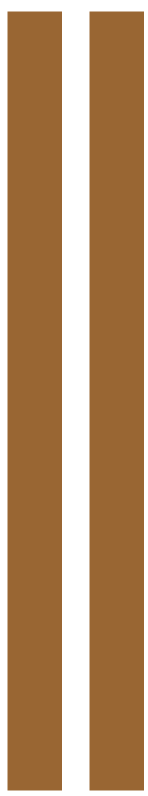
Chapter 5
Appendix 5-A

Hydrographs

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-03K01

Eastside Aquifer Subbasin





EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (169 FT MSL)

WATER YEAR TYPE DESIGNATION

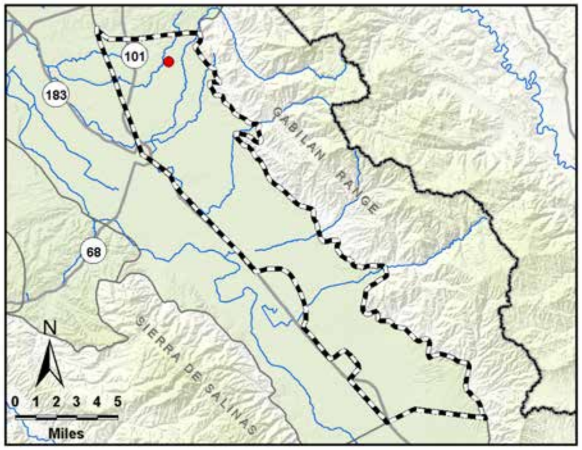
DRY

DRY - NORMAL

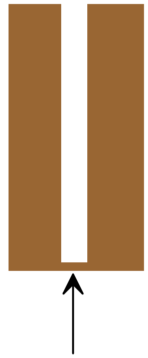
NORMAL

WET - NORMAL

WET



Perforated interval unknown

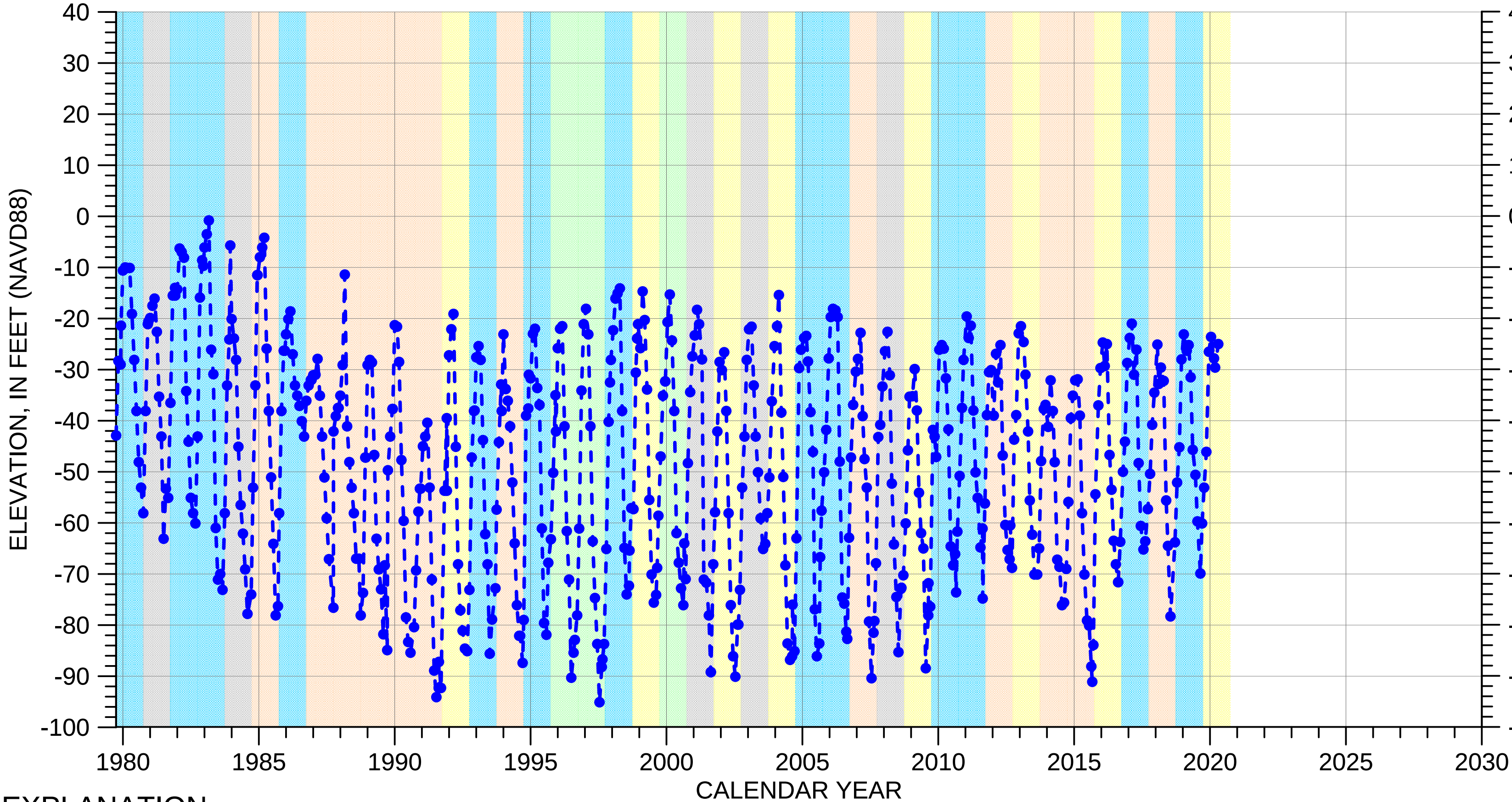


Well bottom
-499 feet msl

Plot20 *

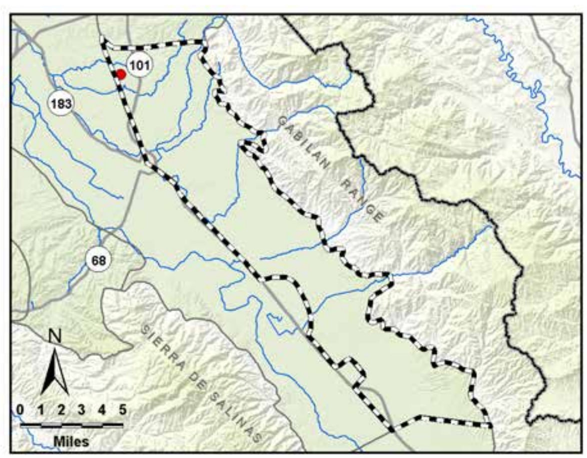
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-06R01

Eastside Aquifer Subbasin

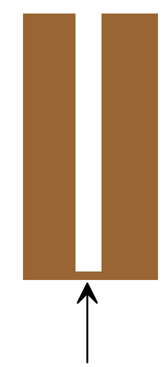


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (92 FT MSL)



Perforated interval unknown



Well bottom
-293 feet msl

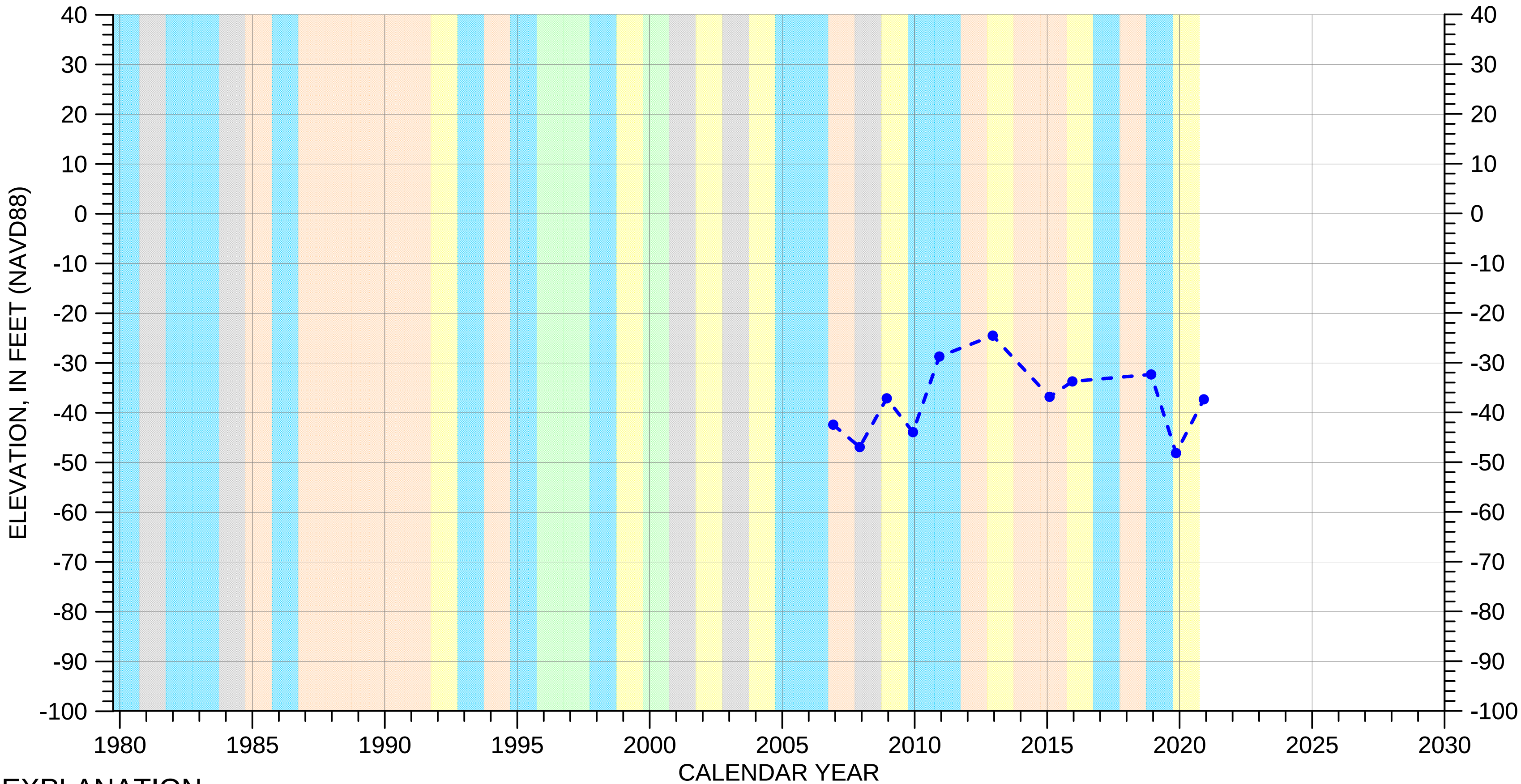
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot21 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-08C01

Eastside Aquifer Subbasin

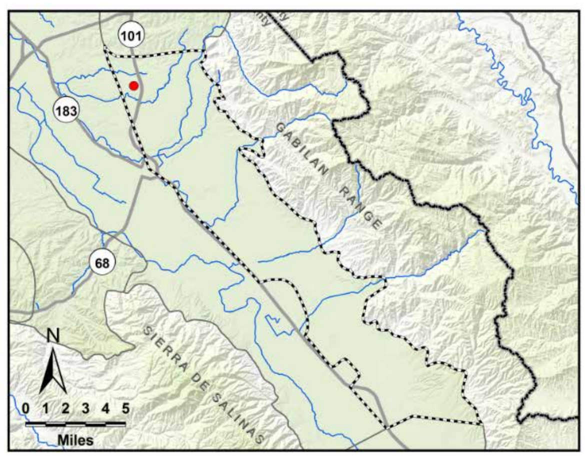


EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (110 FT MSL)



Perforated interval unknown

Well bottom
-675.5 feet msl

WATER YEAR TYPE DESIGNATION

DRY
DRY - NORMAL
NORMAL
WET - NORMAL
WET

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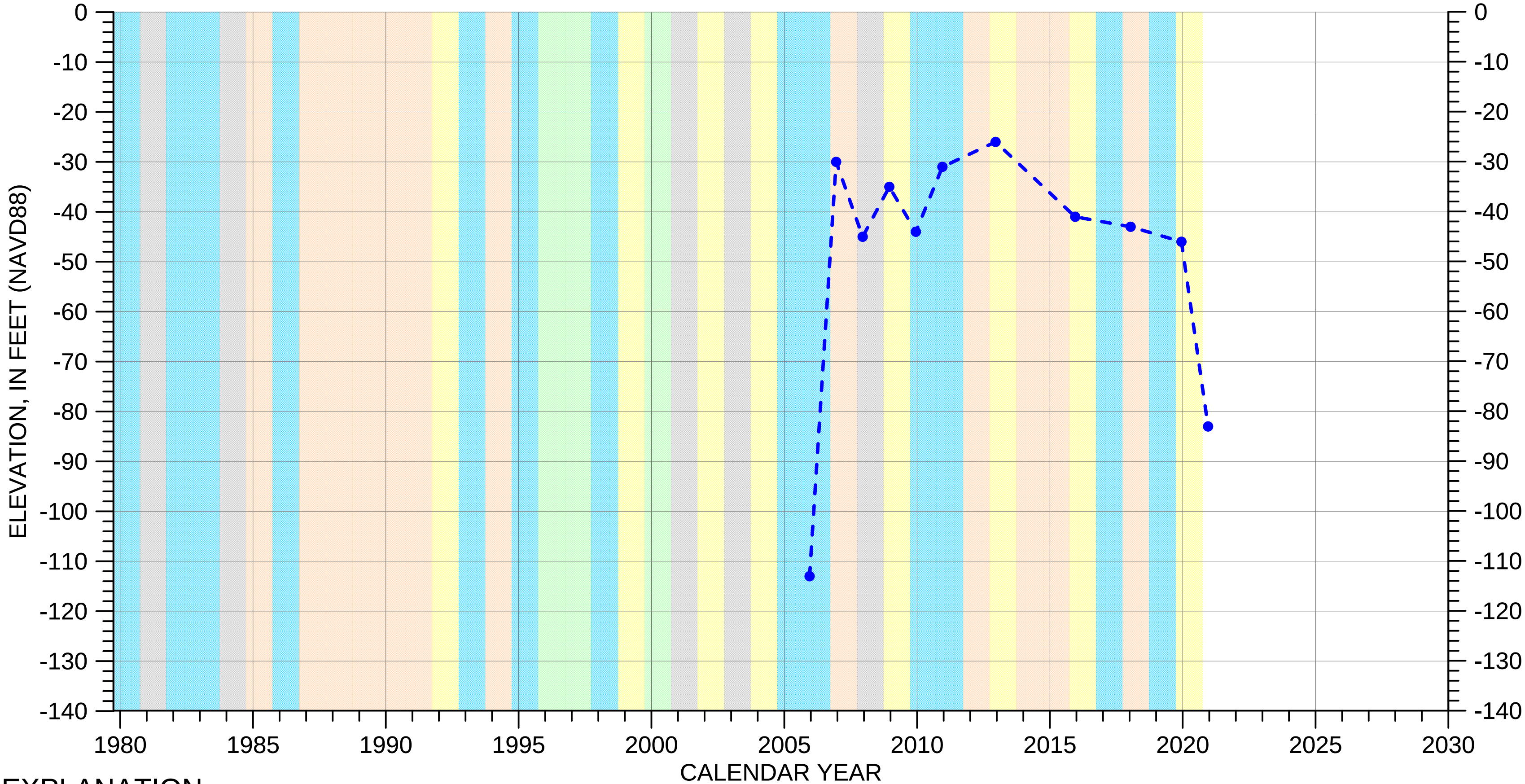
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-08Q03

Eastside Aquifer Subbasin

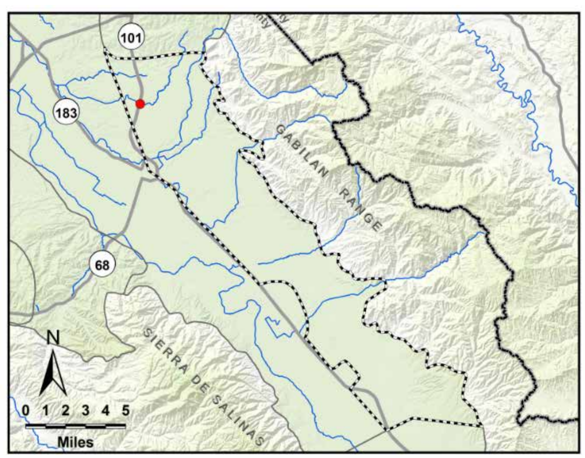


EXPLANATION

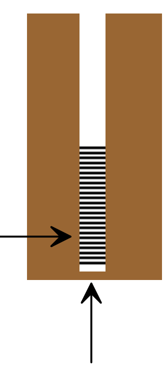
- Groundwater Elevation
- Suspect Measurement
- Land Surface (75 FT MSL)

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



Perforated from
-245 to -605 feel msl



Well bottom
-731 feet msl

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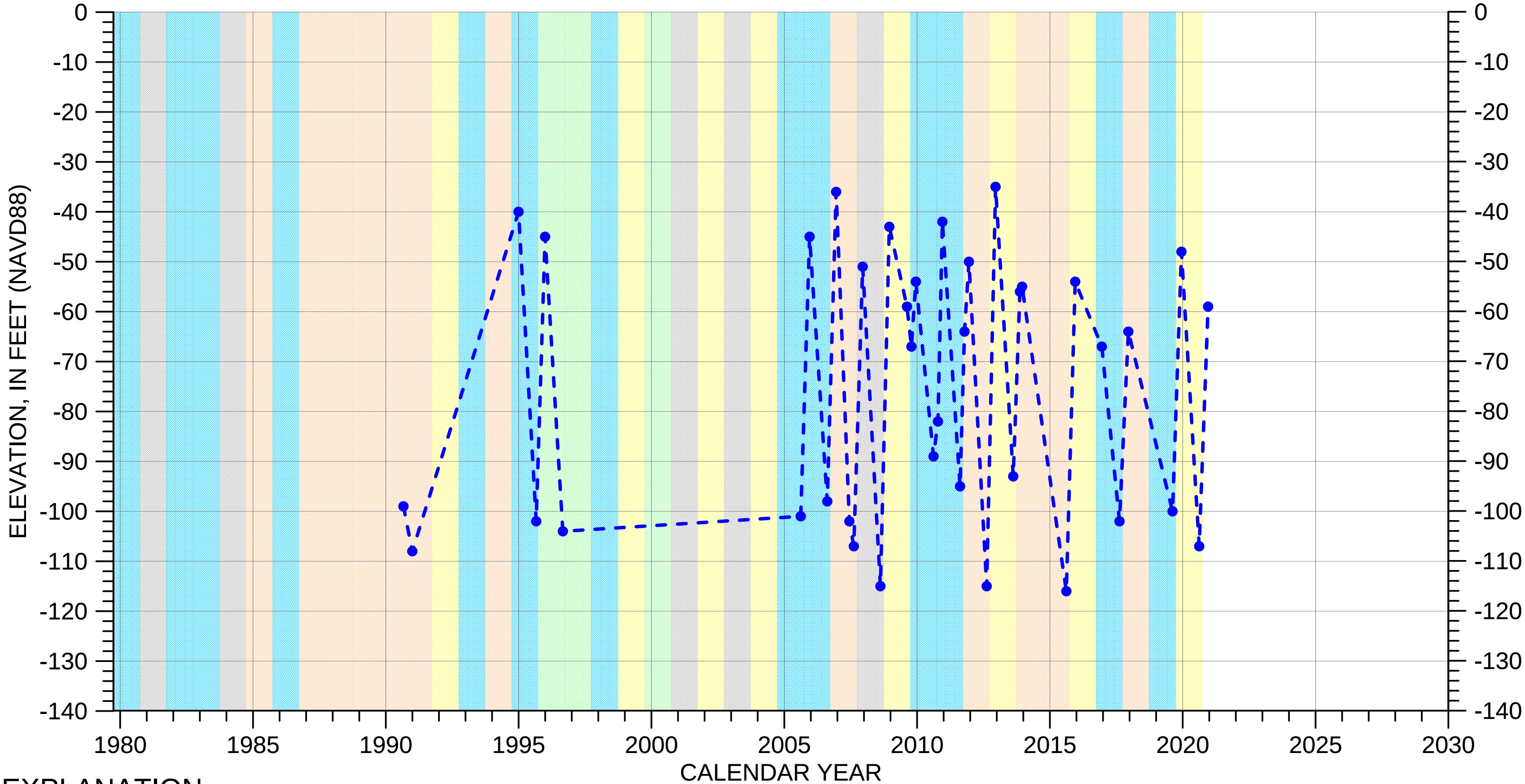
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-09E02

Eastside Aquifer Subbasin

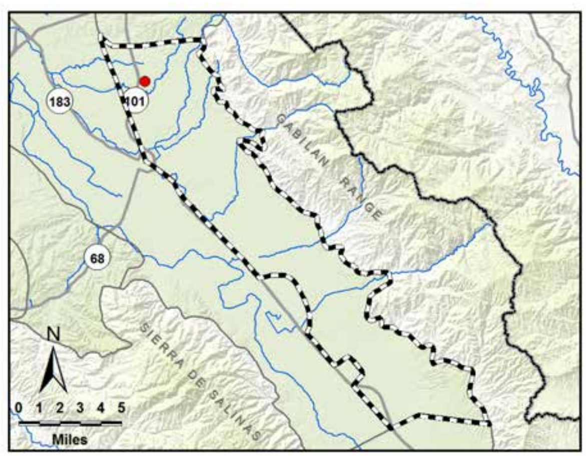


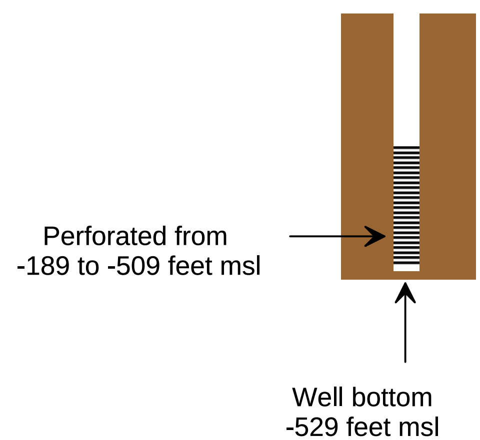
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (121 FT MSL)

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

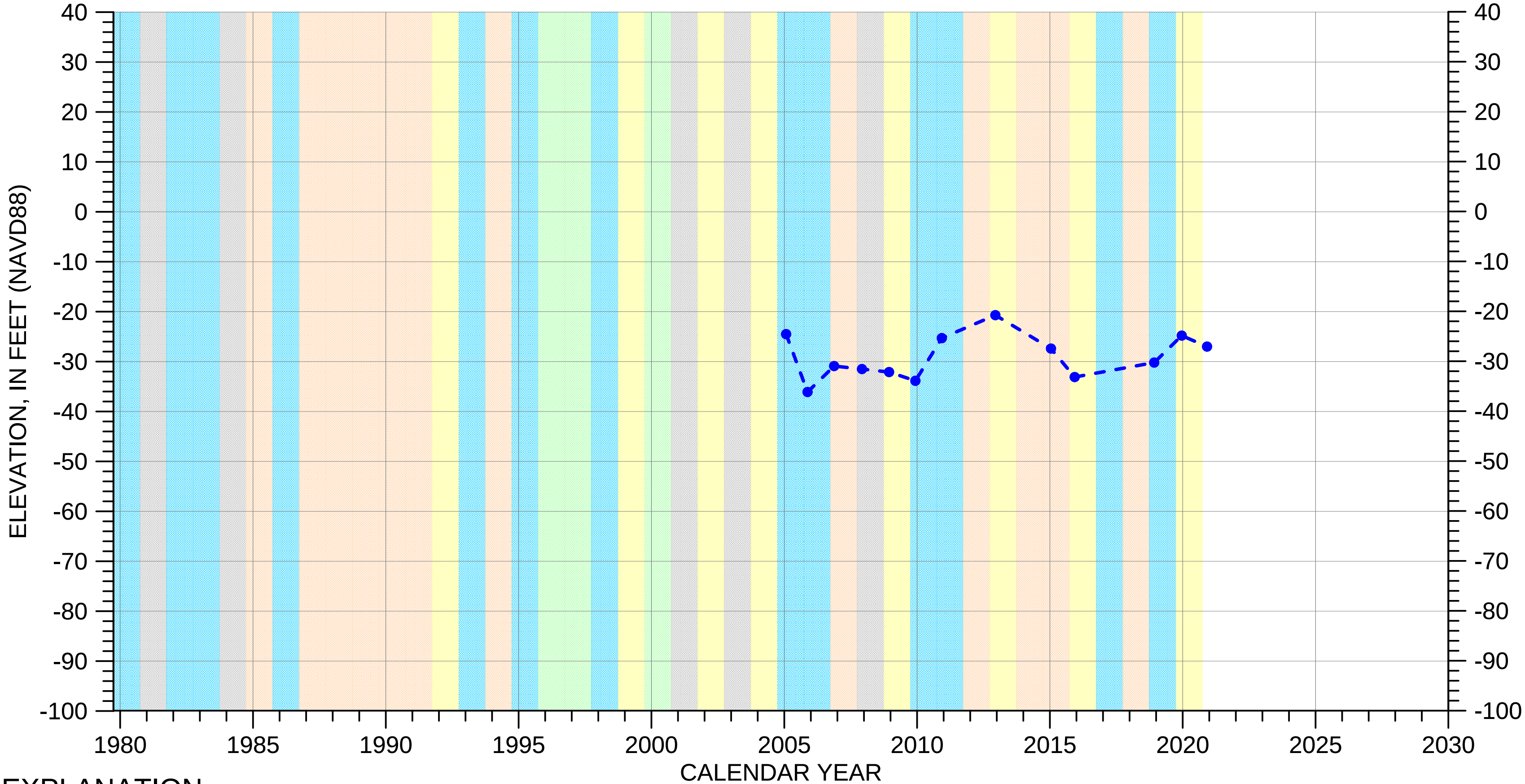




Plot22 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-09P02

Eastside Aquifer Subbasin

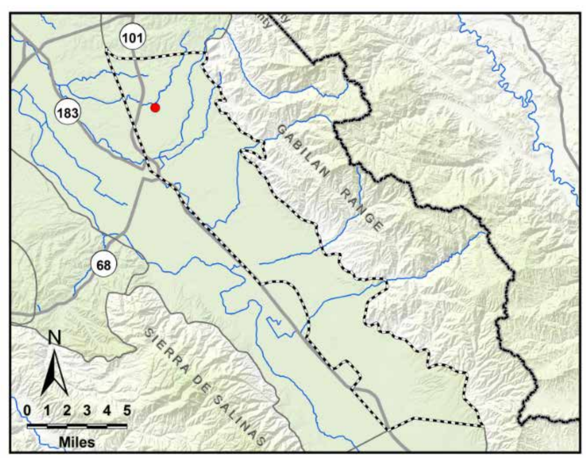


Perforated interval unknown

Well bottom -640.5 feet msl

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (115 FT MSL)



WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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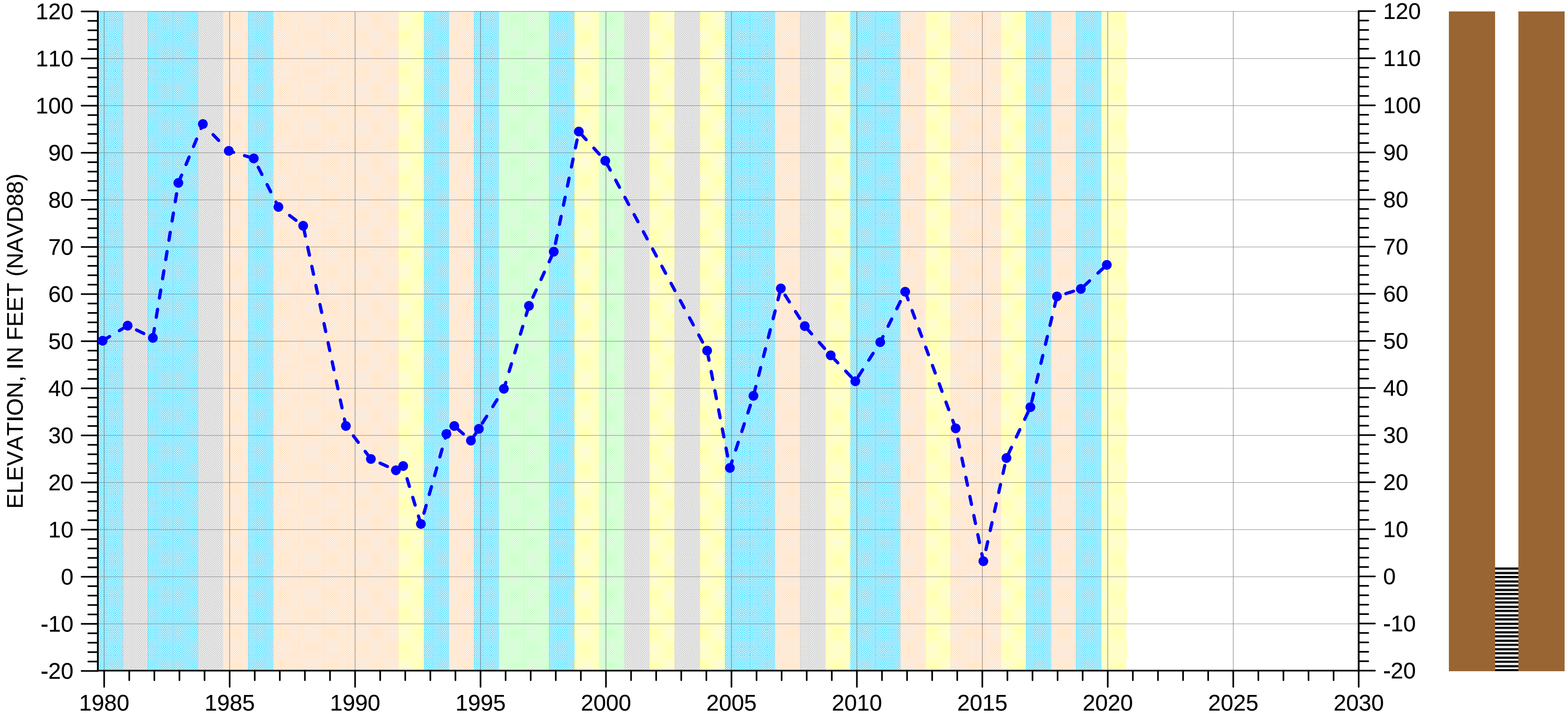
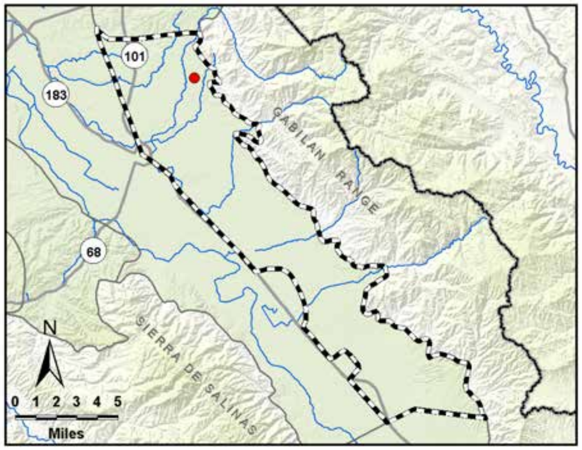
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-11H01

Eastside Aquifer Subbasin



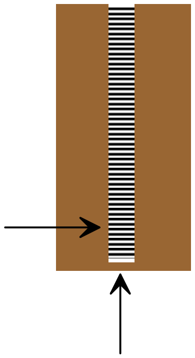
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (142 FT MSL)



WATER YEAR TYPE DESIGNATION

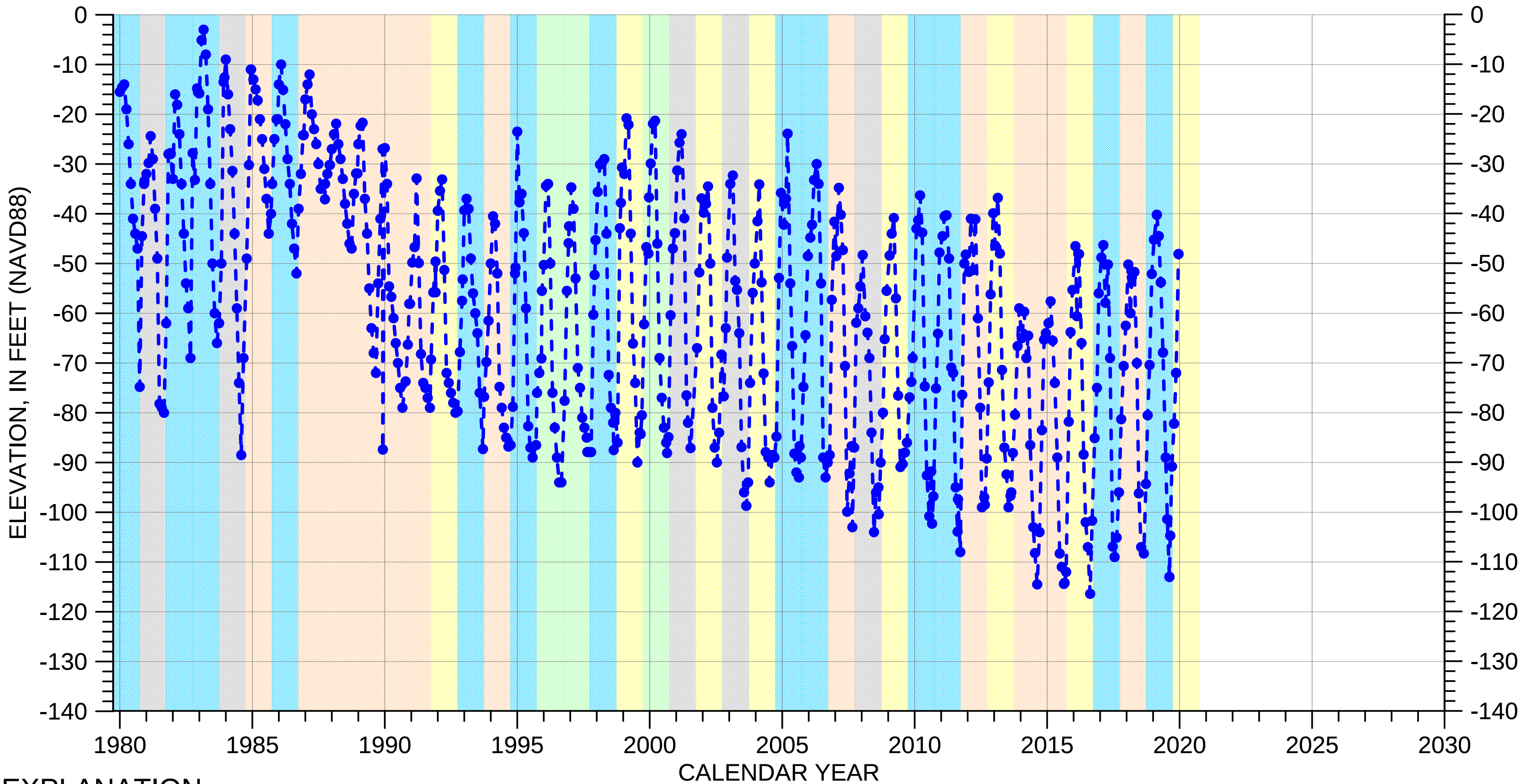
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



Plot23 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-15H03

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (126 FT MSL)

WATER YEAR TYPE DESIGNATION

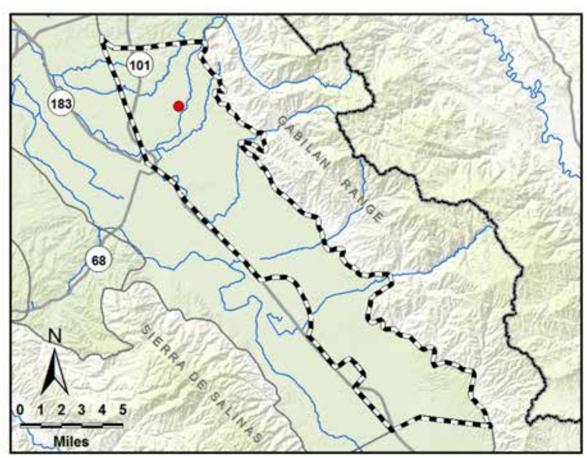
DRY

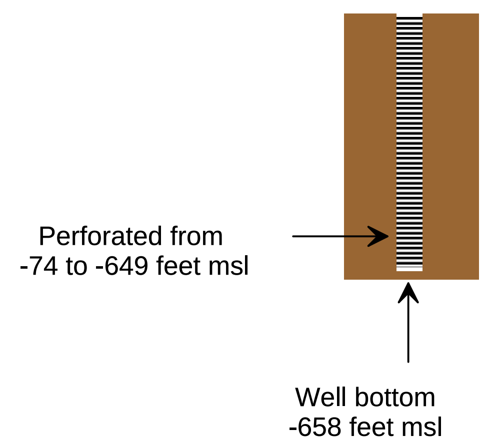
DRY - NORMAL

NORMAL

WET - NORMAL

WET

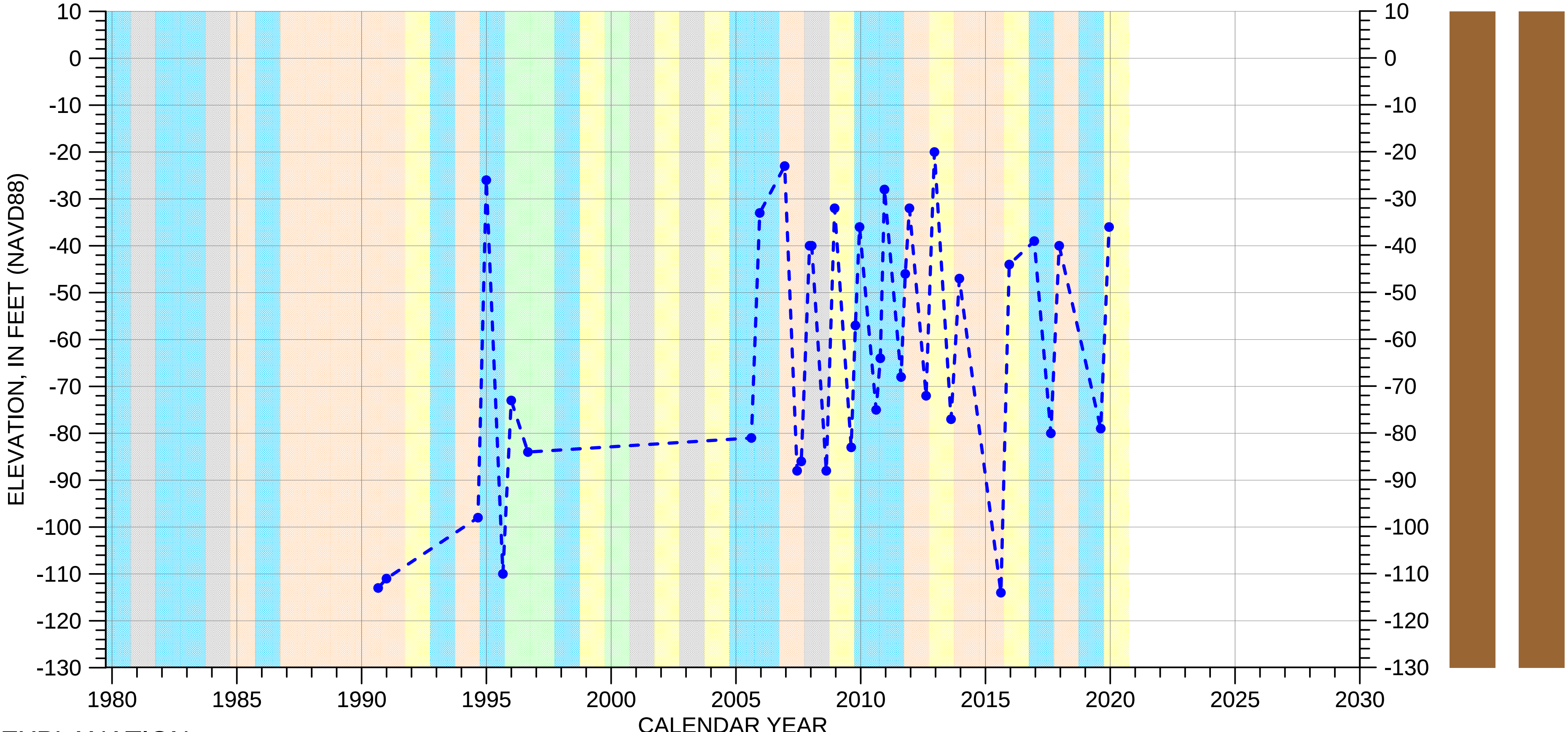




Plot24 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-17F01

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

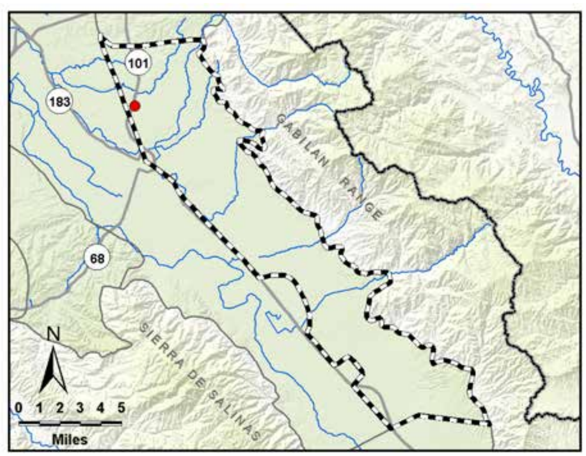
Land Surface (92 FT MSL)

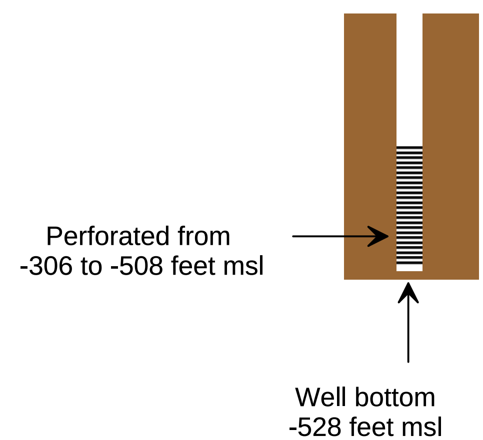
WATER YEAR TYPE DESIGNATION

DRY | WET - NORMAL

DRY - NORMAL | WET

NORMAL

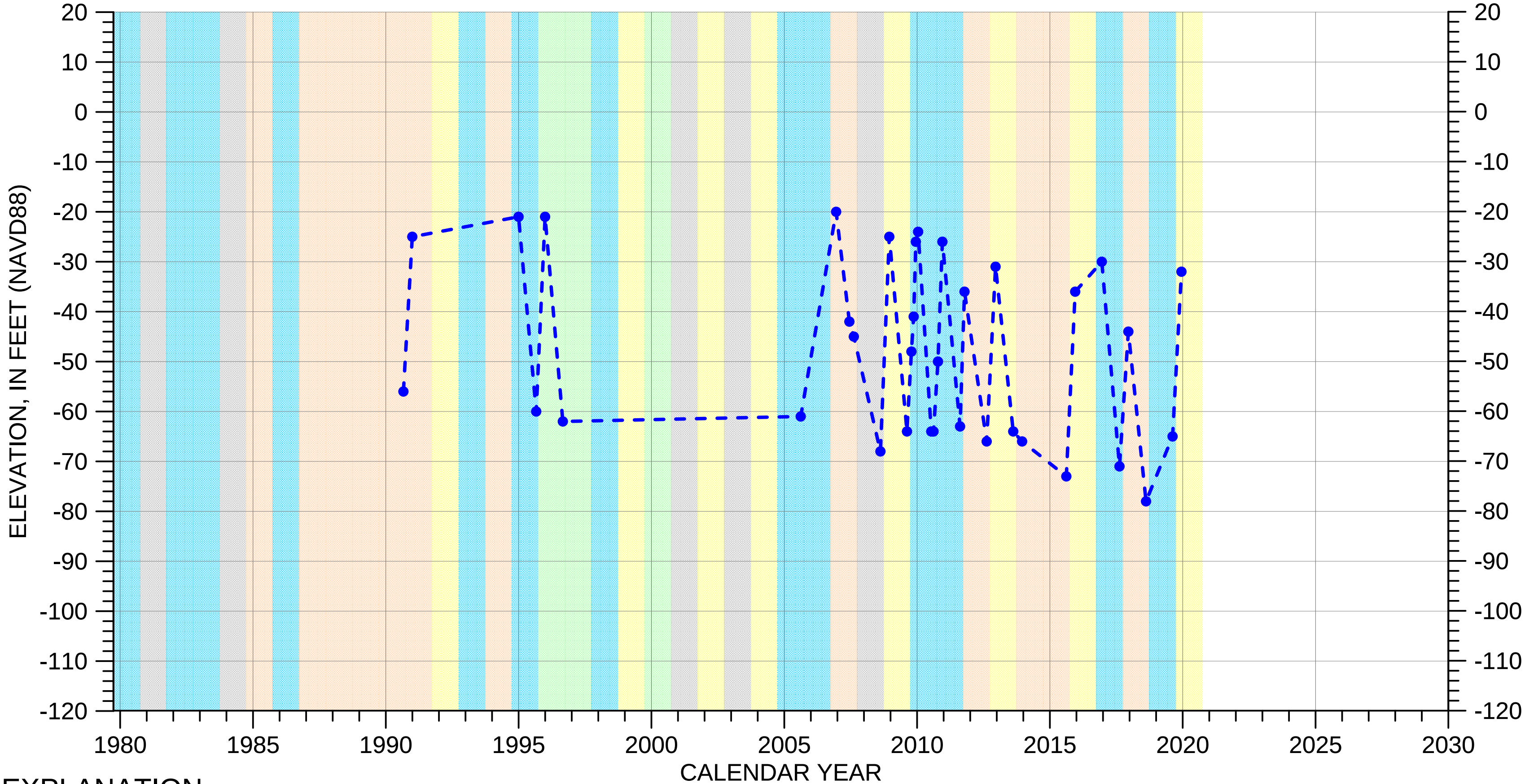




Plot25 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-21L01

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (80 FT MSL)

WATER YEAR TYPE DESIGNATION

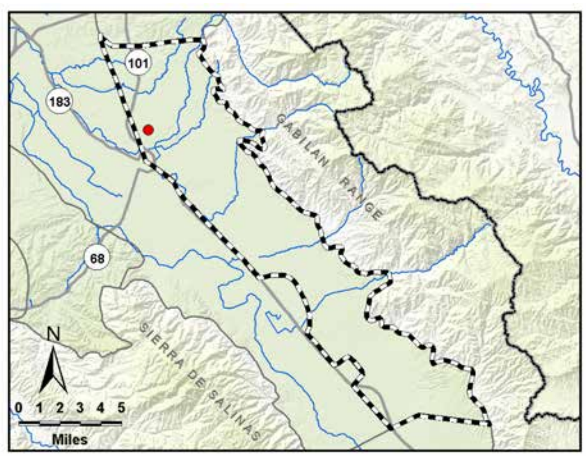
DRY

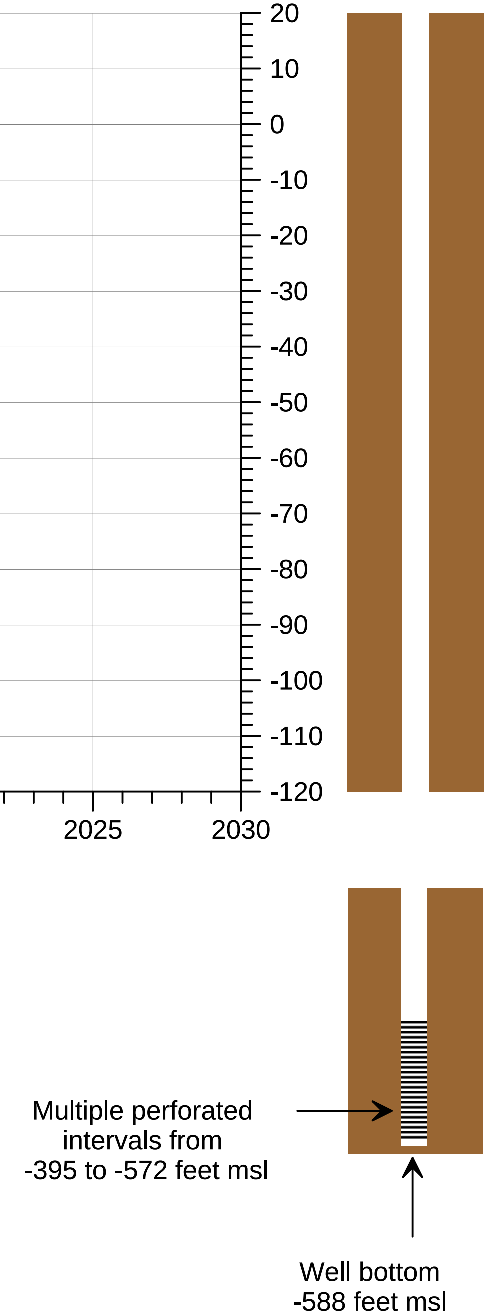
DRY - NORMAL

NORMAL

WET - NORMAL

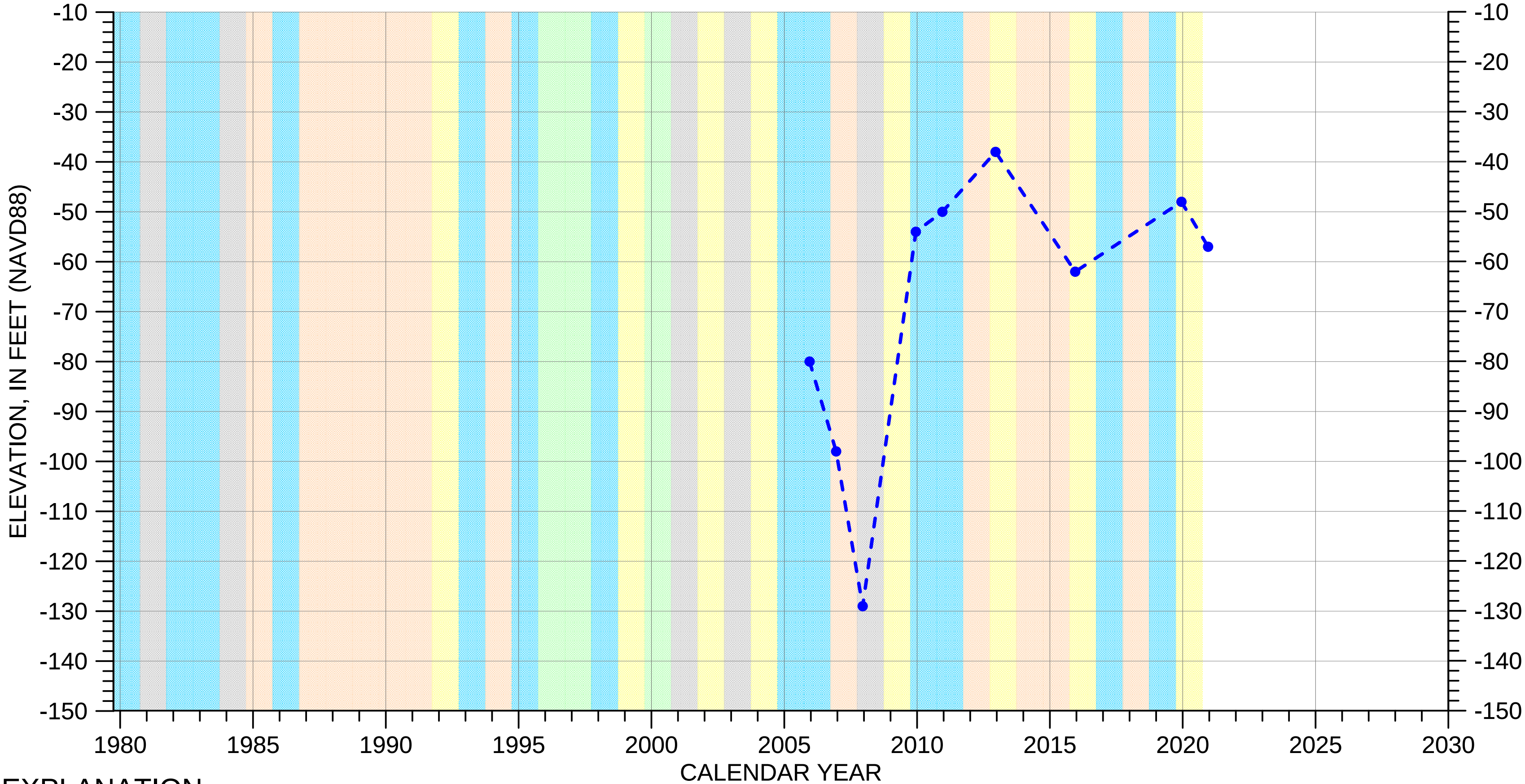
WET





Plot26 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-22D01 Eastside Aquifer Subbasin

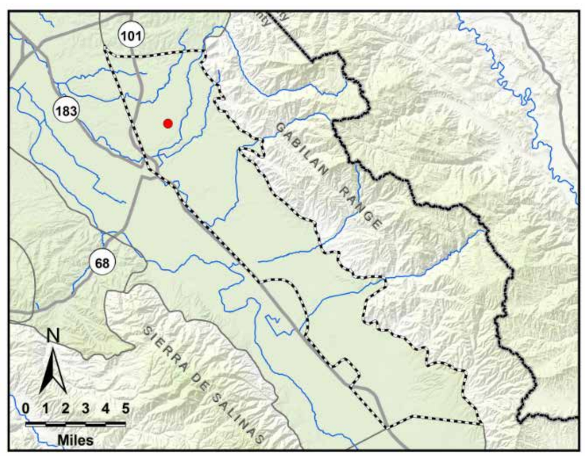


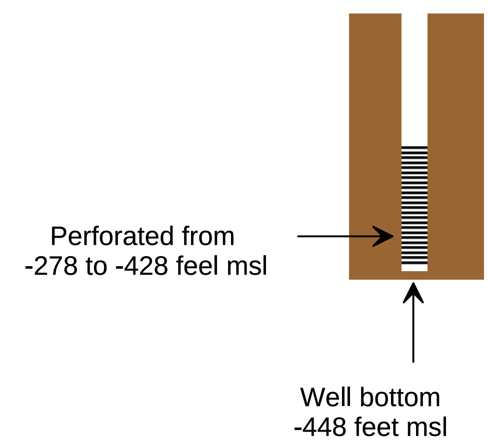
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (102 FT MSL)

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET





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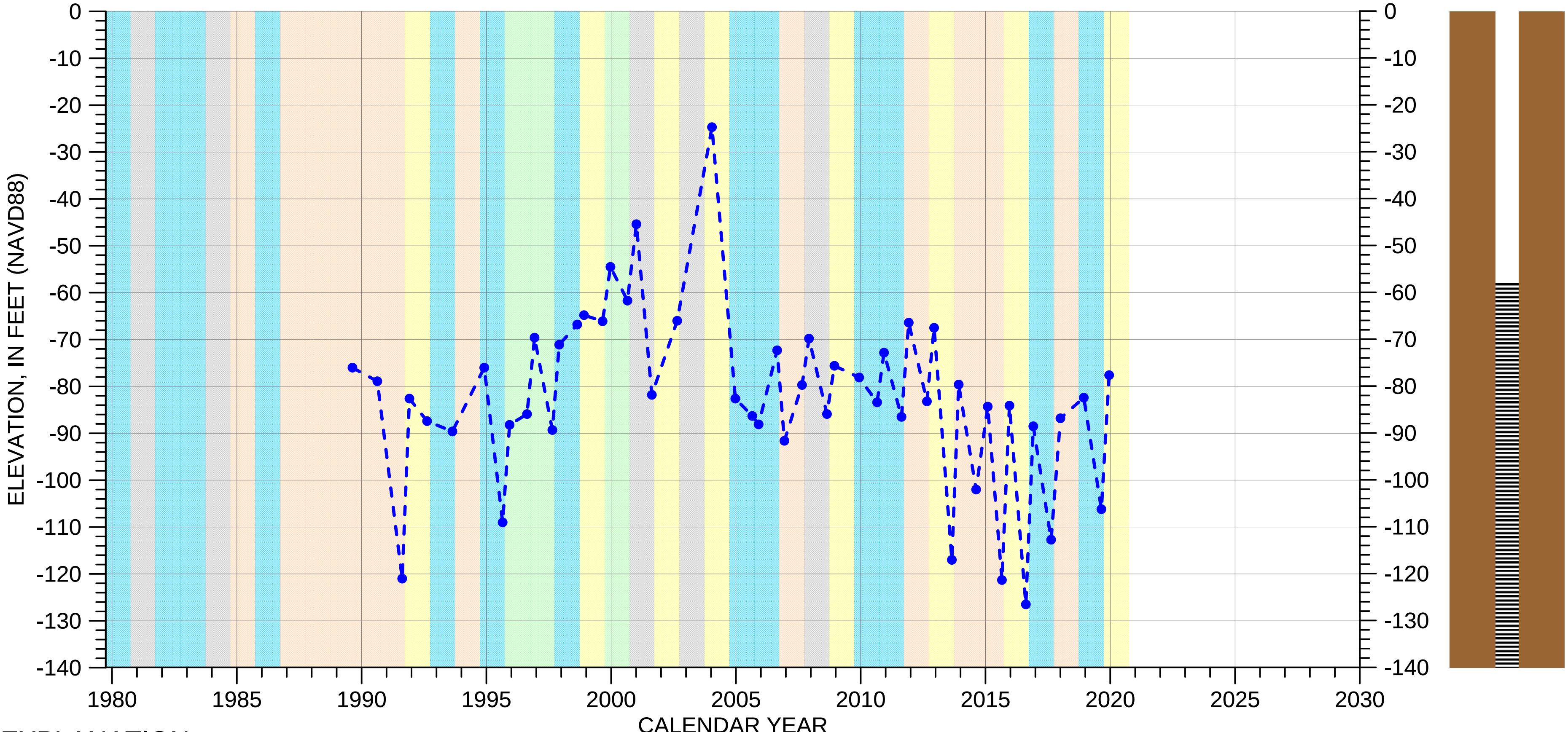
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-24H01

Eastside Aquifer Subbasin

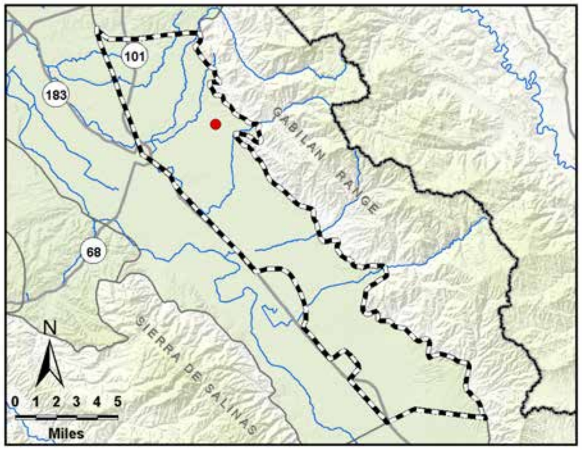


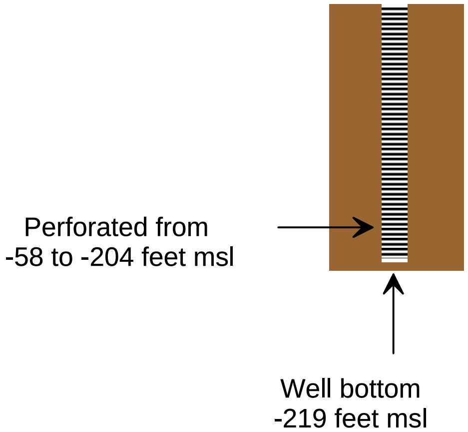
EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (156 FT MSL)





WATER YEAR TYPE DESIGNATION

DRY

DRY - NORMAL

NORMAL

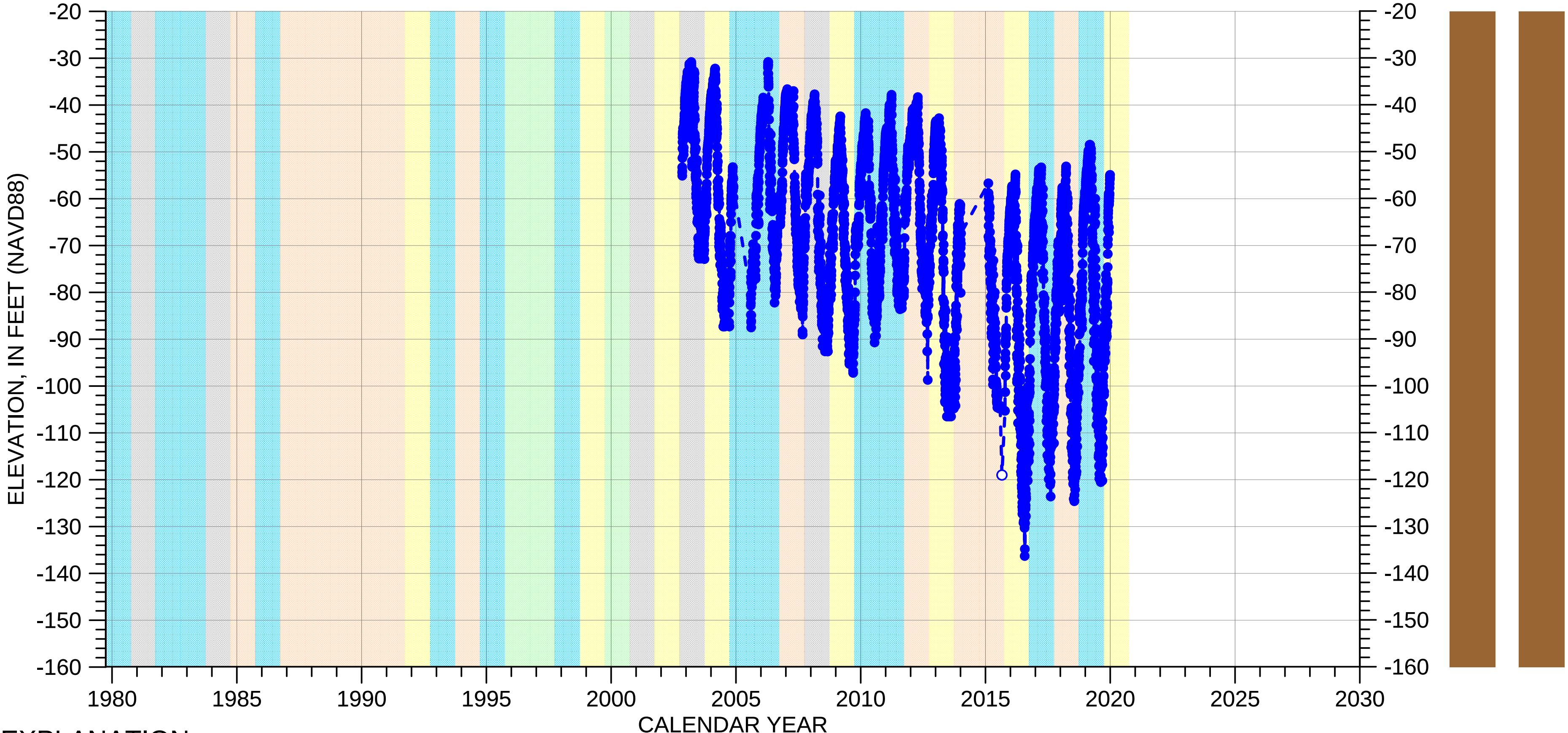
WET - NORMAL

WET

Plot27 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-25C01

Eastside Aquifer Subbasin

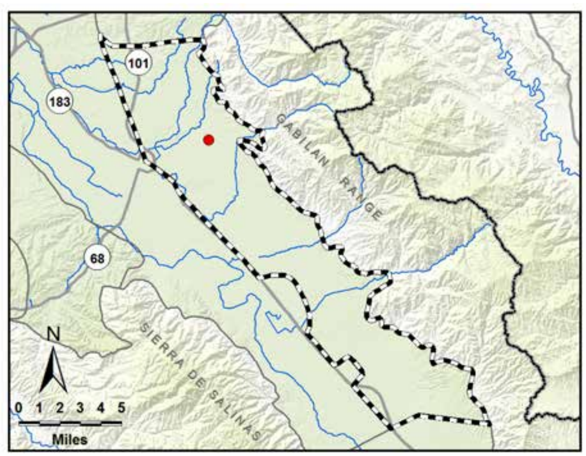


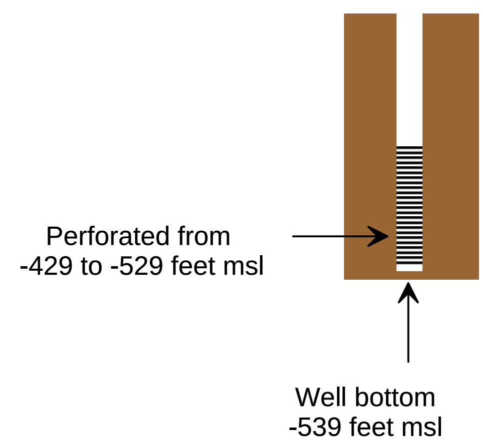
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (141 FT MSL)

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

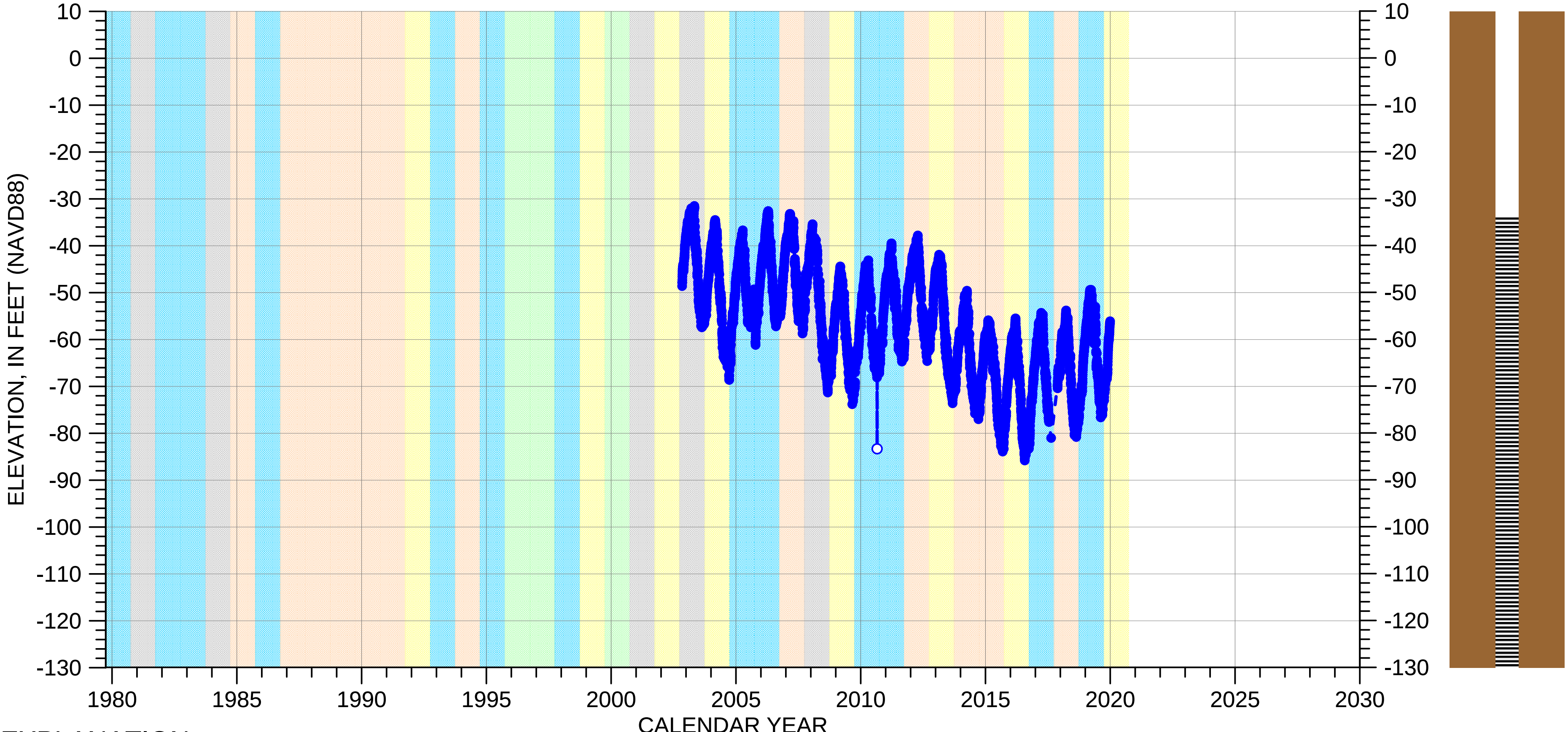




Plot28 *

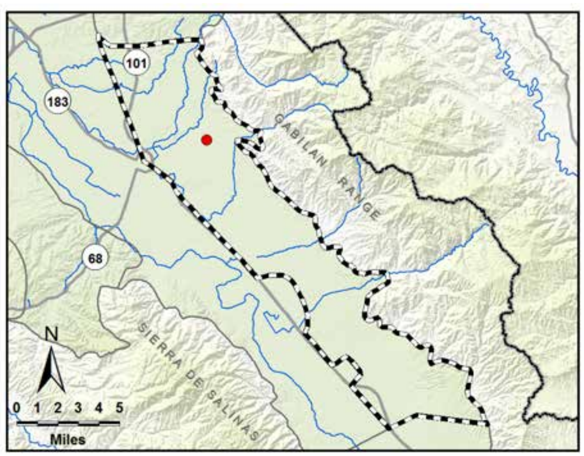
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-25C02

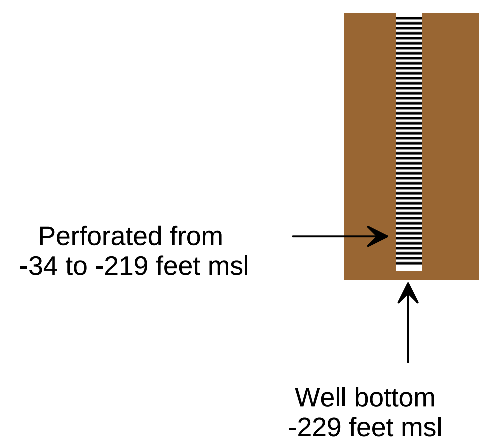
Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (141 FT MSL)





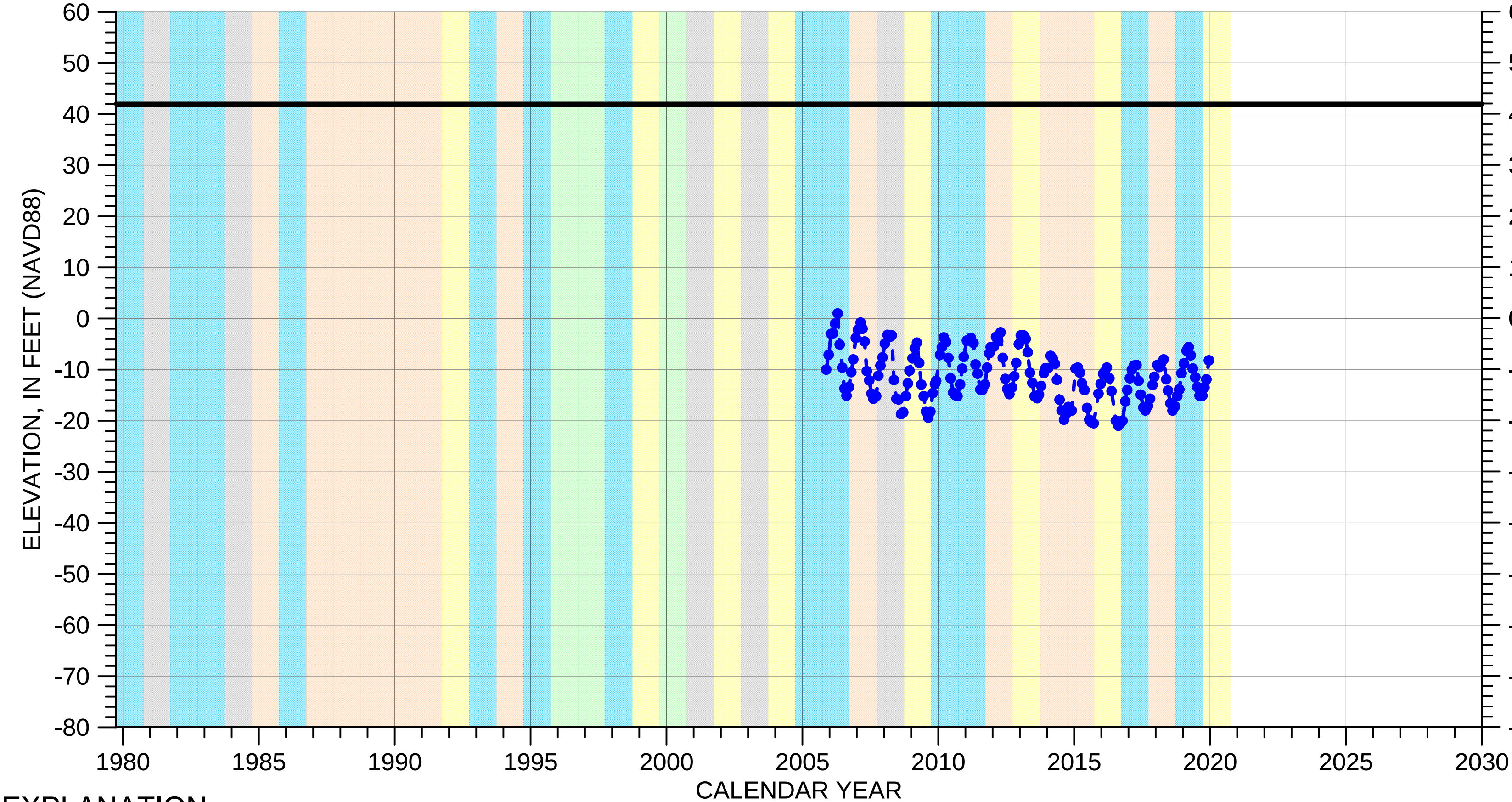
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot29 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-27B01

Eastside Aquifer Subbasin

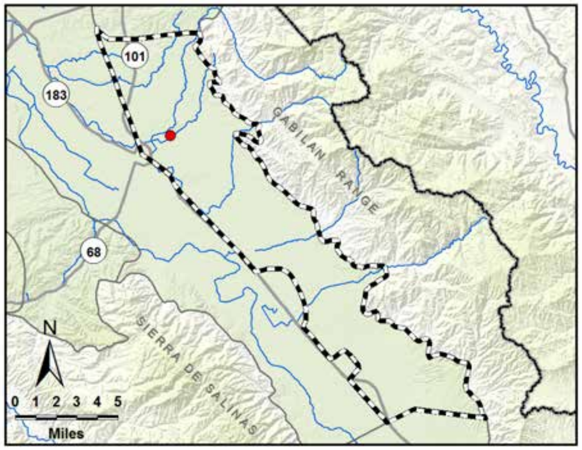


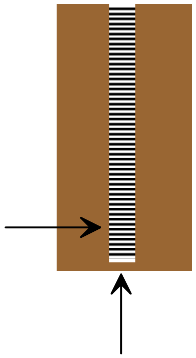
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

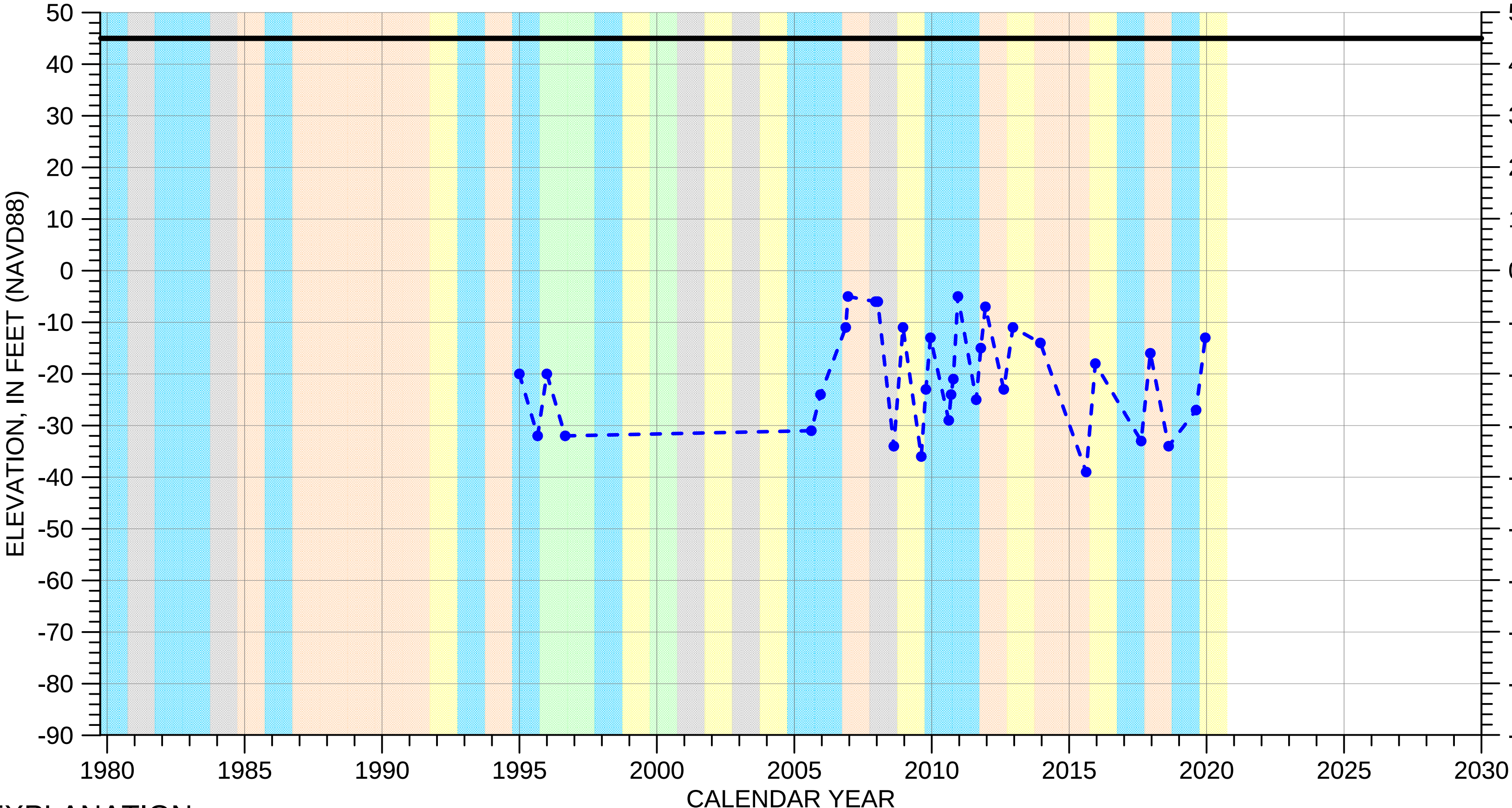




Plot30 *

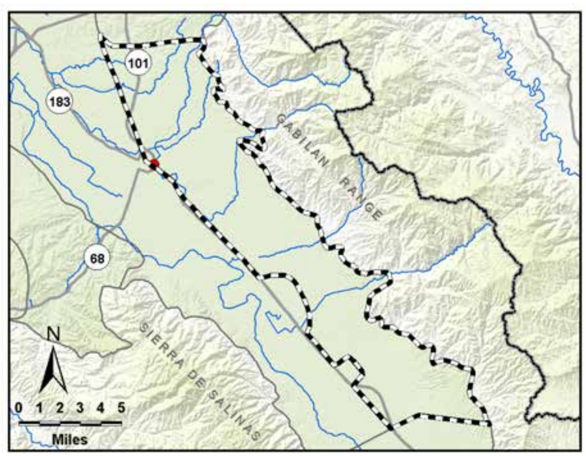
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-33G01

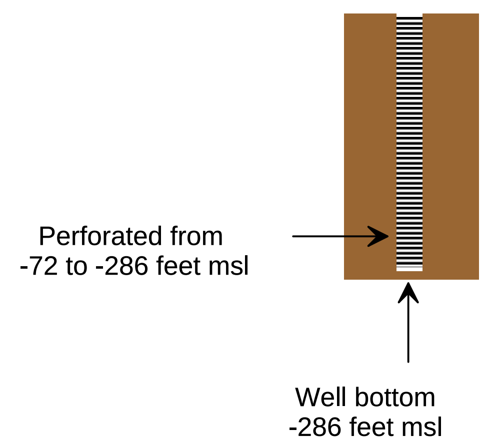
Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface





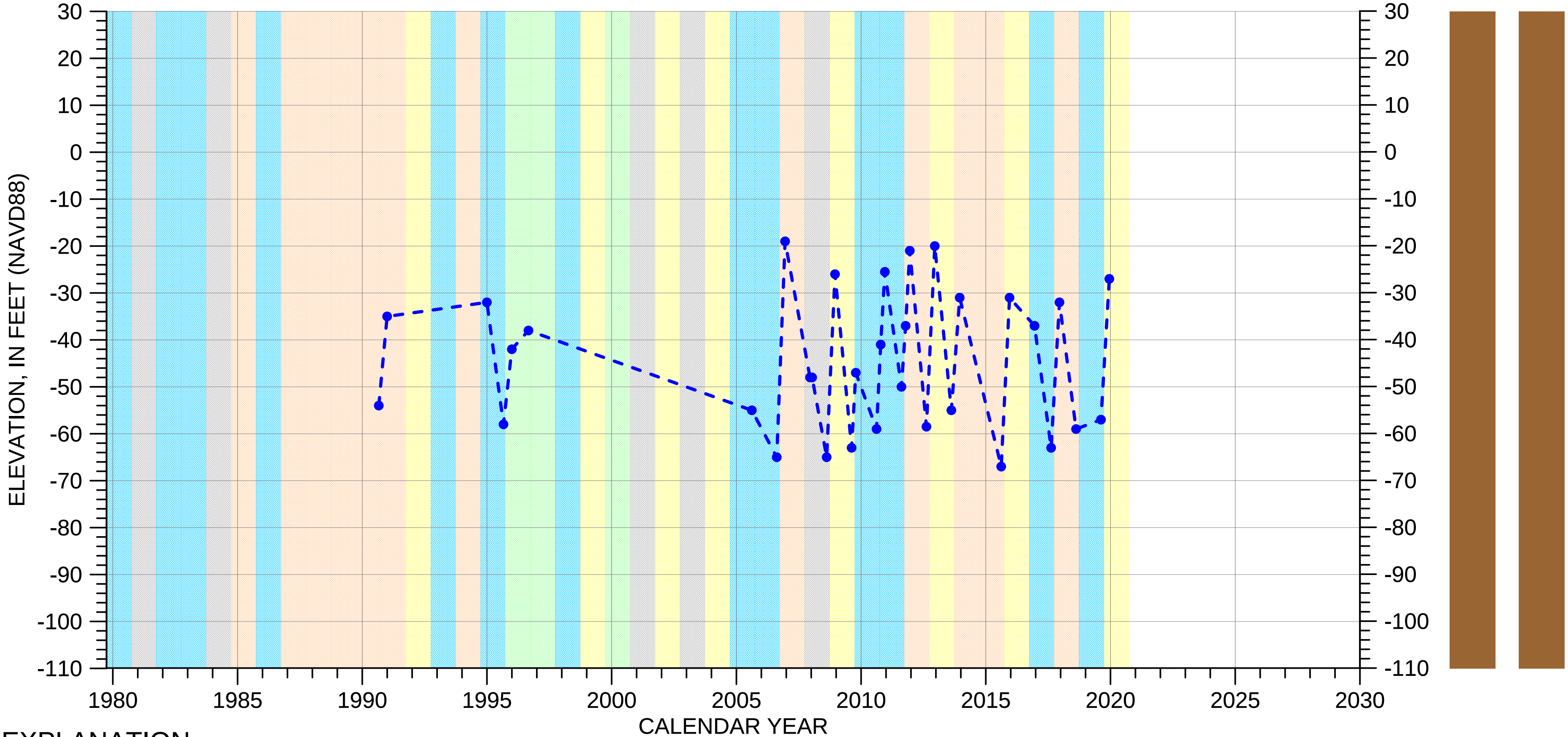
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot31 *

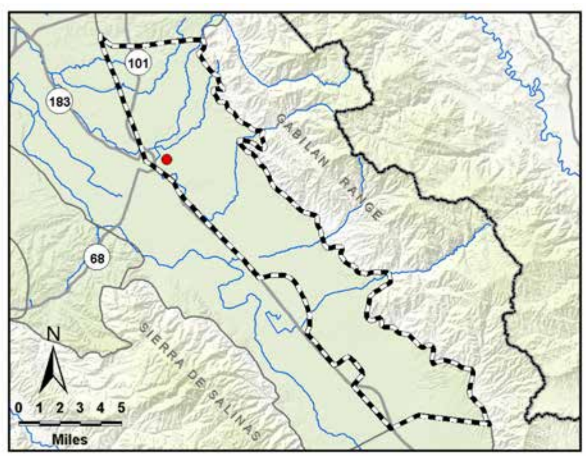
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-34C01

Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (67 FT MSL)



Perforated from
-238 to -493 feet msl

Well bottom
-513 feet msl

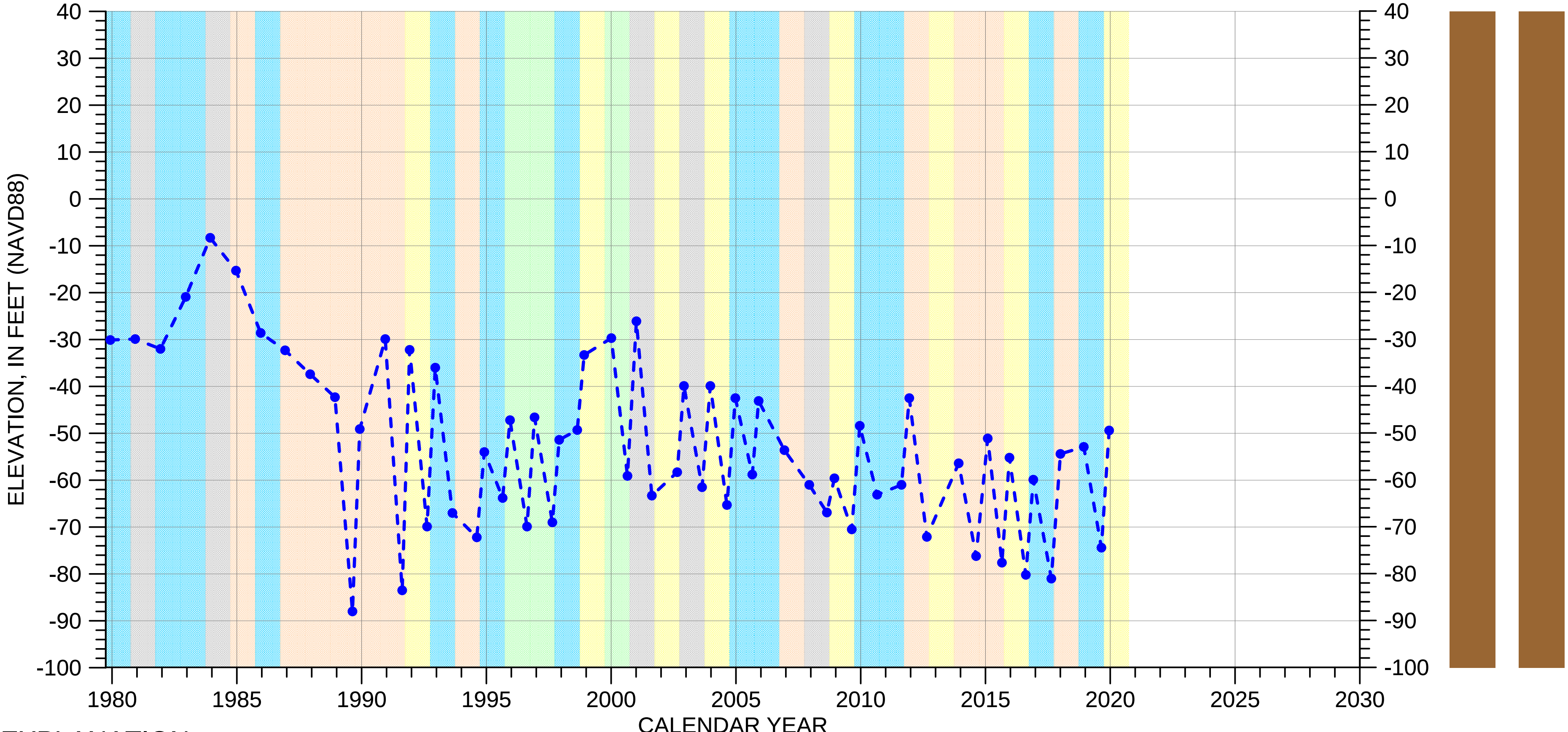
WATER YEAR TYPE DESIGNATION

DRY	WET - NORMAL
DRY - NORMAL	WET
NORMAL	

Plot32 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-36A01

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (140 FT MSL)

WATER YEAR TYPE DESIGNATION

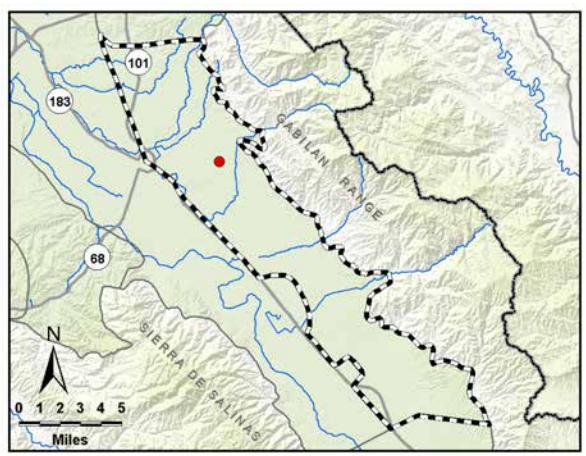
DRY

DRY - NORMAL

NORMAL

WET - NORMAL

WET



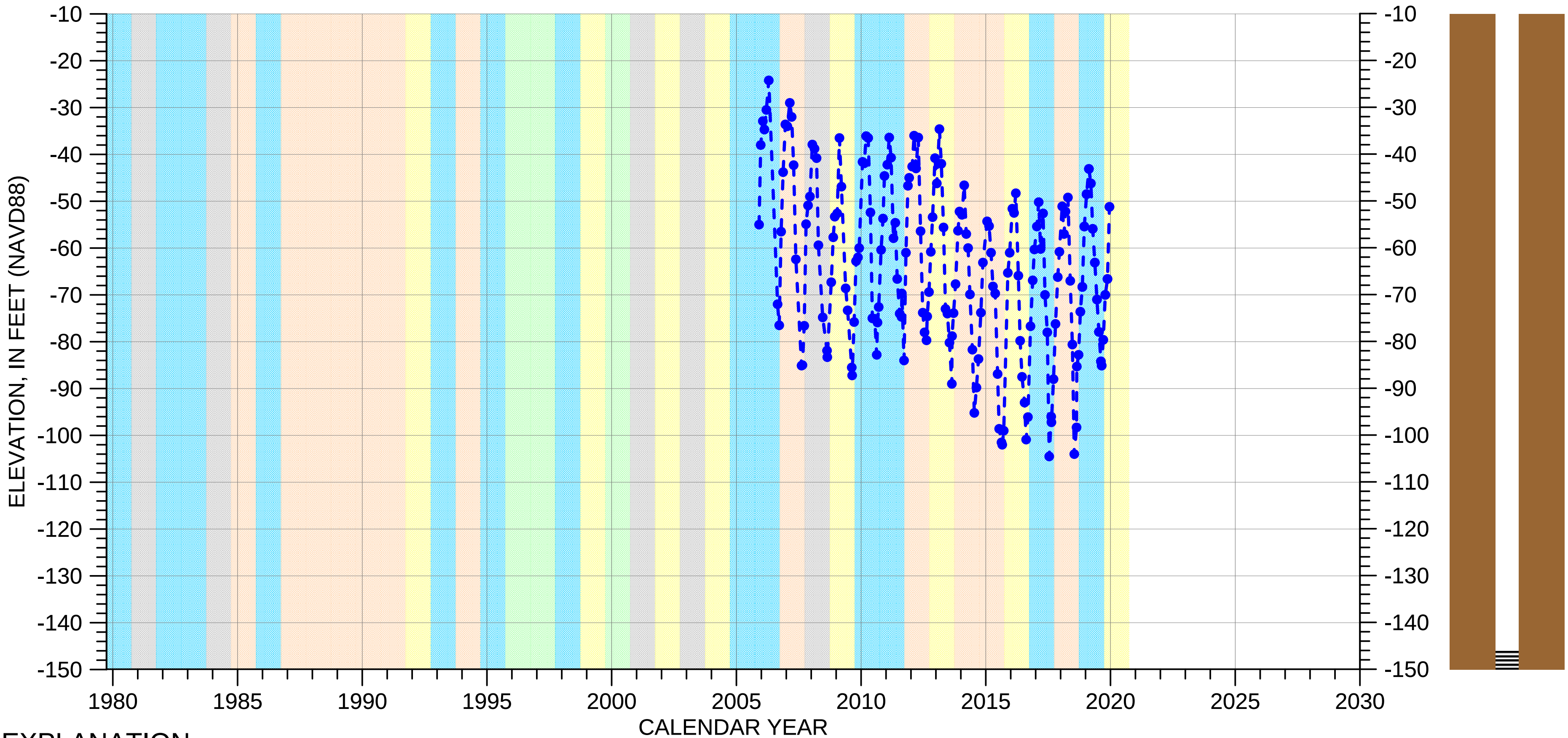
Perforated interval unknown

Well bottom -350 feet msl

Plot33 *

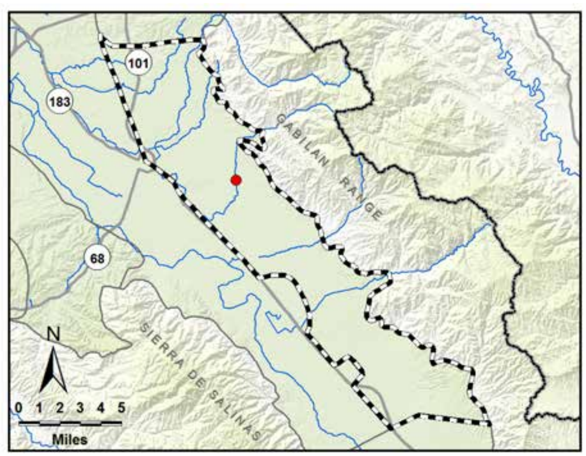
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/04E-31Q02

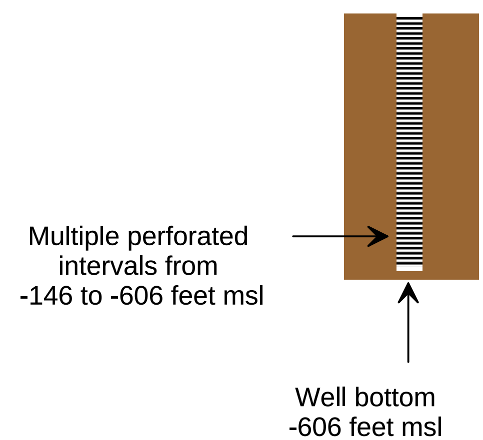
Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (104 FT MSL)





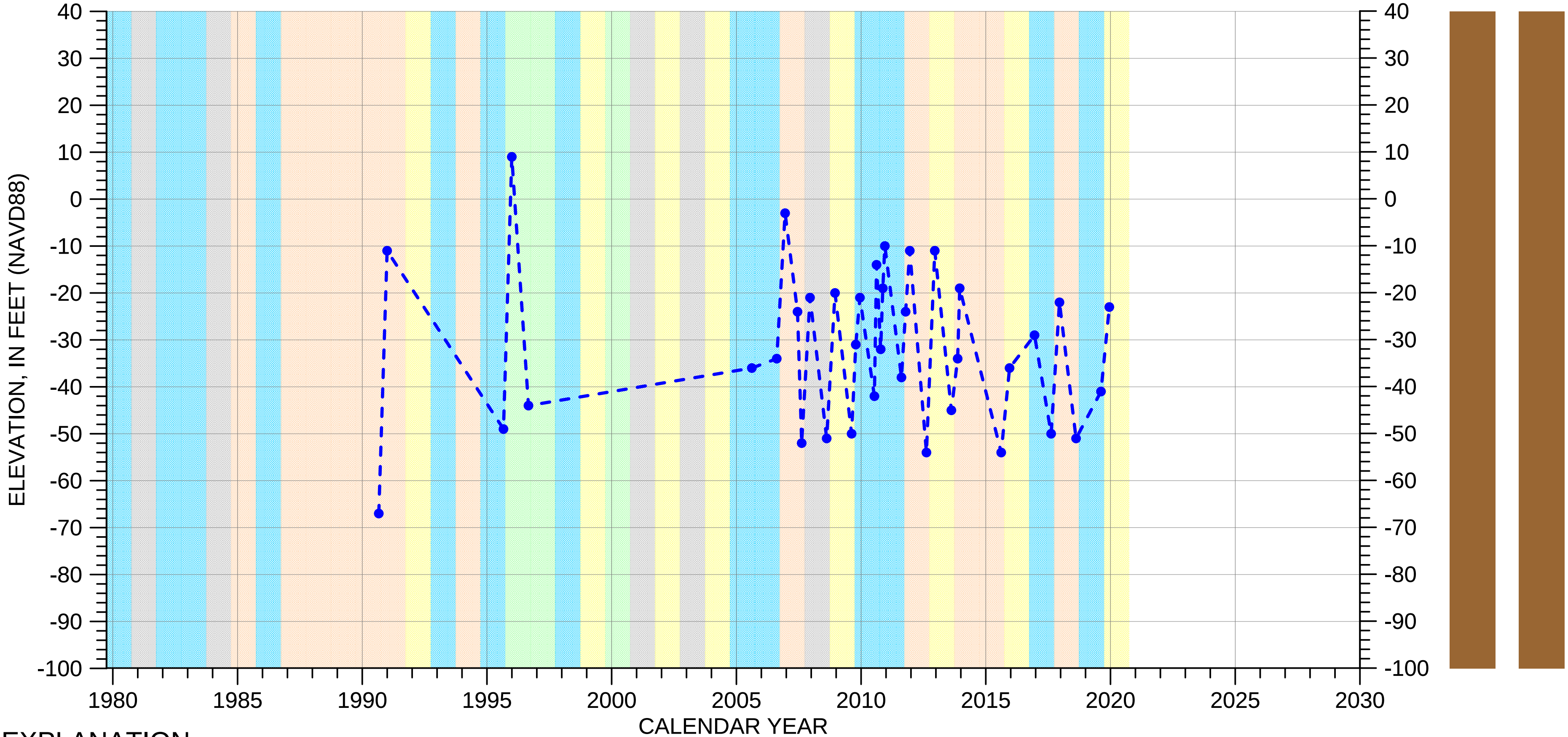
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot34 *

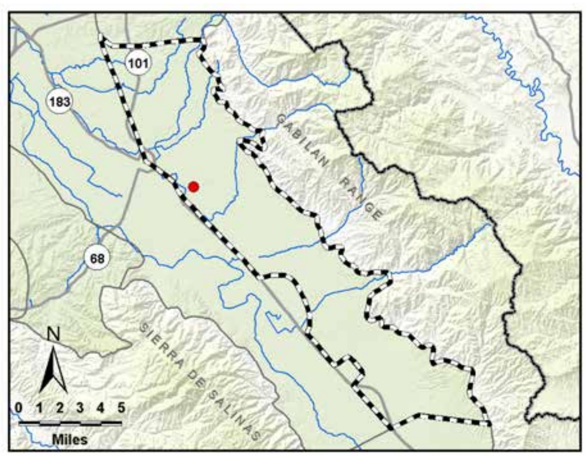
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-02G01

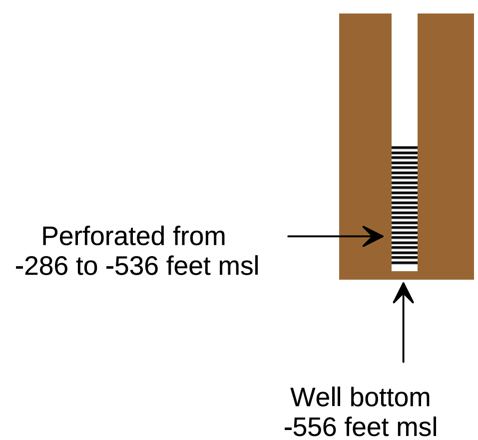
Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (74 FT MSL)





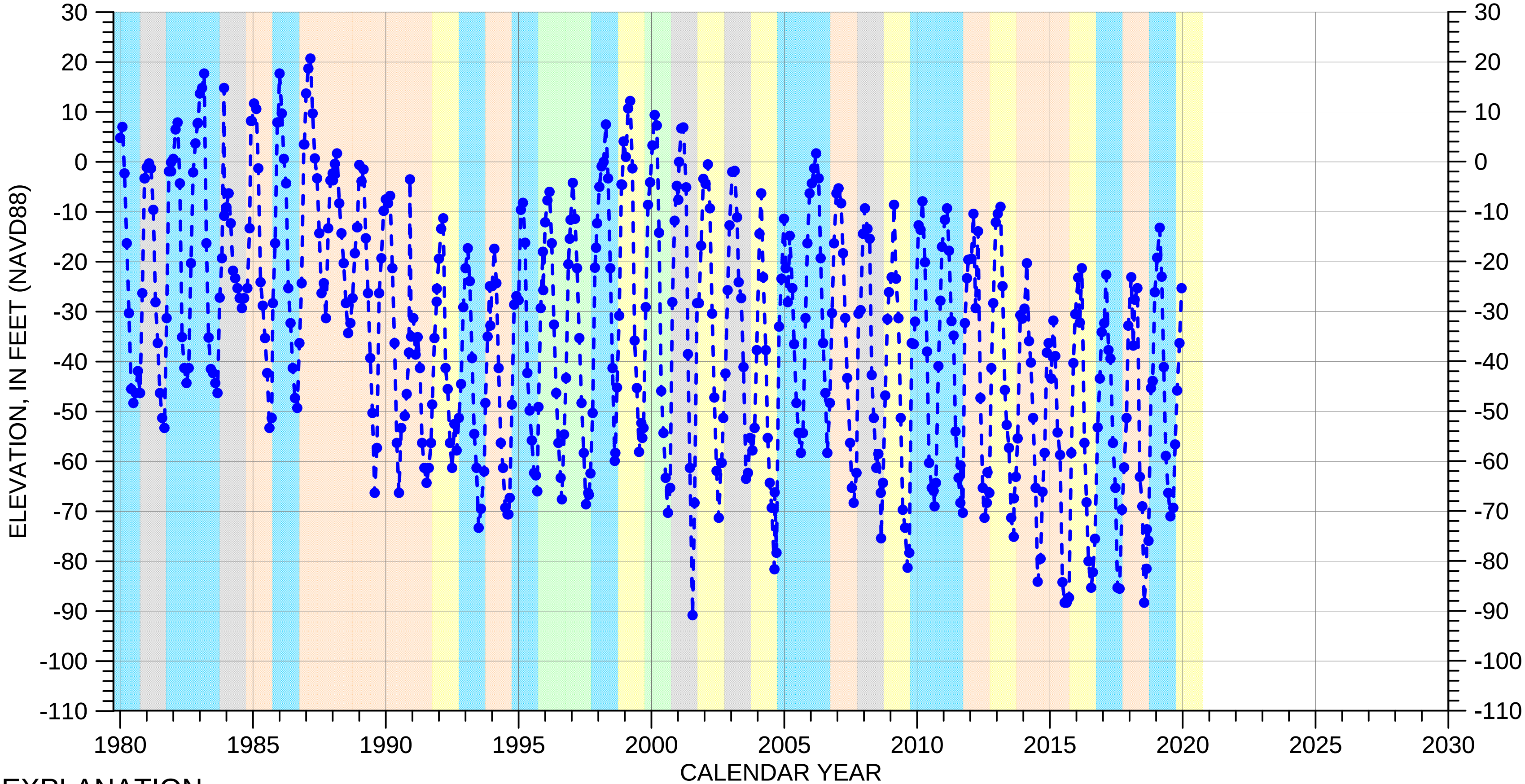
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot35 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-06R01

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (94 FT MSL)

WATER YEAR TYPE DESIGNATION

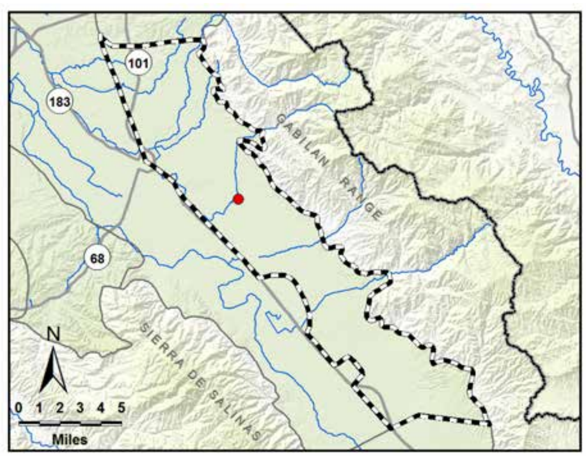
DRY

DRY - NORMAL

NORMAL

WET - NORMAL

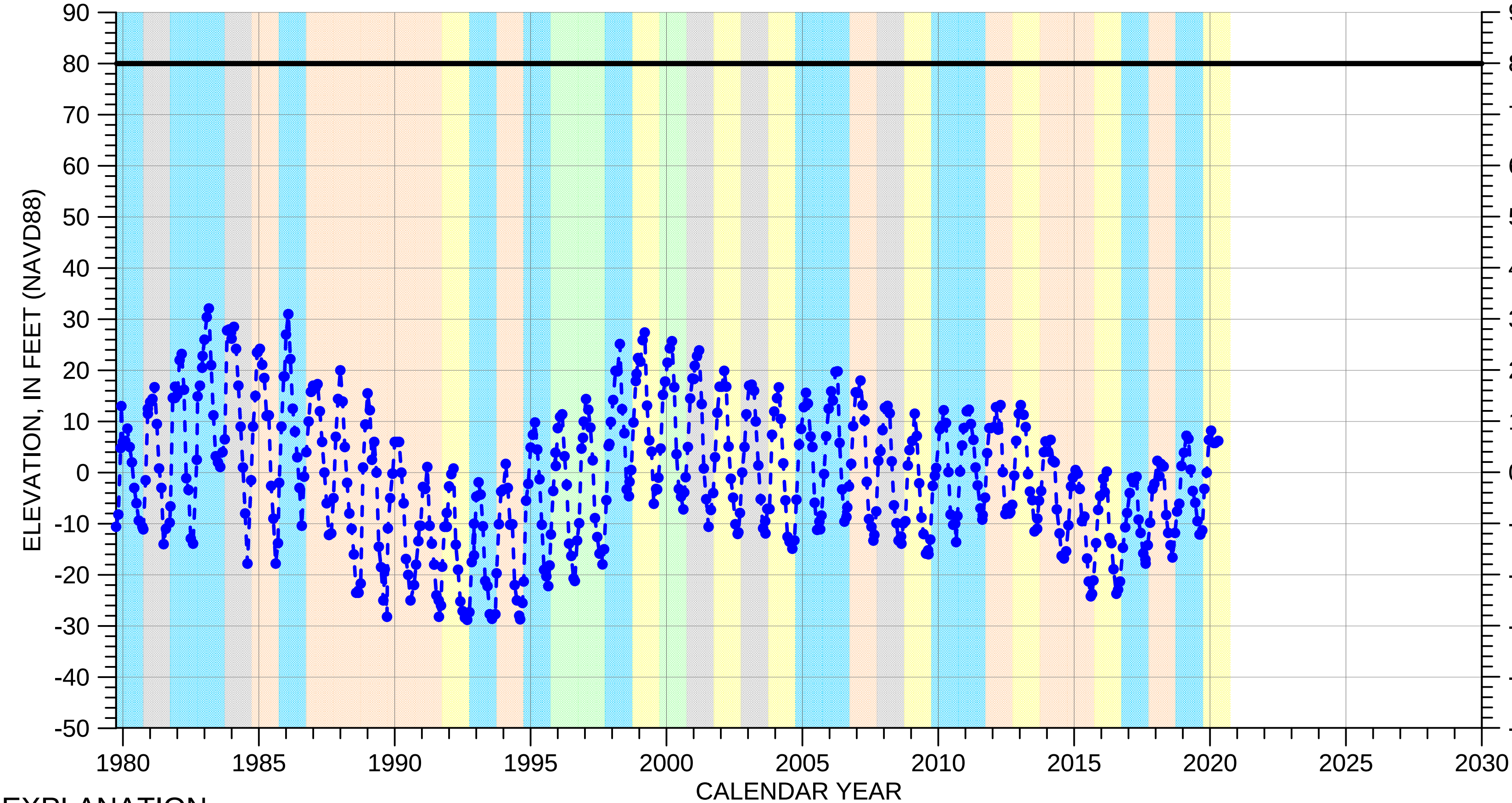
WET



Plot36 *

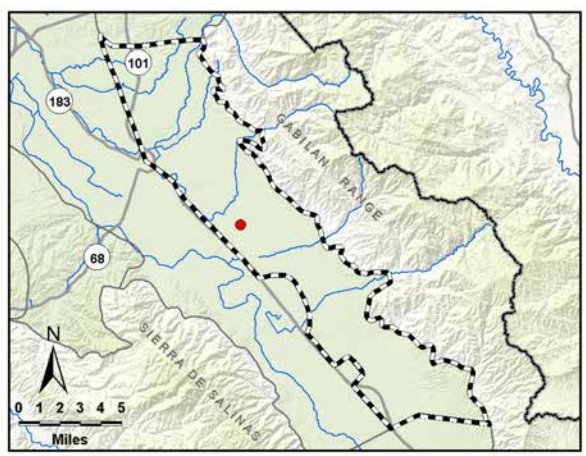
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-07R02

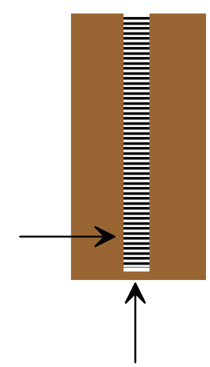
Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface





Multiple perforated intervals from -29 to -210 feet msl

Well bottom -224 feet msl

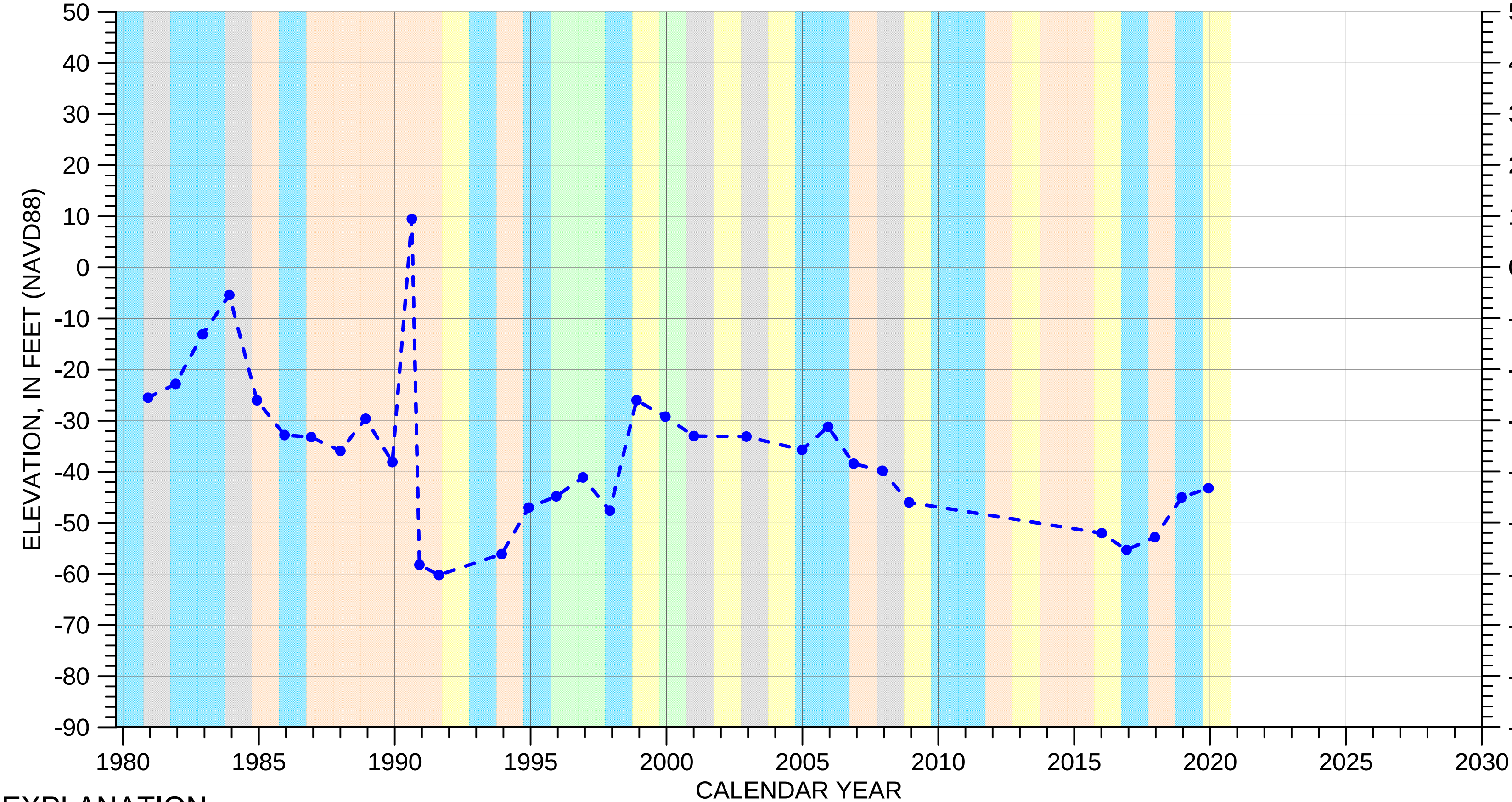
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot37 *

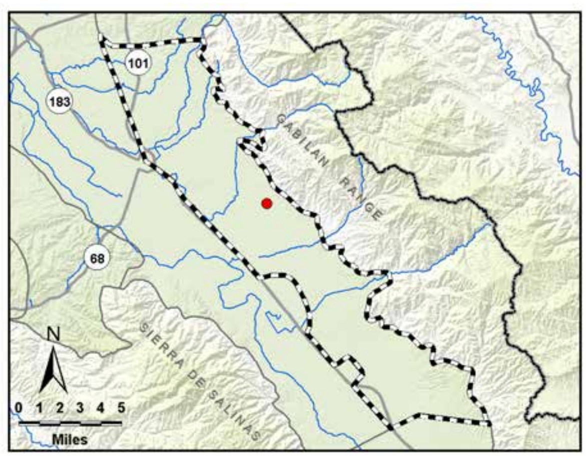
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-09D01

Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (127 FT MSL)



Perforated interval unknown

Well bottom
-334 feet msl

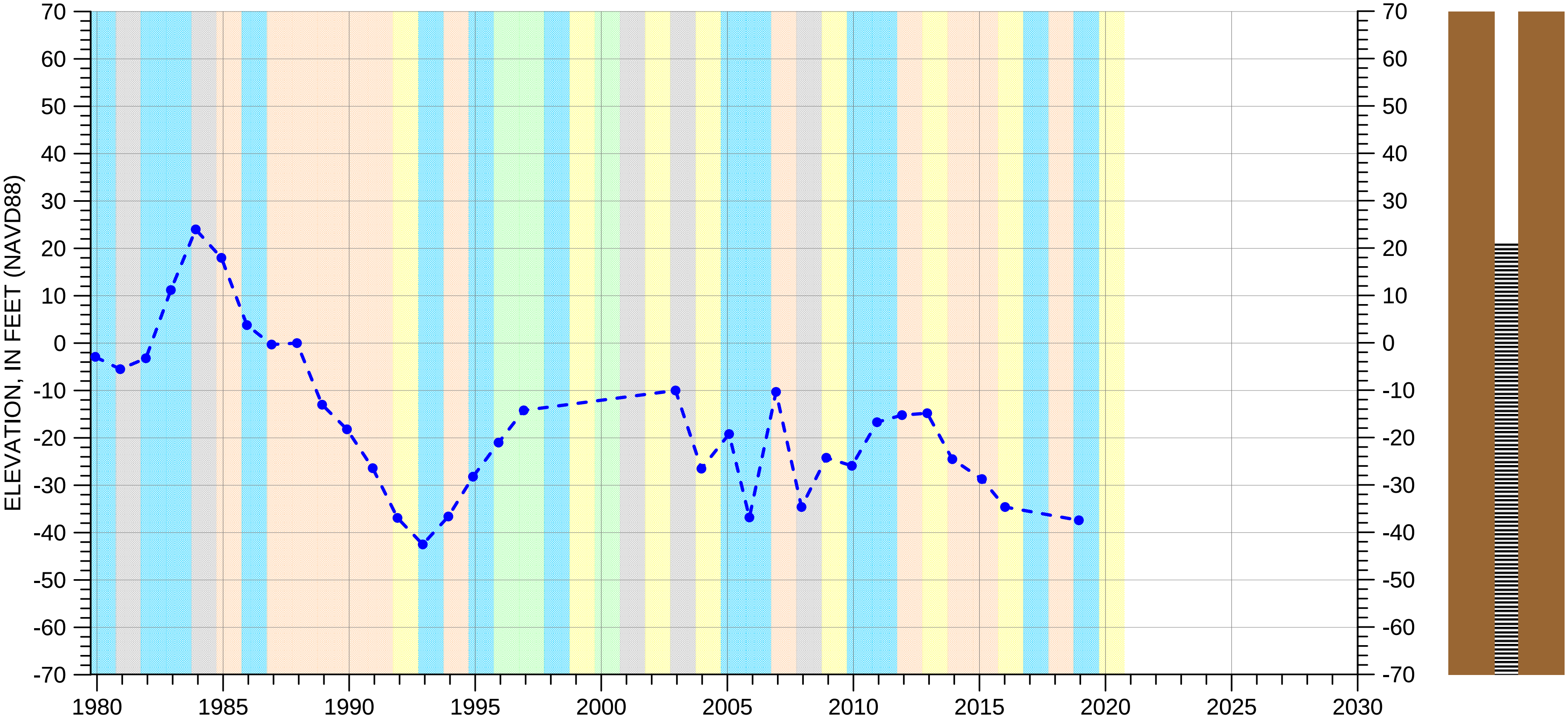
WATER YEAR TYPE DESIGNATION

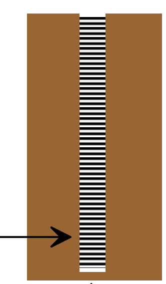
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot38 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-14N01

Eastside Aquifer Subbasin



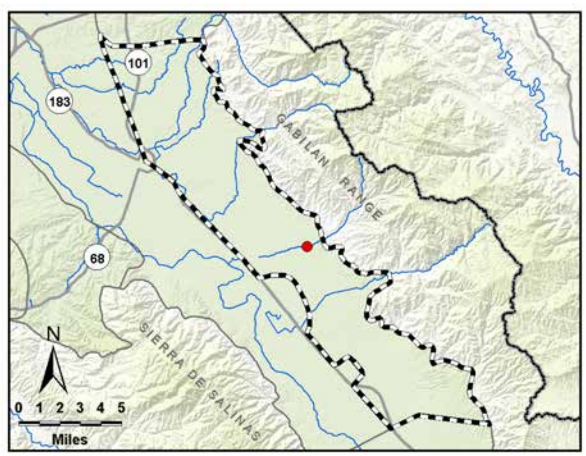


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (240 FT MSL)

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



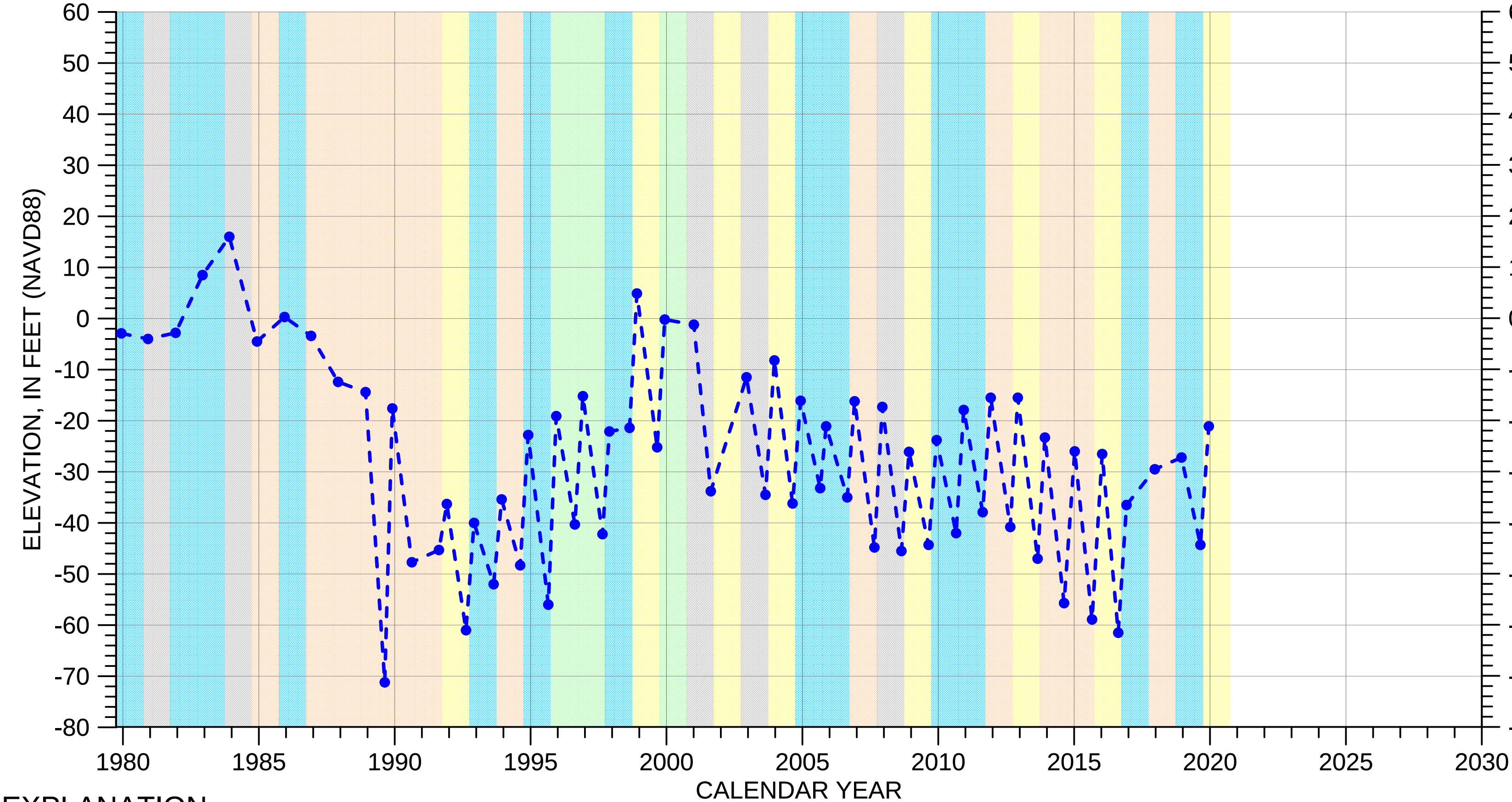
Perforated from
21 to -140 feet msl

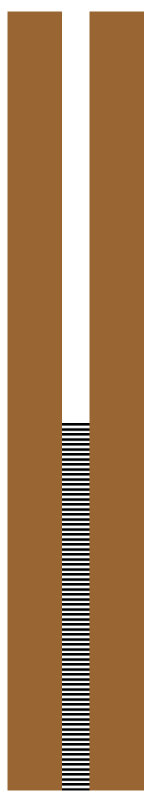
Well bottom
-160 feet msl

Plot39 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-15D02

Eastside Aquifer Subbasin



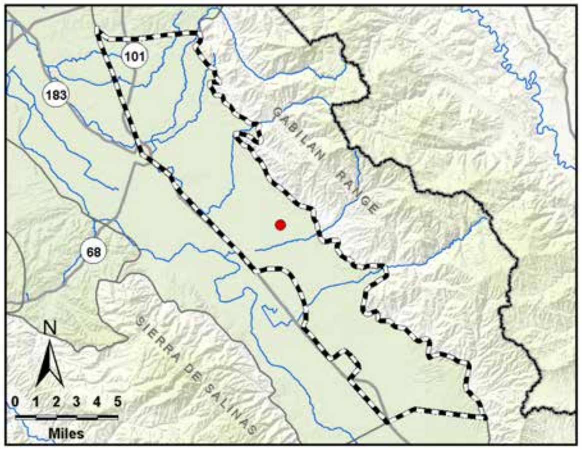


EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (186 FT MSL)



WATER YEAR TYPE DESIGNATION

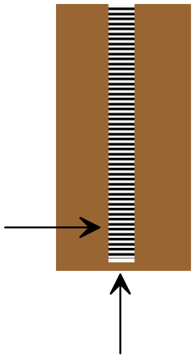
DRY

DRY - NORMAL

NORMAL

WET - NORMAL

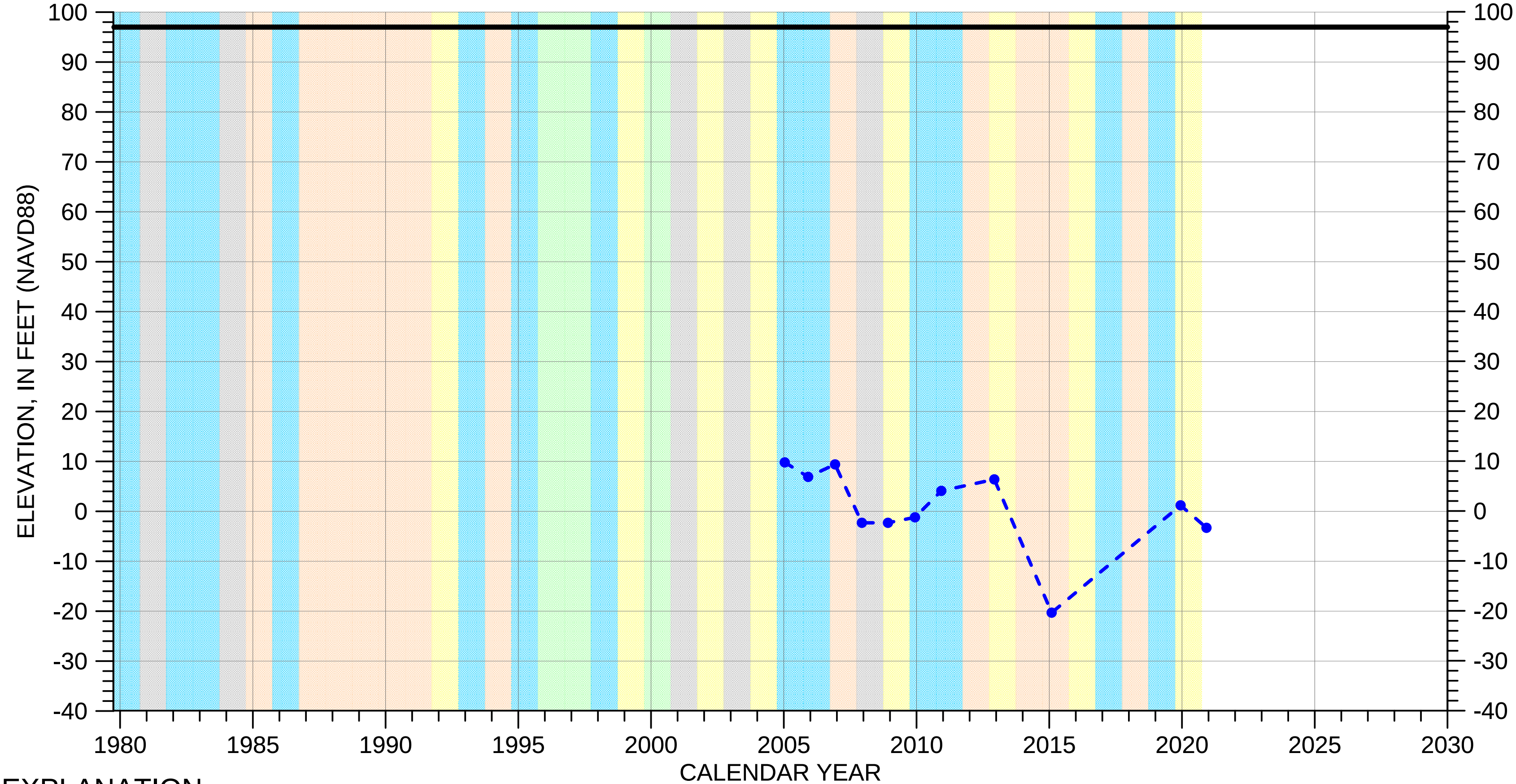
WET



Plot40 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-17P02

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface

WATER YEAR TYPE DESIGNATION

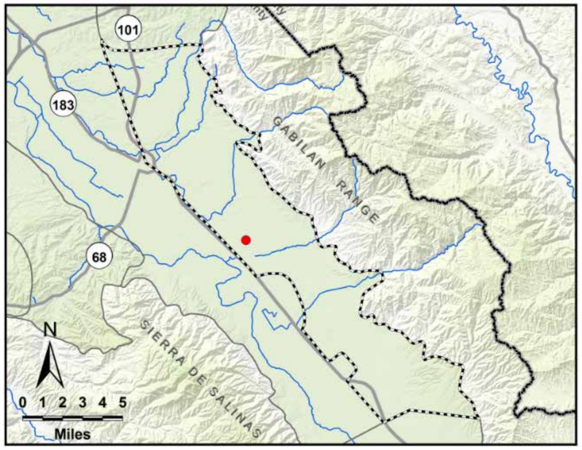
DRY

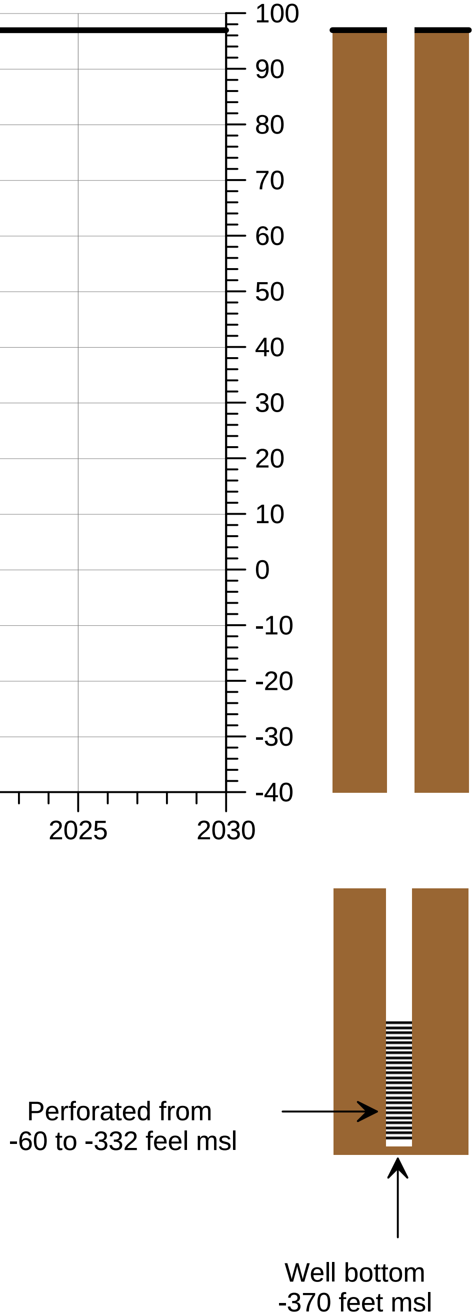
DRY - NORMAL

NORMAL

WET - NORMAL

WET





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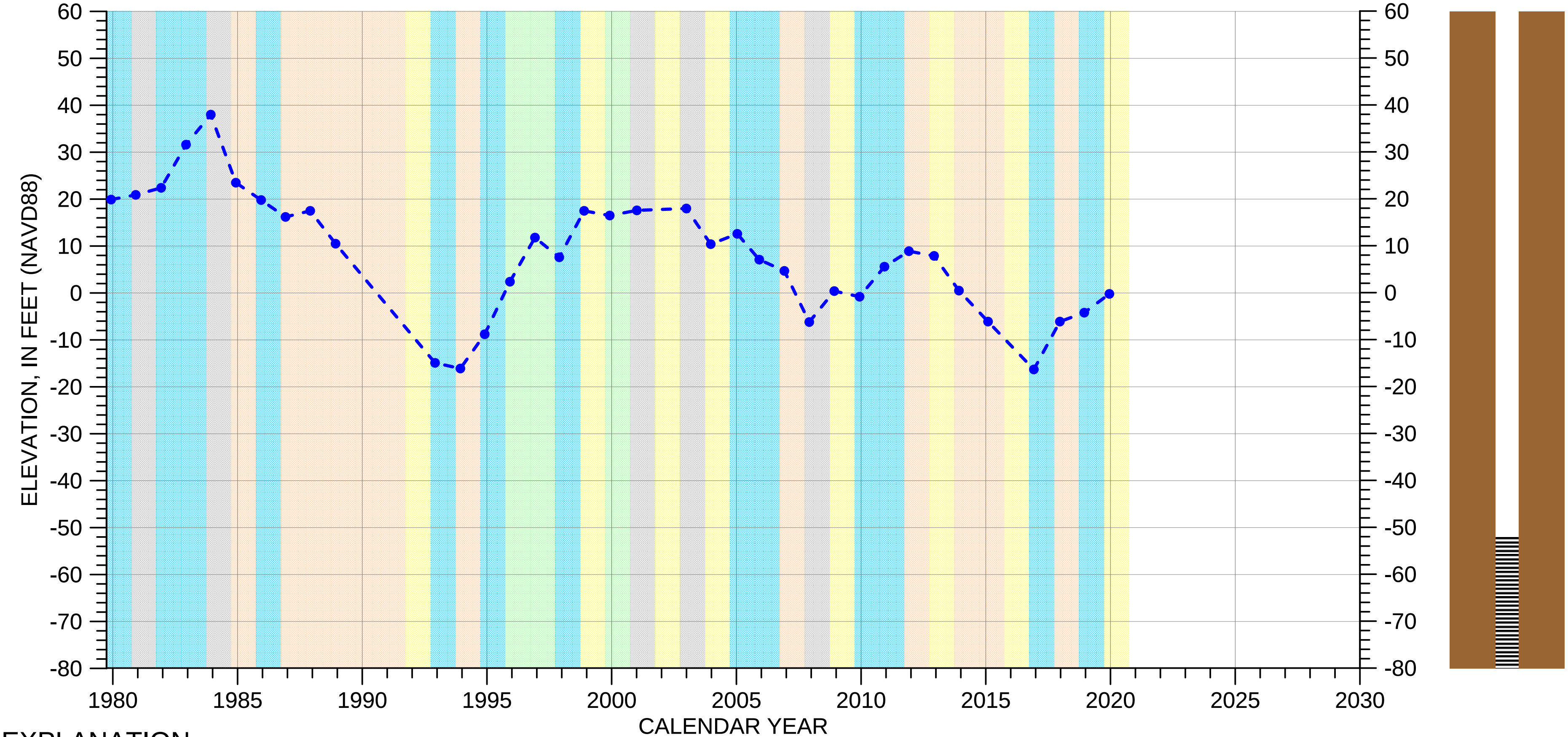
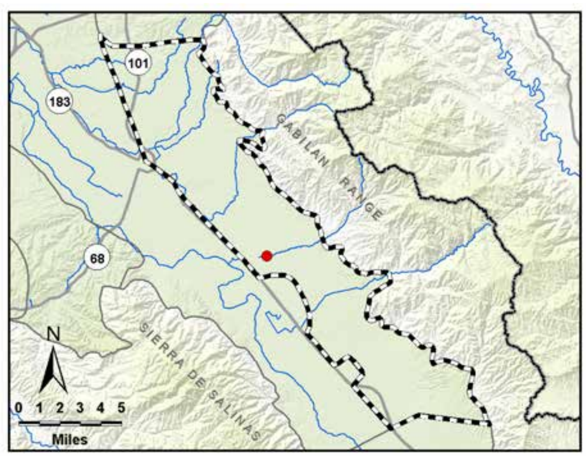
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-21F04

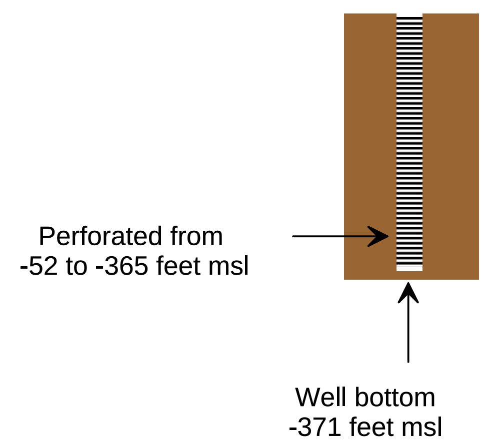
Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (127 FT MSL)





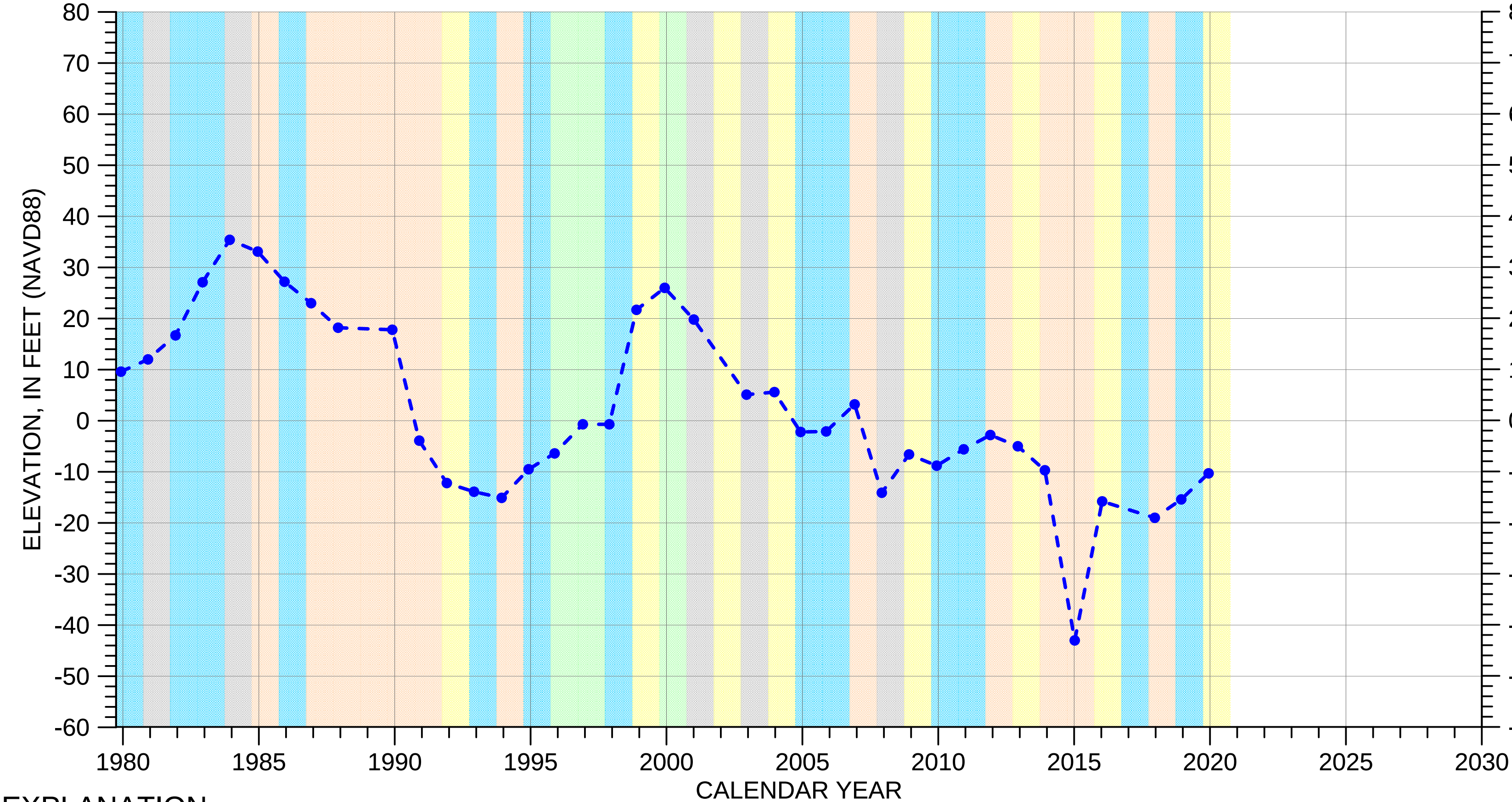
WATER YEAR TYPE DESIGNATION

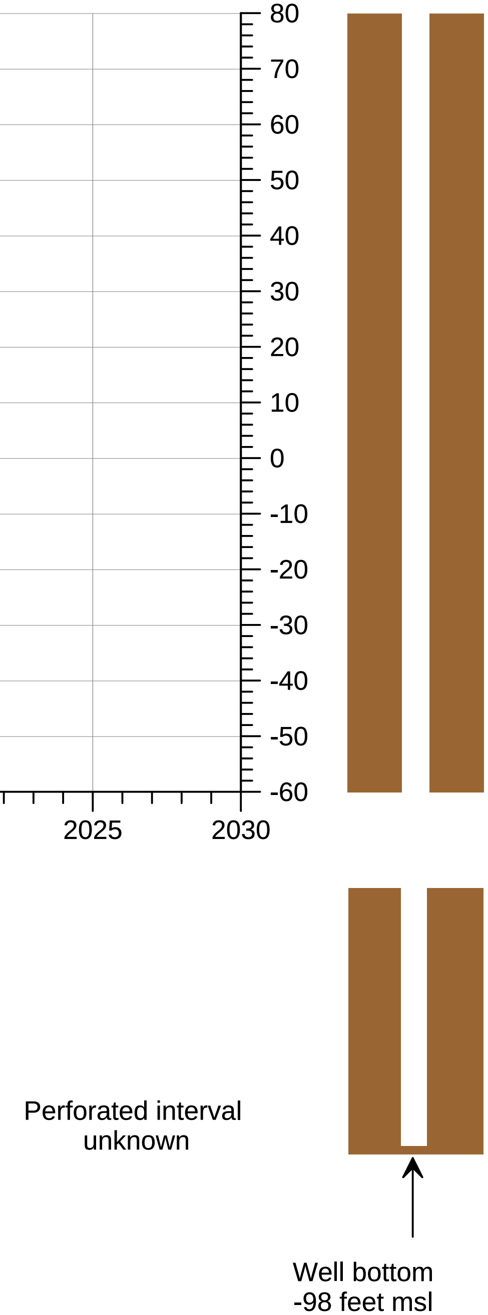
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot41 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-24N03

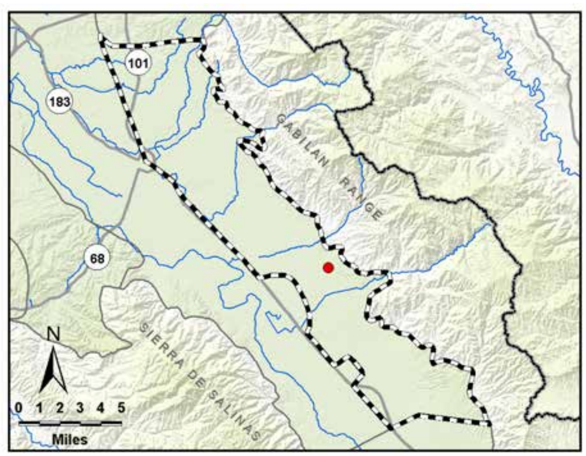
Eastside Aquifer Subbasin





EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (272 FT MSL)



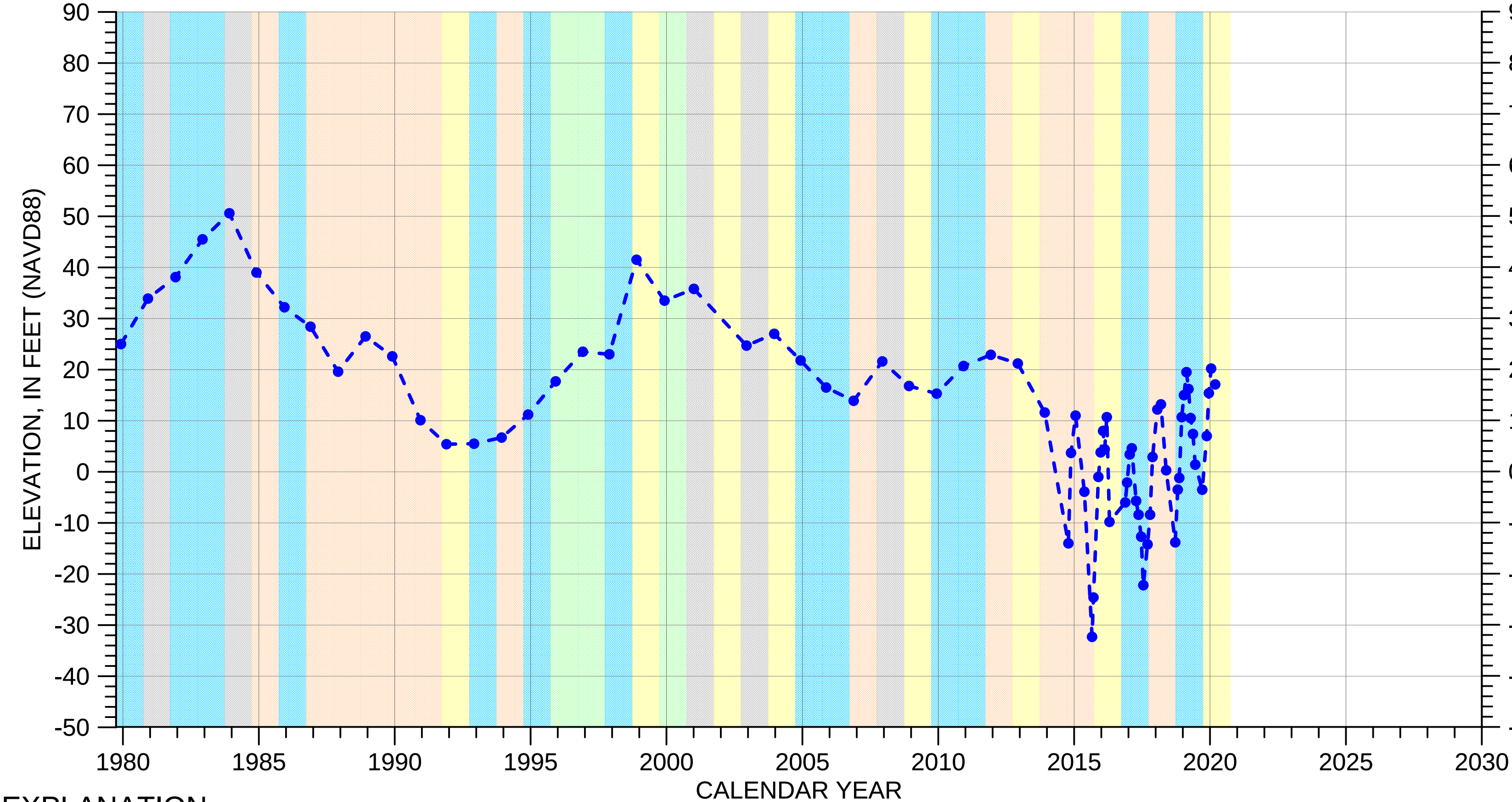
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot42 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-27G01

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (189 FT MSL)

WATER YEAR TYPE DESIGNATION

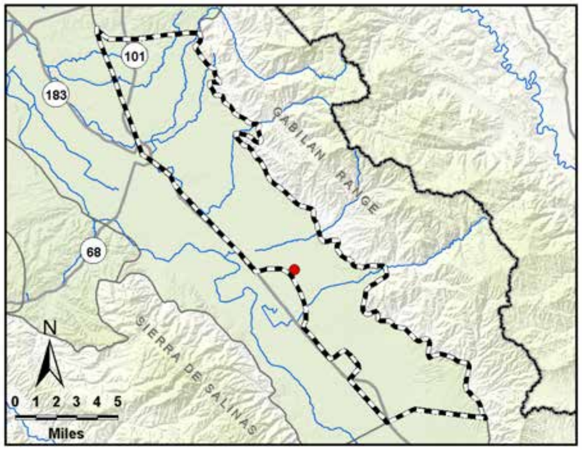
DRY

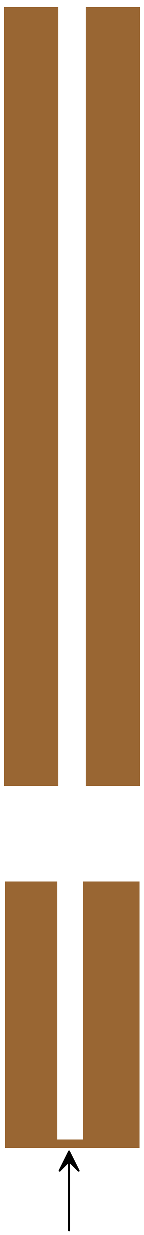
DRY - NORMAL

NORMAL

WET - NORMAL

WET

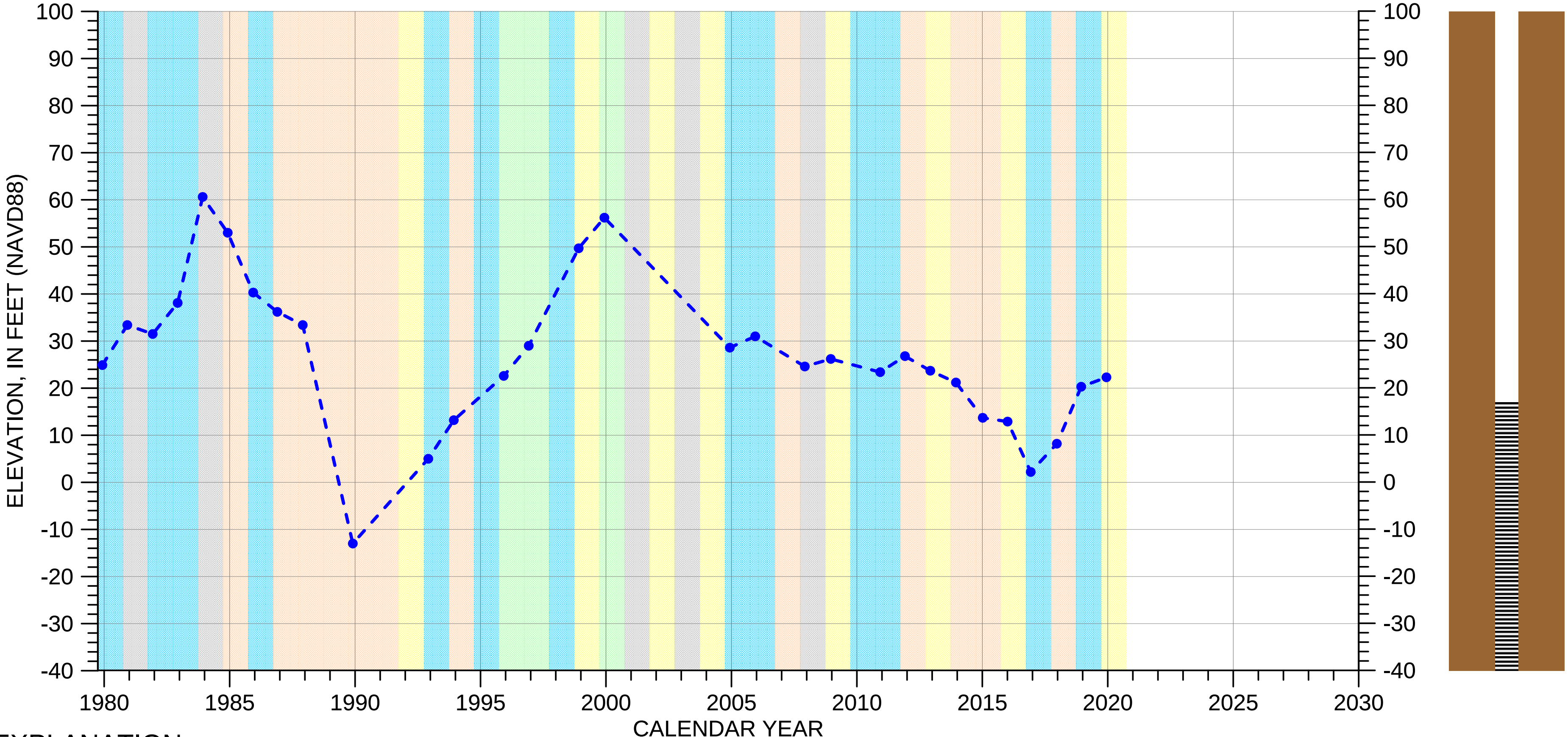




Plot43 *

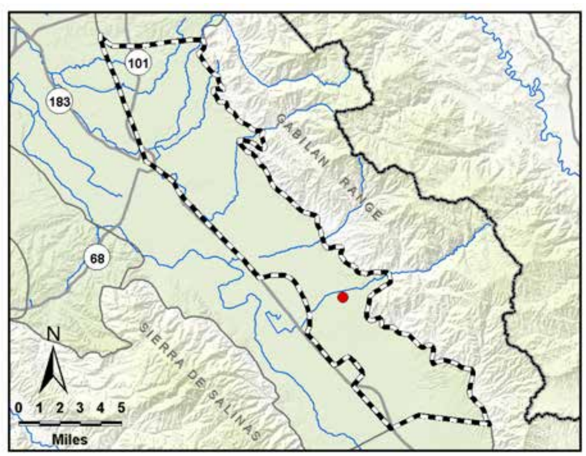
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-36H01

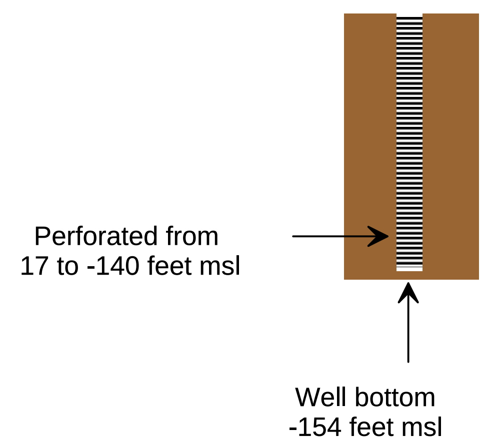
Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (334 FT MSL)





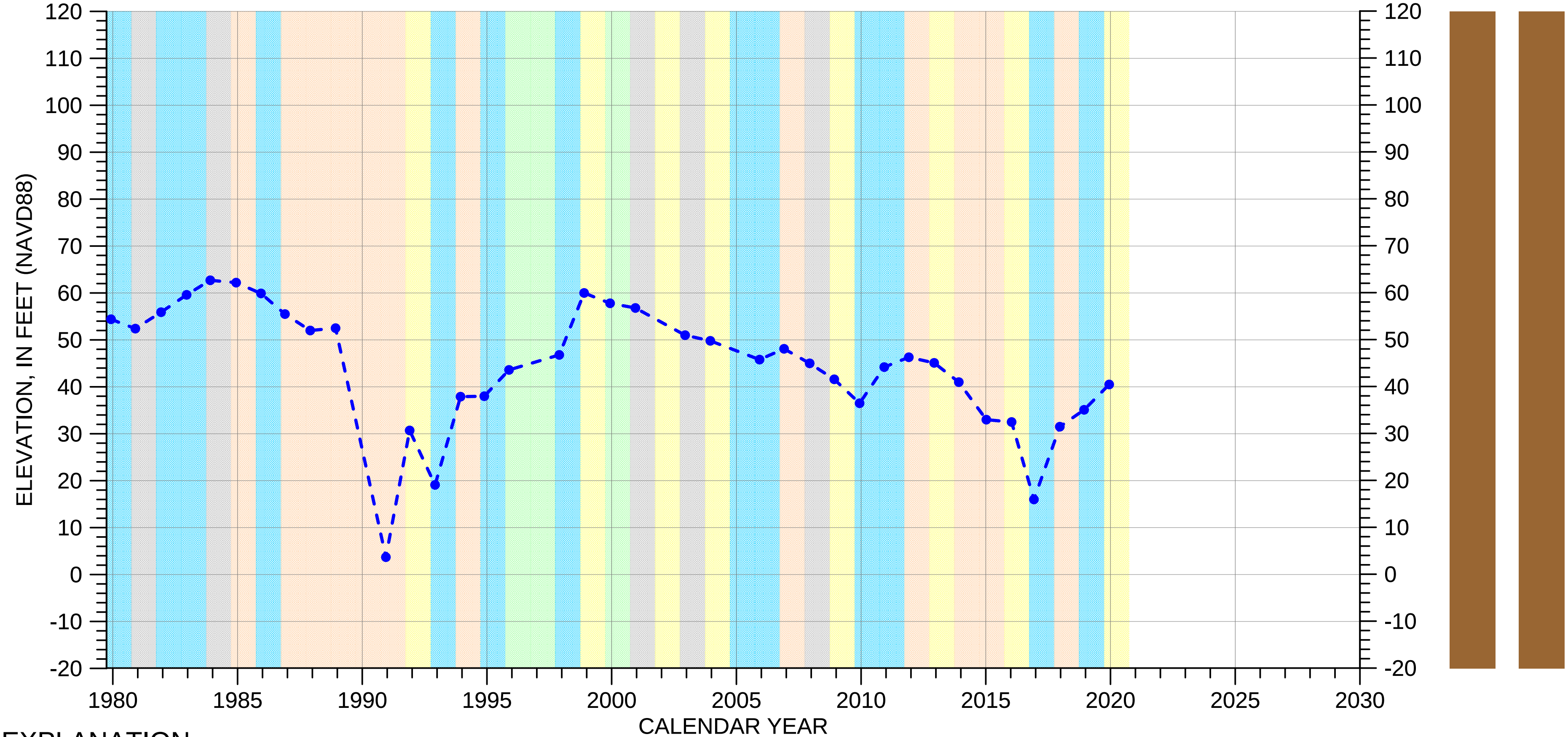
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot44 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-02Q03

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (136 FT MSL)

WATER YEAR TYPE DESIGNATION

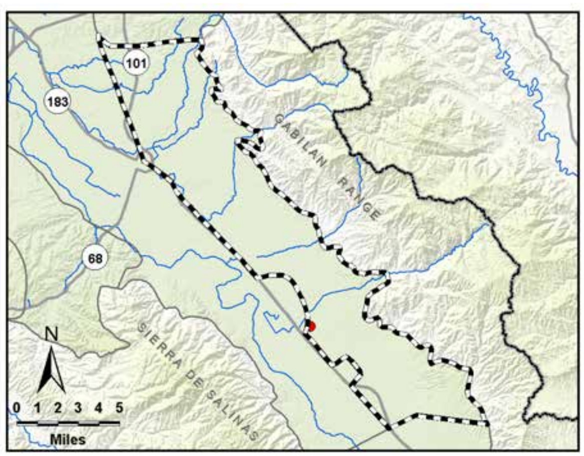
DRY

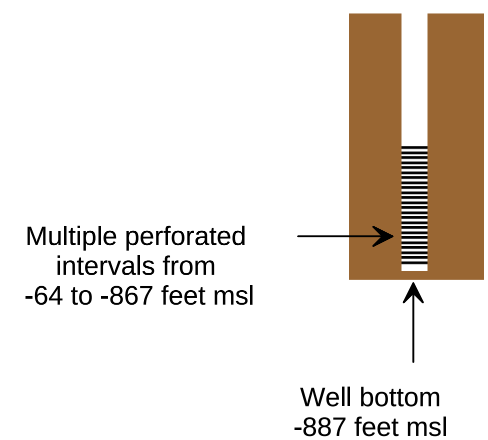
DRY - NORMAL

NORMAL

WET - NORMAL

WET

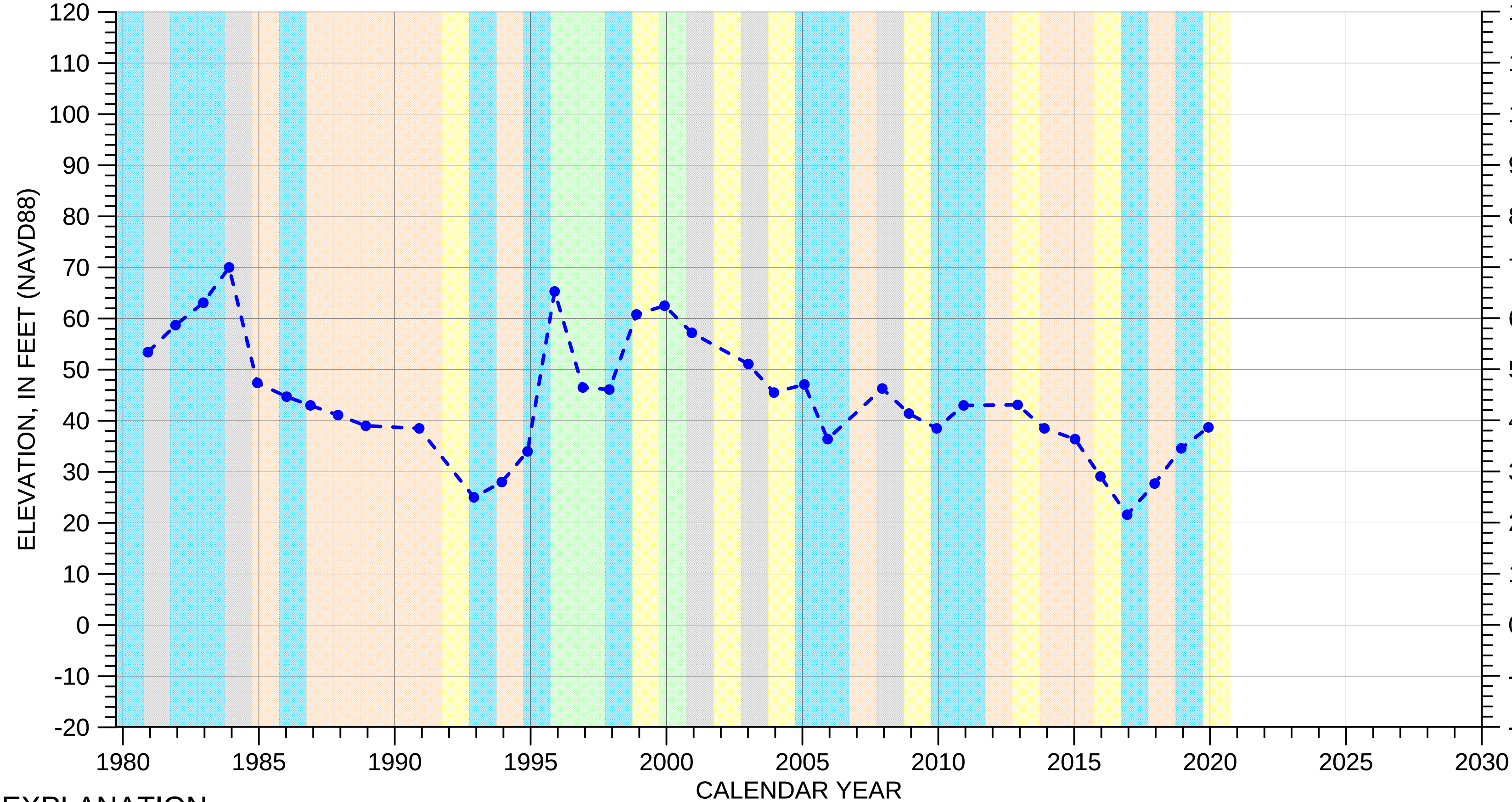




Plot45 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/05E-05N01

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (248 FT MSL)

WATER YEAR TYPE DESIGNATION

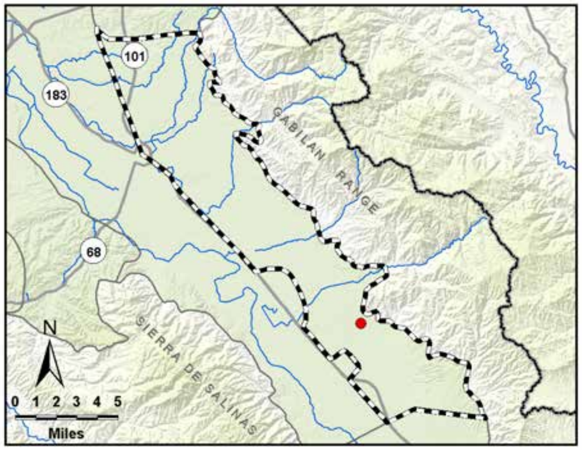
DRY

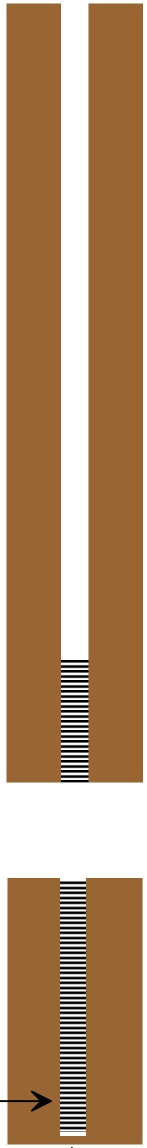
DRY - NORMAL

NORMAL

WET - NORMAL

WET

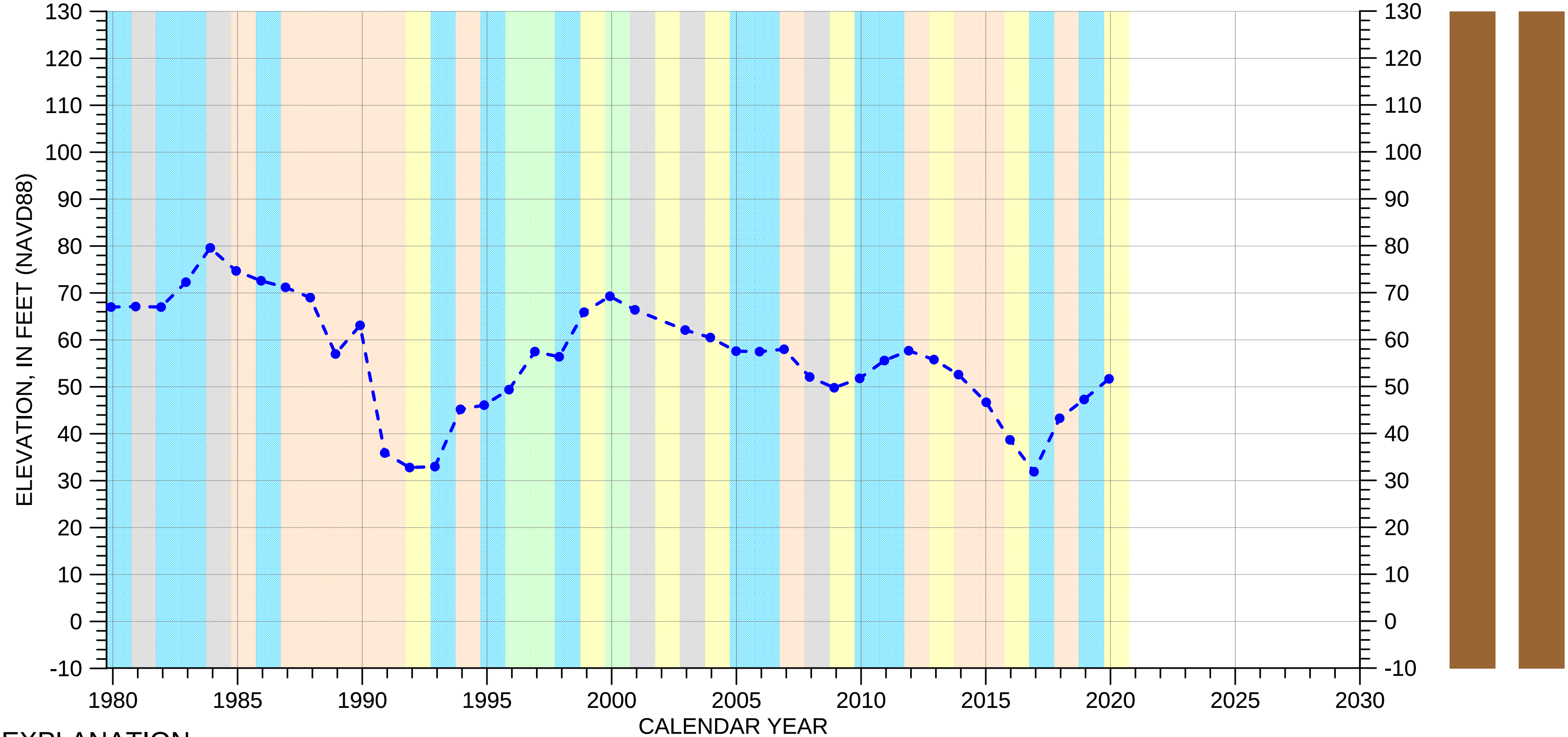




Plot46 *

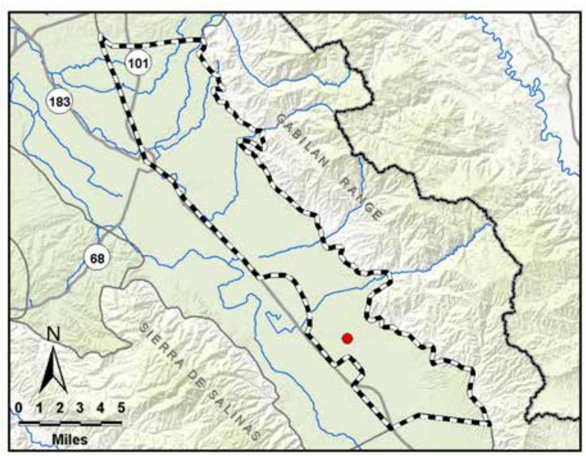
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/05E-07G01

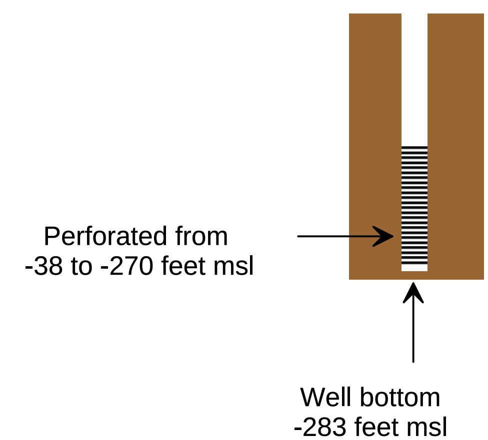
Eastside Aquifer Subbasin



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (193 FT MSL)





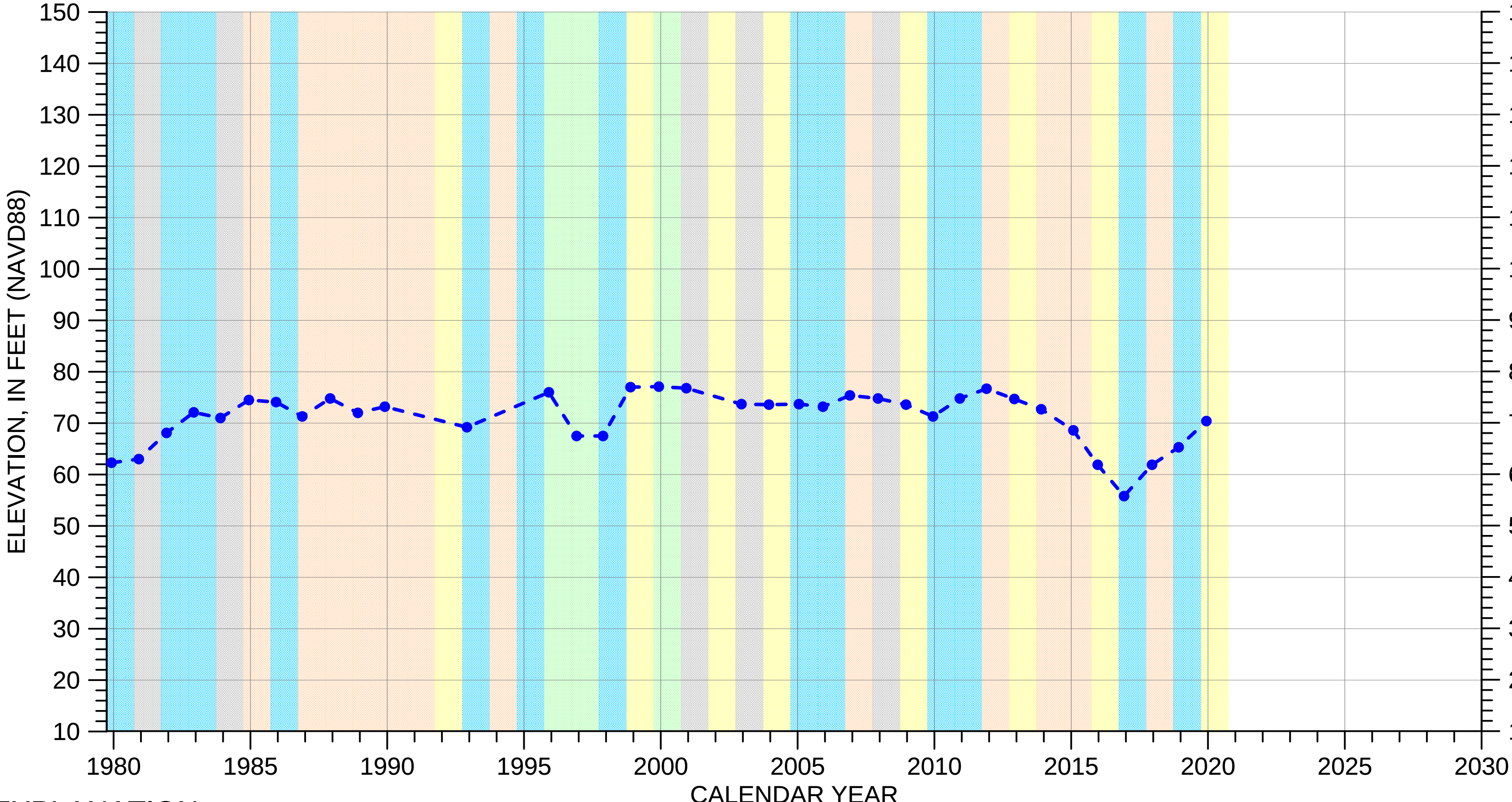
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

Plot47 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/05E-17R01

Eastside Aquifer Subbasin

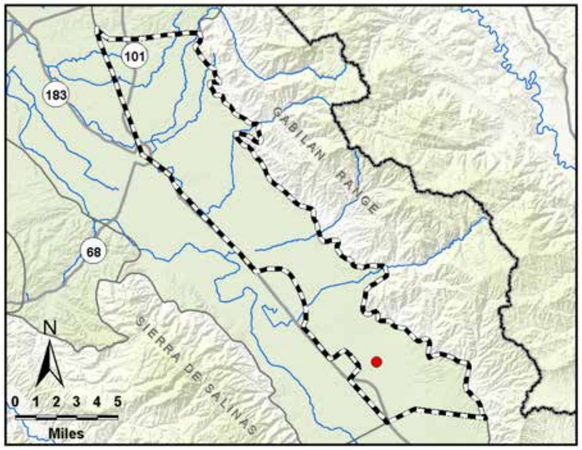


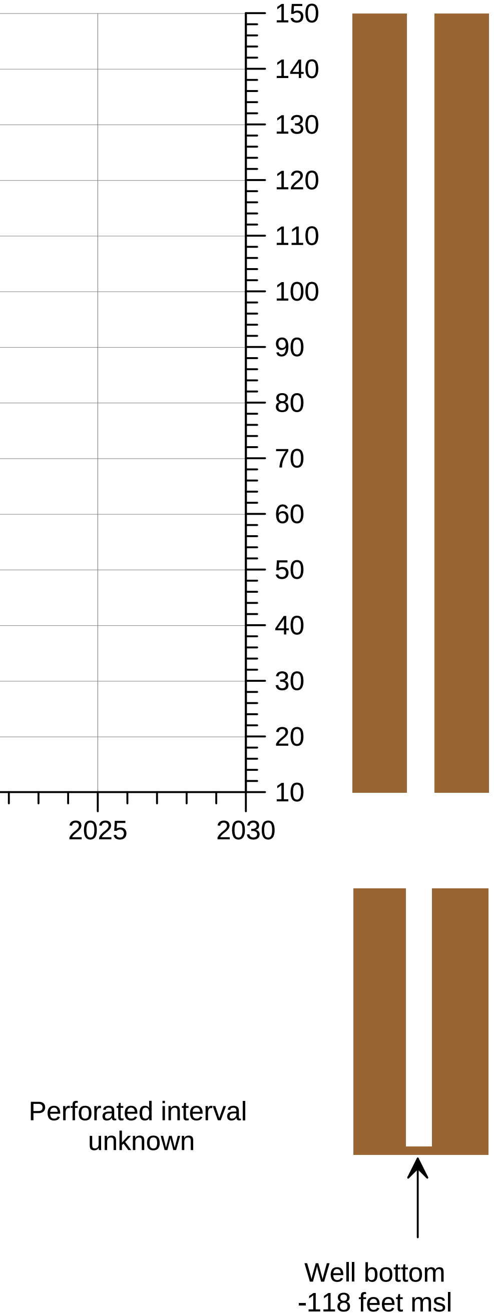
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (181 FT MSL)

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

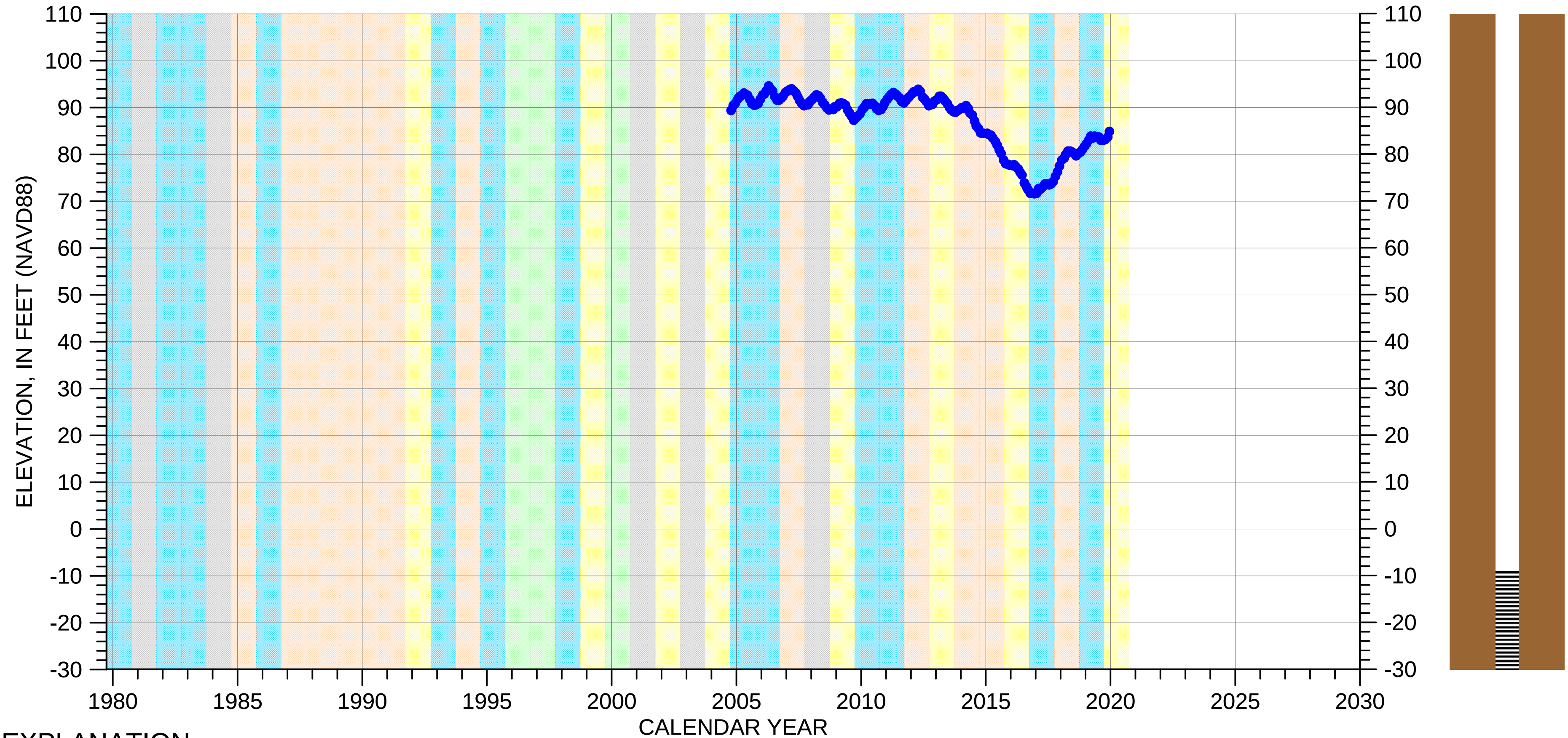




Plot48 *

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/05E-27G01

Eastside Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface (272 FT MSL)

WATER YEAR TYPE DESIGNATION

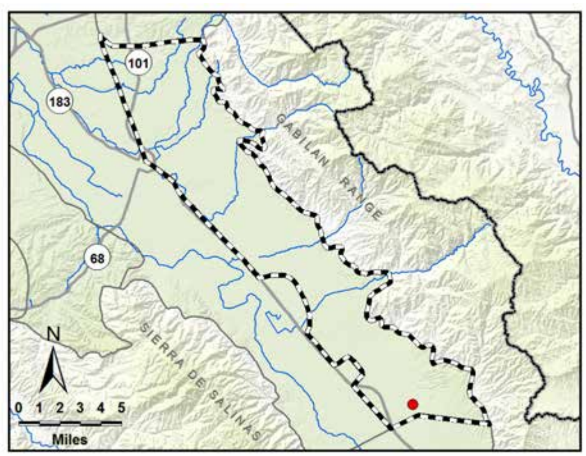
DRY

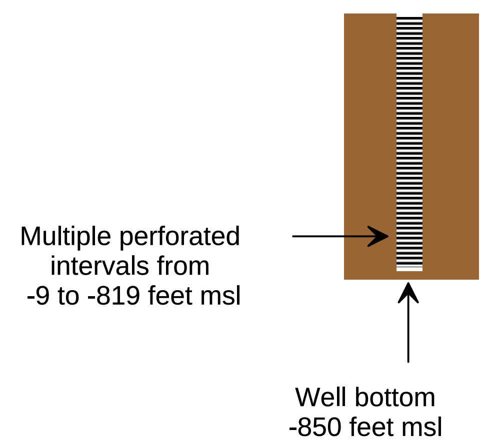
DRY - NORMAL

NORMAL

WET - NORMAL

WET





Plot49 *

Chapter 5
Appendix 5-B

Water Quality Exceedance Maps for DDW and ILRP Wells

MONTGOMERY
& ASSOCIATES

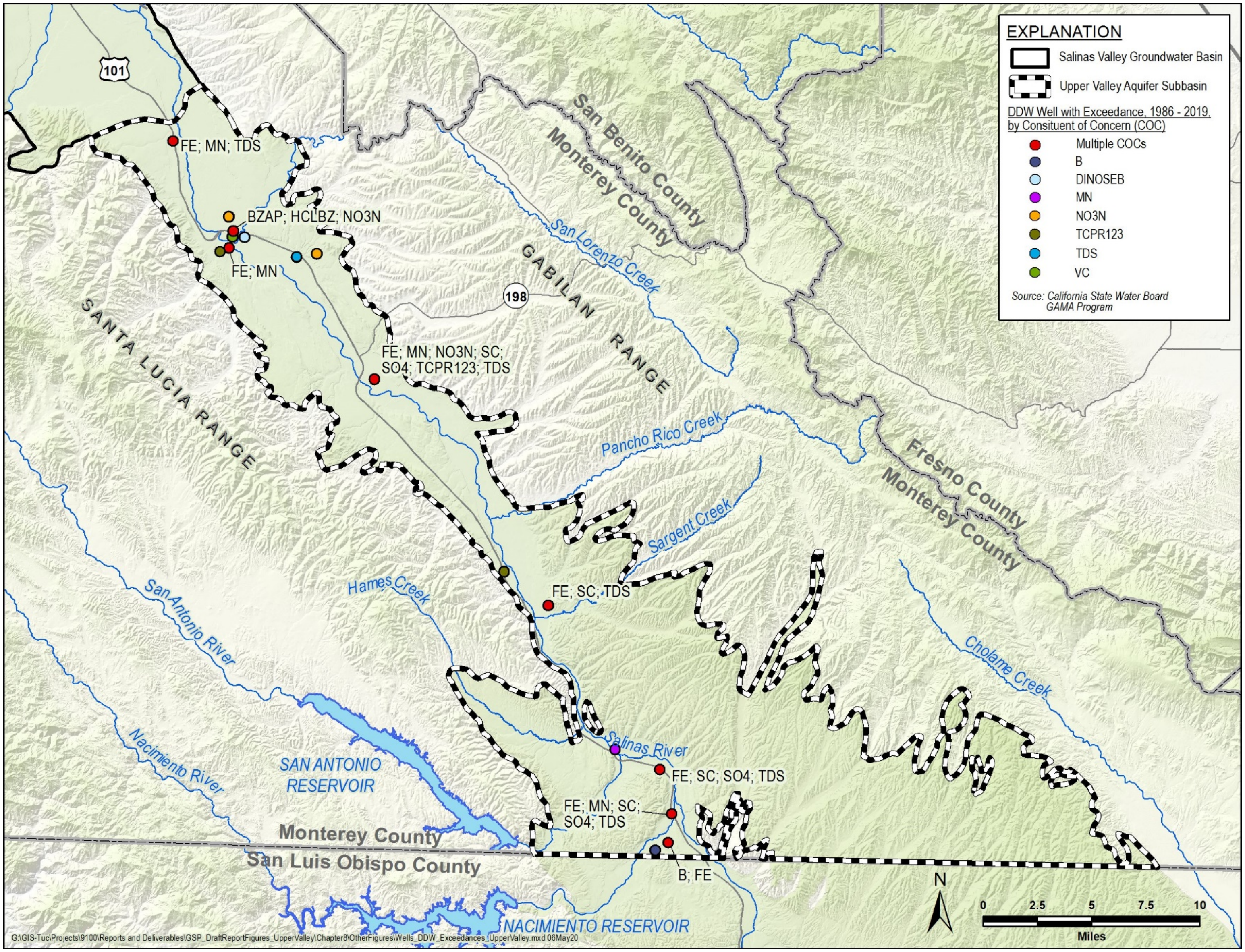


Figure 1. Water Quality Exceedances for DDW Wells

MONTGOMERY & ASSOCIATES

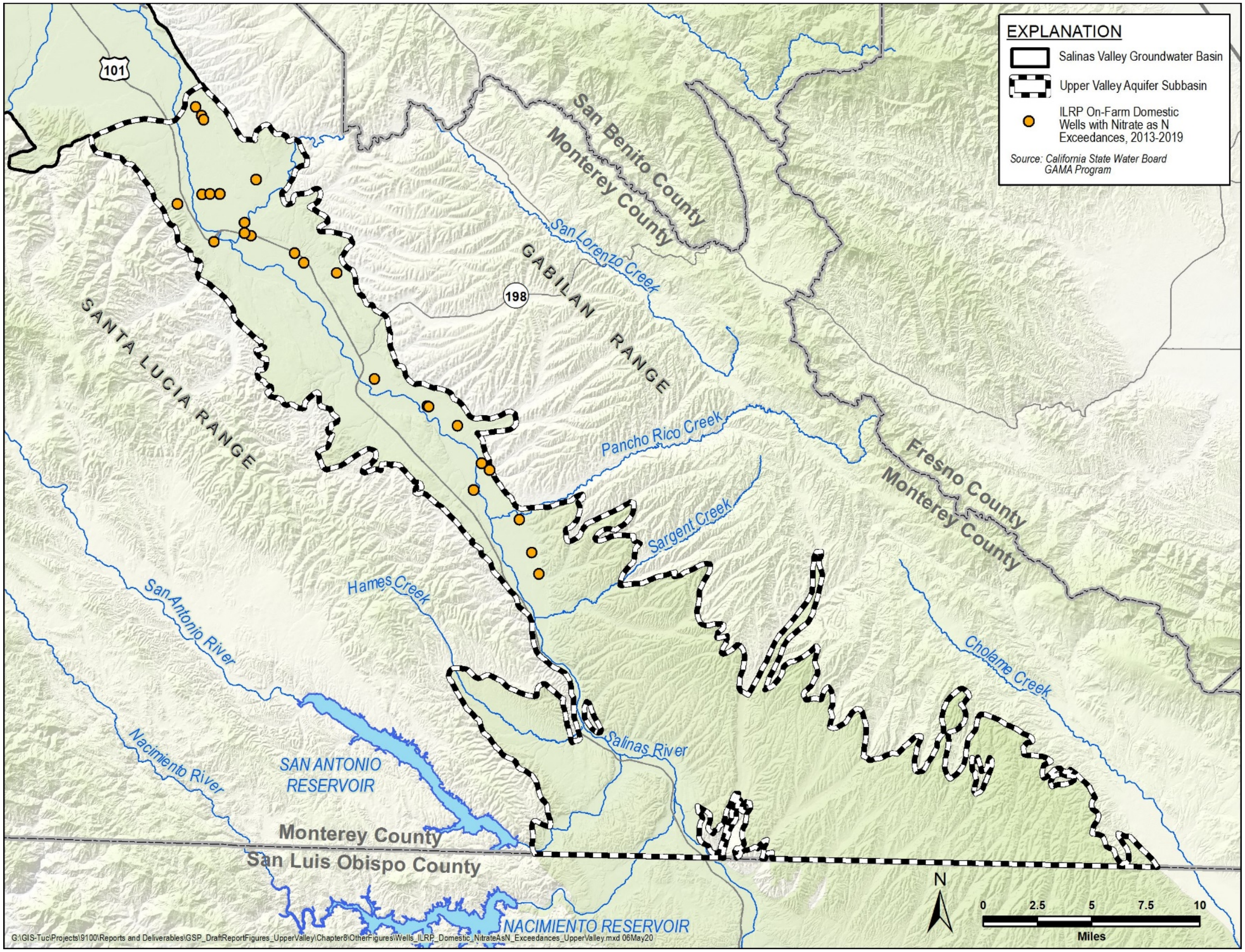


Figure 2.Nitrate Exceedances for ILRP On-Farm Domestic Wells

MONTGOMERY & ASSOCIATES

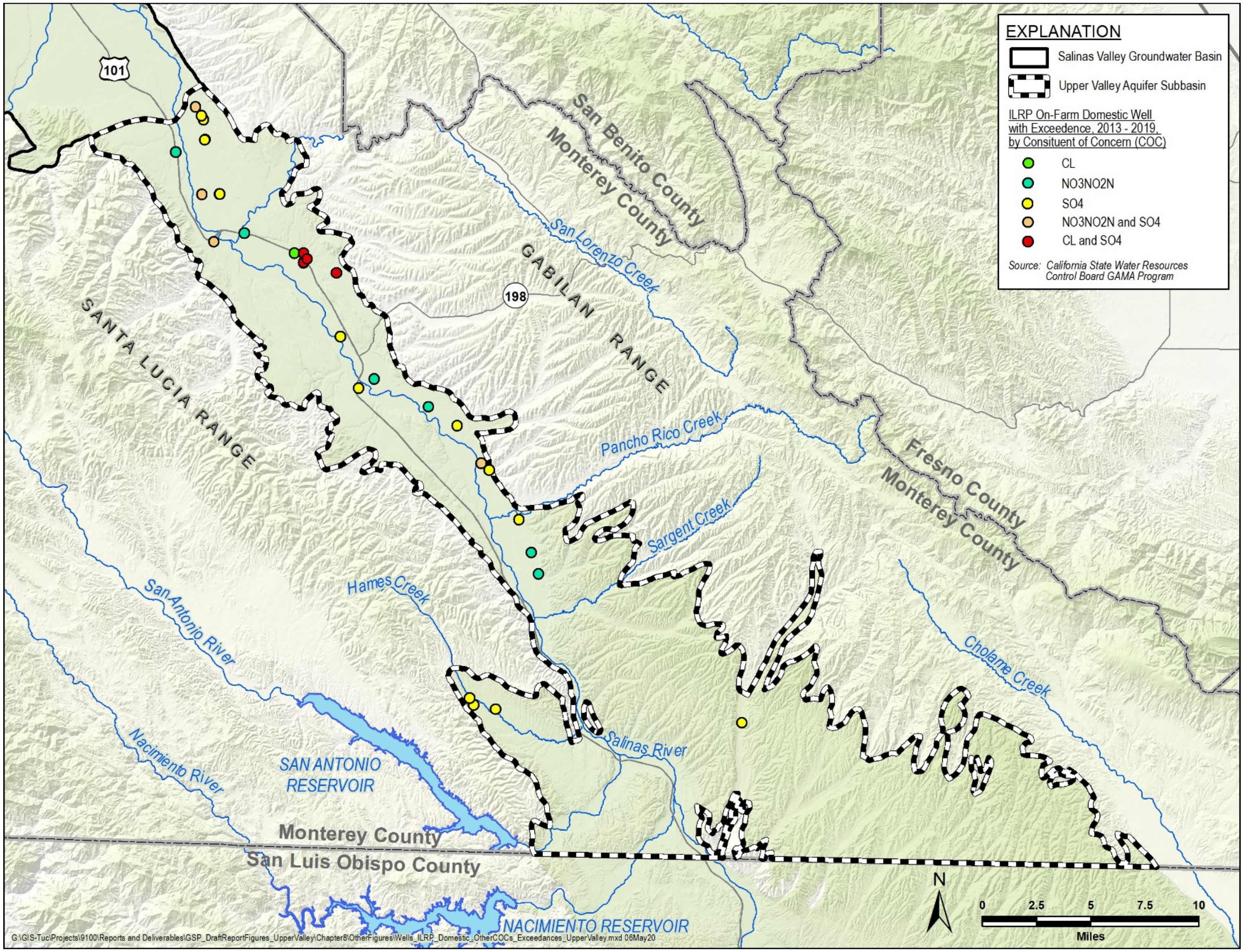


Figure 3. Exceedances for other Constituents of Concern for ILRP On-Farm Domestic Wells

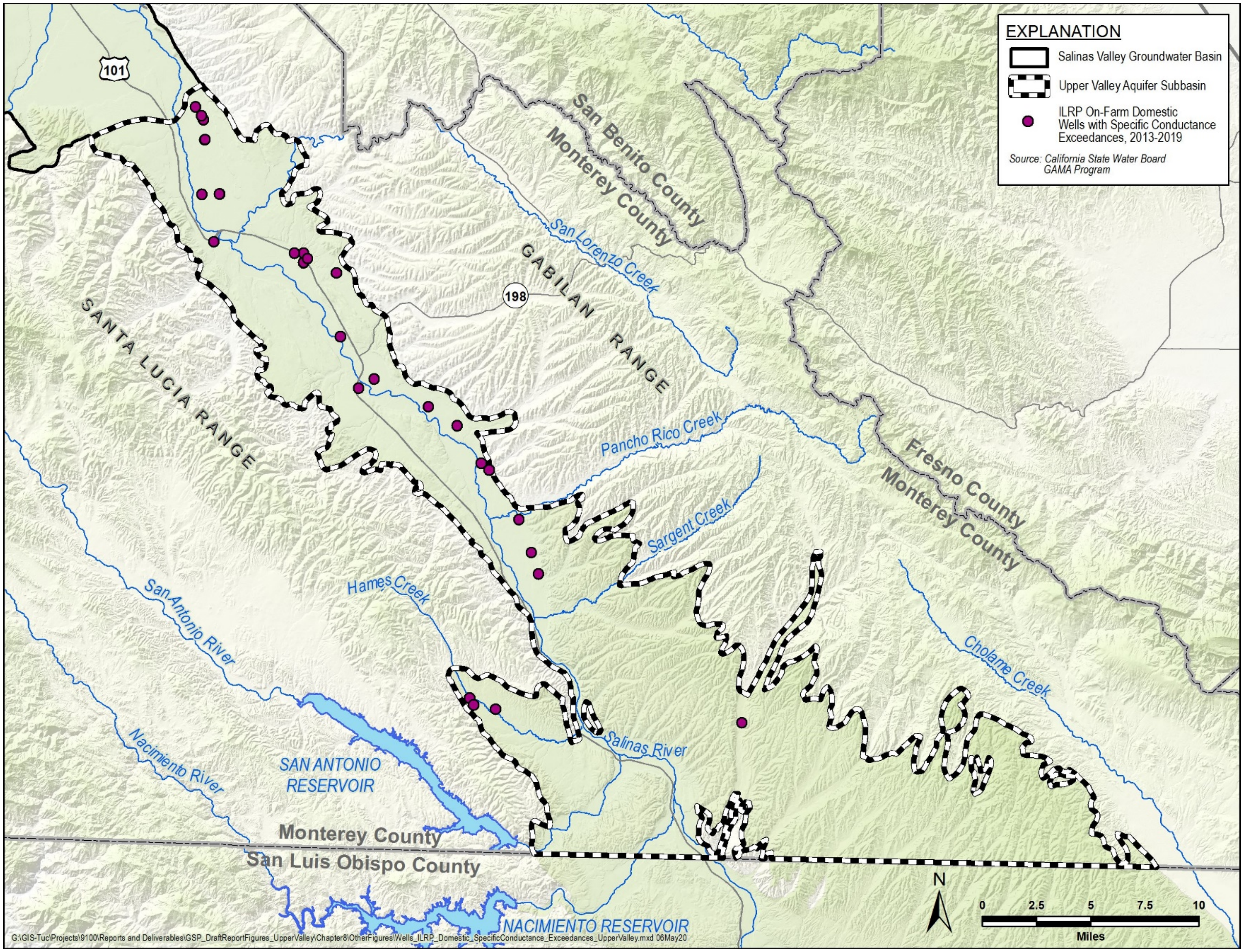


Figure 4. Exceedances for Specific Conductance for ILRP On-Farm Domestic Wells

MONTGOMERY & ASSOCIATES

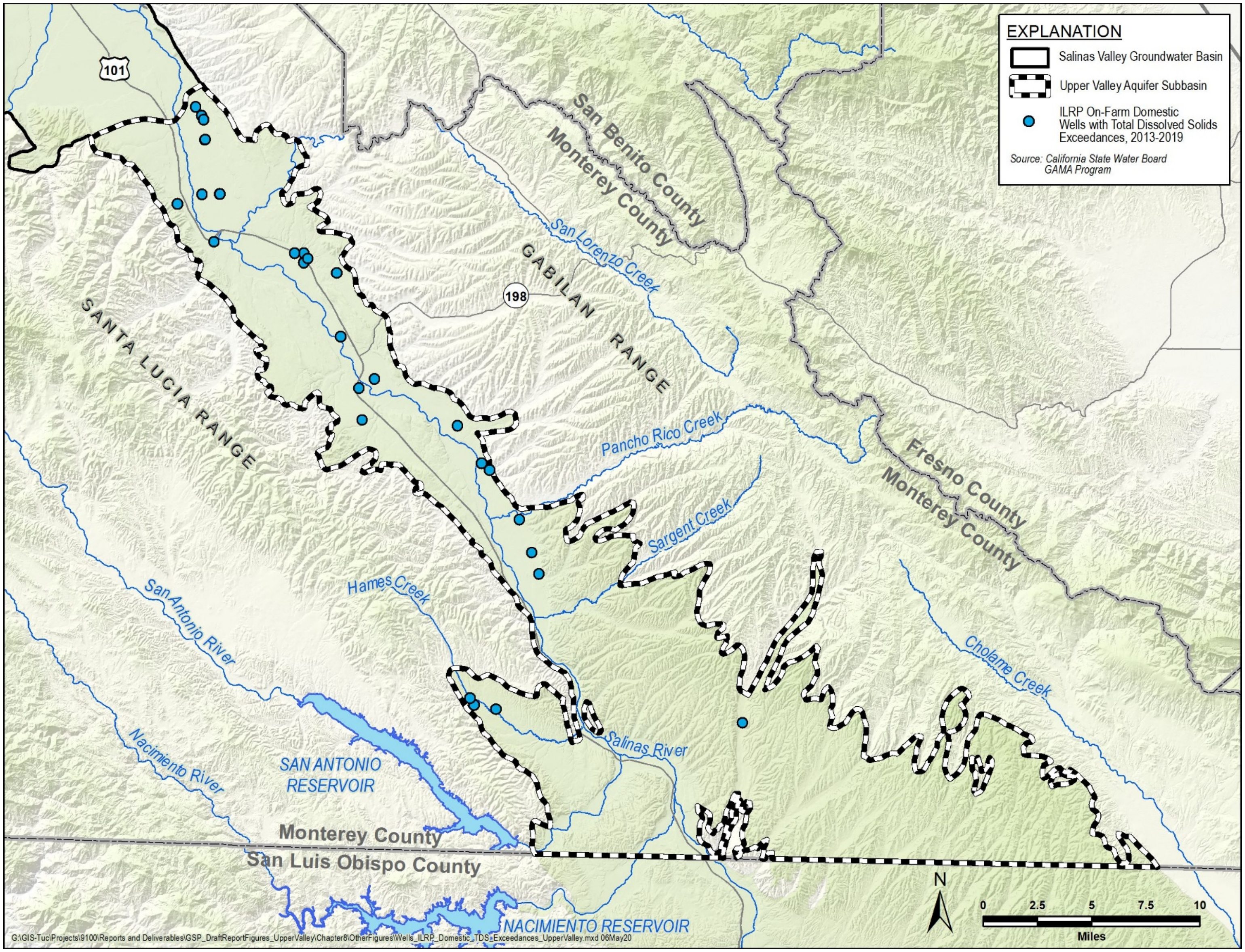


Figure 5. Total Dissolved Solids Exceedances for ILRP On-Farm Domestic Wells

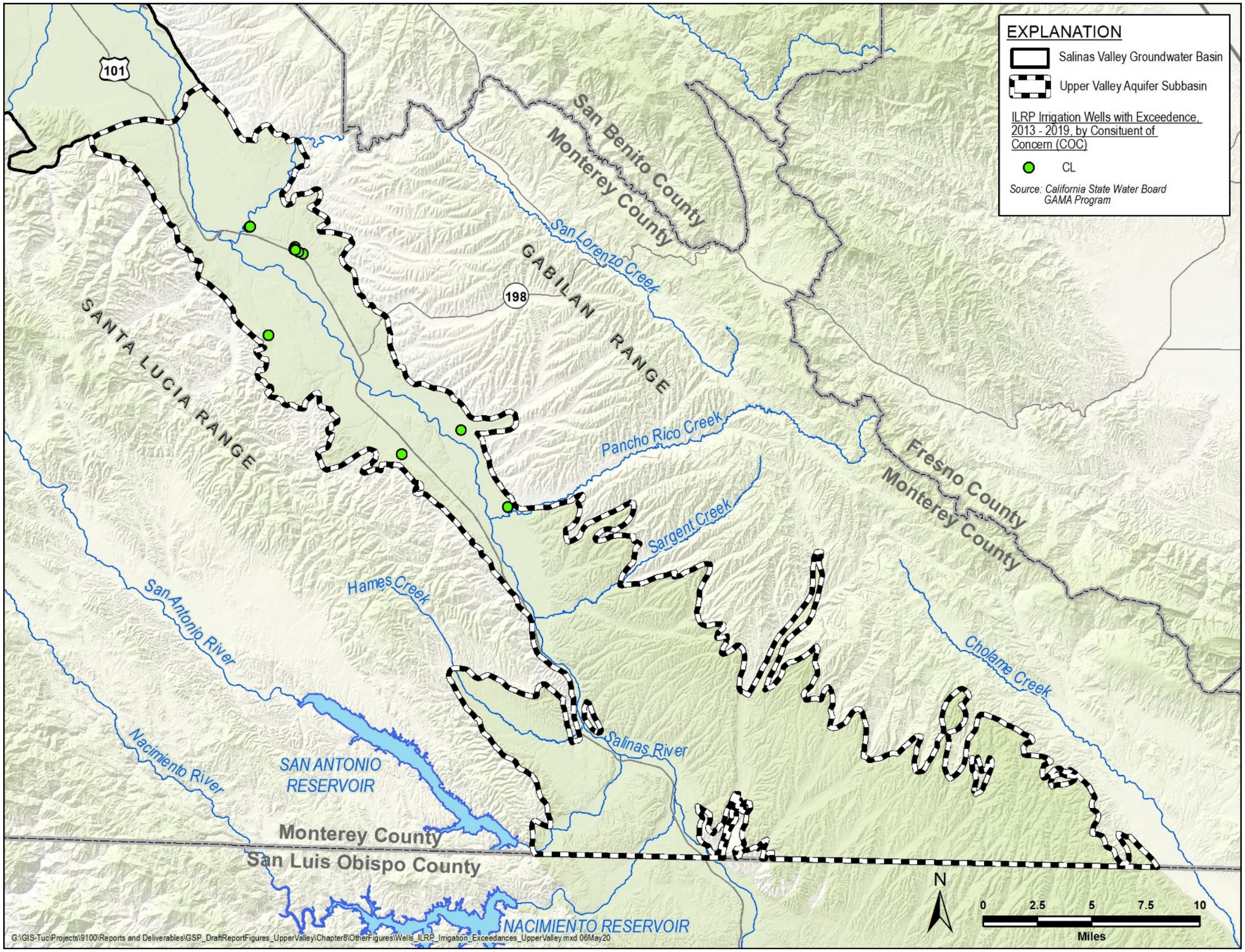


Figure 6. Quality Exceedances for ILRP Irrigation Wells

Chapter 6
Appendix 6-A

Salinas Valley Models Project Progress Report

United States Department of the Interior

U. S. GEOLOGICAL SURVEY
California Water Science Center
6000 J Street. Placer Hall
California State University
Sacramento, California 95819-6129
Phone: (916) 278-3000 **Fax: (916)** 278-3231
http:\water.usgs.gov

Project Progress Report

November 2, 2021

Wesley Henson, PhD., Project Chief, US Geological Survey California Water Science Center

In cooperation with Monterey County, Monterey County Water Resources Agency, and the Salinas Valley Basin GSA.

Overview of Salinas Valley Models

Introduction

In January 2016, the U.S. Geological Survey California Water Science Center (USGS CAWSC) began collaborating with Monterey County and the Monterey County Water Resources Agency (MCWRA) to create a suite of geologic and hydrologic models. The primary purpose of these models is to inform the County's five-year (2014 – 2018) hydrologic study of the water supply and groundwater quality in the MCWRA's Zone 2C, within the Salinas Valley Aquifers as part of a settlement agreement (Monterey County 2010). The suite of models include: (1) a geologic model to estimate aquifer properties and aquifer and aquitard extents; (2) a watershed model to simulate surface processes and inflows to the groundwater basin from adjacent catchments; (3) an integrated hydrologic model of the Salinas Valley Groundwater Basin; and (4) an operational reservoir model. The Salinas Valley models will contribute to several other regional modeling efforts: for MCWRA's Interlake Tunnel Project, the development of Groundwater Sustainability Plans under the State's Sustainable Groundwater Management Act (SGMA; CADWR, 2014), and a future water supply risk assessment for the Salinas and Carmel River Basins Study (SCRBS) by the U.S. Bureau of Reclamation (2015) in cooperation with local partners.

Salinas Valley model development and use in these studies are keystones of regional drought planning tools for managing conjunctive use of groundwater and surface water. These models provide vital information for evaluating strategies to achieve groundwater sustainability. These decision tools provide estimates of groundwater storage, surface and subsurface storage and flows, groundwater-surface water (GW-SW) interactions, and hydrologic and agricultural budgets. In addition, the cooperative research partnership between the Monterey County Water Resources Agency and the USGS has resulted in development of model update utilities, cutting-edge reservoir simulation and land use methods, and SGMA reporting utilities that will benefit multiple California modeling efforts.

The purposes of this project update are to (1) describe the model development (2) describe how model results are used to understand seawater intrusion, water levels (hydraulic heads), and land use, (3) provide an overview of the model review process and anticipated completion timeline, and (4) discuss how modeling results and future model updates can be used in ongoing and future hydrologic investigations in the basin.

Model development and Updates

Model development has been a collaborative process with regular guidance and input from Monterey County, MCWRA, and their consultants. Additional guidance and review were provided by an independent Technical Advisory Committee with regional stakeholders, consultants, agricultural commissioners, and the Salinas Valley Basin Groundwater Sustainability Agency.

The models were constructed using published open-source modeling software. The Salinas Valley integrated hydrologic model (SVIHM) and Salinas Valley Operational Model (SVOM) are built using the latest version of MODFLOW-OWHM (Boyce and others, 2020) with the MODFLOW Farm Process (Schmid and others (2006), Schmid and Hanson (2009)). The software can be downloaded in its entirety here, https://code.usgs.gov/modflow/mf-owhm. You can also find helpful information on this webpage https://www.usgs.gov/software/modflow-one-water-hydrologic-flow-model-conjunctive-use-simulation-software-mf-owhm. The SVIHM has been developed using two sub-models, a 3-D geologic framework and texture model (Salinas Valley Geologic Model; SVGM; Sweetkind and others, In Prep), and a Hydrologic Simulation Program – Fortran watershed model (HSPF; Bicknell and others, 1997) for the entire Salinas Valley Watershed (Salinas Valley Watershed Model, SVWM).

Geologic Framework and Texture Model

The geologic framework model was used to define the spatial extent, depth, and distribution of geologic material textures for the offshore region, five major aquifers of the Salinas Valley, aquitards between each aquifer, and the depth to bedrock. The aquifers are defined consistent with previous studies and include the surficial aquifer, 180-ft aquifer, 400-ft aquifer, Purisima aquifer, and Paso Robles aquifer.

Each of the aquifers was explicitly defined using well borehole data, and local geologic investigations (Tinsley, 1975; Feeney and Rosenberg, 2003; Kennedy/Jenks, 2004; Hanson and others, 2002; Colgan and others, 2012; Langenheim and others 2012, Hanson and Sweetkind, 2014; Taylor and Sweetkind, 2014; Hanson and others, 2014a; Baillie and others, 2015;). The distribution of texture in each aquifer was developed for each borehole location and kriged to create a continuous surface. These depth-discrete spatial layers for each aquifer were used to define a geologic texture for each model cell as a percentage of coarse material (K_{coarse}). This method has been widely used in hydrologic models (Faunt and others, 2009a; Faunt and others, 2009b; Faunt and others, 2010) to relate geologic texture to hydraulic properties. This approach defines aquifer properties using a coarse-grained (K_{coarse}) and fine-grained (K_{fine}) end member defined as:

K_{fine}=1.0-K_{coarse}

Hydraulic conductivity ranges for each aquifer were defined using data from previous models (Hanson and others, 1990; Hanson and Benedict, 1993; Hanson and others, 2003, 2004, 2014 a,c,d,e; Sweetkind and others, 2013; Phillips and others, 2007; Faunt and others, 2009a,b; Ludington and others, 2007; MCWRA monitoring well database), aquifer tests, and estimated ranges for geologic materials.

The hydraulic conductivity value at the upper extent of the range is assigned to cells in areas where the percentage of coarse material is 100% (K_{coarse} =1.0). Similarly, the hydraulic conductivity value at the lower extent of the range is assigned to cells in areas where the percentage of coarse material is 0% (K_{fine} = 1.0). For all other model cells, a composite hydraulic conductivity was generated using a power law relationship between the values for the K_{coarse} and K_{fine} end members.

Data from previous offshore studies (Johnson and others, 2016) were used to define the structure, distribution, and properties of the offshore region. The offshore region was parameterized similarly to the onshore region of the model domain providing continuity between the offshore and onshore regions of each aquifer that facilitates a robust estimation of fluxes between the offshore and onshore areas of each aquifer.

Climate data

Climate data for the SVWM and SVIHM include minimum and maximum air temperature, precipitation, and potential evapotranspiration. Climate data for both models were developed using the Basin Characteristics Model (BCM) tools (Flint and others, 2004; Flint and Flint, 2007 a,b,c) from national climate data stations (for example, Daly and others, 2004) and data from the California Irrigation Management System stations (CIMIS, 2005). The BCM tools were used to develop daily spatially distributed 270-m resolution climate datasets for the future climate scenarios. Climate input datasets are precipitation, maximum and minimum air temperature, and solar radiation; the latter two are used to compute evapotranspiration.

Climate input were developed as spatially distributed grids. Gridded data were interpolated onto the model grid using an area-weighted approach. For the SVWM, the 270-m climate data were interpolated onto the hydrologic response units (HRUs). For the SVIHM, the 270-m climate grids were interpolated onto the model grid.

Salinas Valley Watershed Model

The (SVWM) simulates watershed processes for the entire Salinas River watershed (figure 1). The model simulates the historical period between 10/1/1948 - 9/30/2018. Each sub-catchment in the domain was defined as a hydrologic response unit (HRU). Hydrologic processes simulated for each HRU include evapotranspiration, runoff, interflow and baseflow. Each HRU is connected to stream segments and tributaries that represent a drainage network to route surface waterthrough the SVWM from upland areas to the Pacific Ocean. Streamflow in each stream segment is simulated using the kinematic wave method. The simulation includes the discharge volume, stream velocity, stage, and water volume for the segment, as well as stream losses from evaporation and streamchannel infiltration.

The SVWM combines the BCM tools and HSPF models to simulate the climate and hydrology for the upland areas and tributaries draining into the alluvial valleys simulated by the SVIHM. The SVWM domain consists of an upper Salinas Valley subarea and lower Salinas Valley subarea simulated as sub-catchments connected at the location of USGS streamgage 11150500 (SALINAS R NR BRADLEY CA, https://waterdata.usgs.gov/nwis/uv?site_no=11150500), with all surface water outflows from the upper SVWM entering the lower SVWM as Salinas River streamflow at the location of the streamgage. The upper SVWM includes five sub-watershed areas that contain most of the Paso Robles area of the Upper Salinas

River Valley in San Luis Obispo County area, while the lower SVWM contains most of the SVIHM area within its five sub-watershed areas.

Salinas Valley Watershed Model Domain

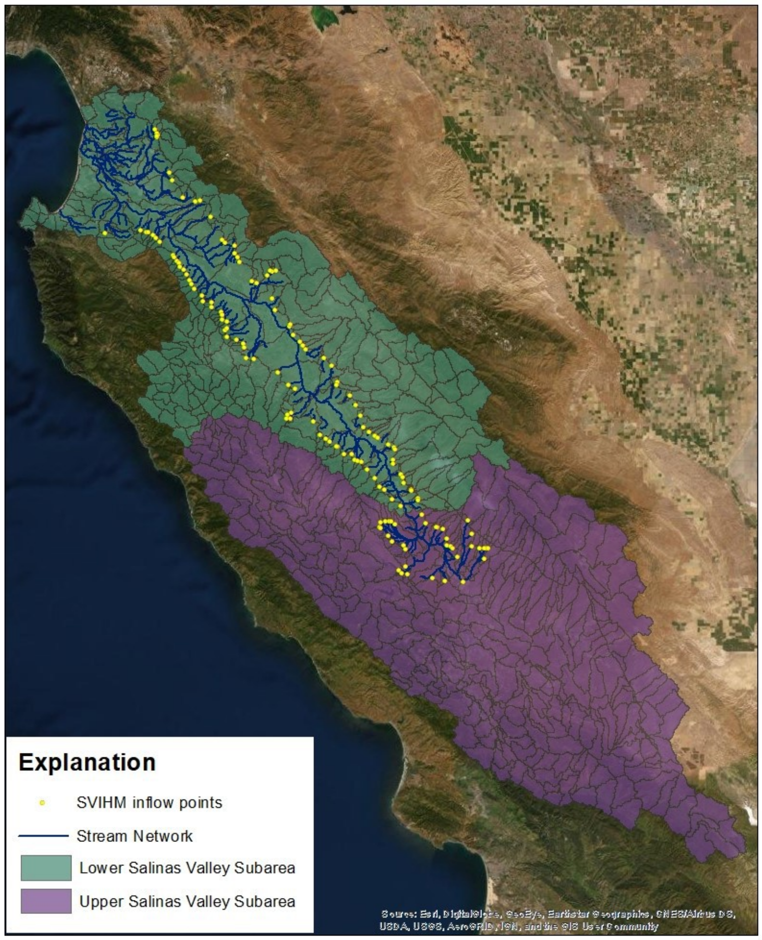


Figure 1: Salinas Valley Watershed Model (SVWM) domain showing Upper and Lower Salinas Valley Subareas, stream network, and inflow points where watershed flows are routed into the Salinas Valley Integrated Hydrologic Model (SVIHM).

Spatial discretization of the SVWM was based on topographically defined watersheds that were subdivided into smaller sub-drainage areas using a combination of surface flow-routing defined by a 10-meter digital elevation model (DEM) and pre-defined sub-drainages (CalWater version 2.2.1, Department of Forestry and Fire Protection, http://frap.fire.ca.gov/data/frapgisdata-sw-calwaterdownload). The smaller sub-drainages were used to (1) represent spatially varying climate and topography in the upland areas of the SVWM model domain, and (2) define pour points to route estimated ungaged flows from the SVWM to the SVIHMstream networks. The SVWM spatial discretization resulted in HSPF segments varying in area from 65 acres to about 25,000 acres and a total of 148 pour-point connections for inflows from upstream drainagesalong the Salinas Valley.

The HSPF model is run as a continuous simulation using an hourly time step; however, in the current

SVWM version, the daily climate inputs are uniformly distributed to hourly values. Therefore, only daily results are used for calibration and for developing SVIHM inflows.

SVWM model parameters were developed using geographic information system (GIS) data sets that included: DEM-derived elevation, slope and aspect, estimated soil water storage capacity (State Soil Survey Geographic ((SSURGO), Web Soil Survey, available online at https://websoilsurvey.nrcs.usda.gov/), percent forest canopy and impervious land cover (National Land Cover Data, NLCD; U.S. Geological Survey, 2007, 2011, 2014). For discrete data such as land cover type, GIS analysis was used to calculate the weighted average values for each HSPF parameter based on the fractional area of a given discrete data value within each HSPF segment. The fractional areas for discrete data are calculated in GIS, and the weighted averages are calculated in spreadsheets, resulting in a unique set of HSPF parameters for each model segment. This method provided a better representation of the physical watershed characteristics for each segment as compared to simply using the dominant discrete data within each segment. Continuous data such as slope and percent canopy cover were mapped directly to HSPF segments as area-average values using GIS.

The SVWM was used to estimate inflows into the Salinas Valley from adjoining ungaged watersheds. These inflows are provided as a monthly inflow time series to the SVIHM. Although the model is only used to estimate ungaged watershed inflows to the SVIHM, the SVWM is calibrated for the entire basin, providing many opportunities for future evaluations where surface water and sediment and nutrient transport are of greater concern than groundwater storage. These potential applications will be discussed in the section on Future model updates, applications, and developments.

Salinas Valley Integrated Hydrologic Model

The Salinas Valley Integrated Hydrologic Model (SVIHM) is an integrated water resources management tool that simulates the conjunctive use of groundwater and surface-water in the Salinas Valley (Figure 2). The Salinas Valley model simulates the period between 10/1/1967 to 9/30/2018 and has been calibrated for the period from 10/1/1967 to 12/31/14. The SVIHM includes explicit representation of climate, groundwater and surface water, recharge, runoff, inflows from ungaged watersheds, reservoir releases, Salinas River diversions, municipal and industrial water supply pumping, and a rigorous simulation of the substantial Salinas Valley agricultural industry.

The SVIHM is built using the latest version of MODFLOW-OWHM (Boyce and others, 2020) with the MODFLOW farm process. OWHM simulates water supply and demand for natural, urban, and cultivated lands. OWHM uses an embedded land use and crop model based on the widely used FAO56 method (Allen and others, 2005) to estimate water demands for a set of user-specified land uses. If precipitation and direct groundwater root uptake are insufficient to meet simulated land use water demands, then additional supplies can be provided to meet the deficit (groundwater pumping, surface water diversions, wastewater reclamation, and reservoirs). Additionally, for cultivated lands, water demand efficiencies can be specified for land-use type, irrigation type, climate regime (wet or dry), and region. This well-developed model framework facilitates evaluation of water demand by region, crop, and climate regime and allows for scenario testing to evaluate the effects of potential changes in agricultural practices, increases in efficiency, and optimization of agricultural development within the basin. This tool is well suited for the analyses that will be needed throughout the next century to manage sustainability of the Salinas Valley aquifer system.

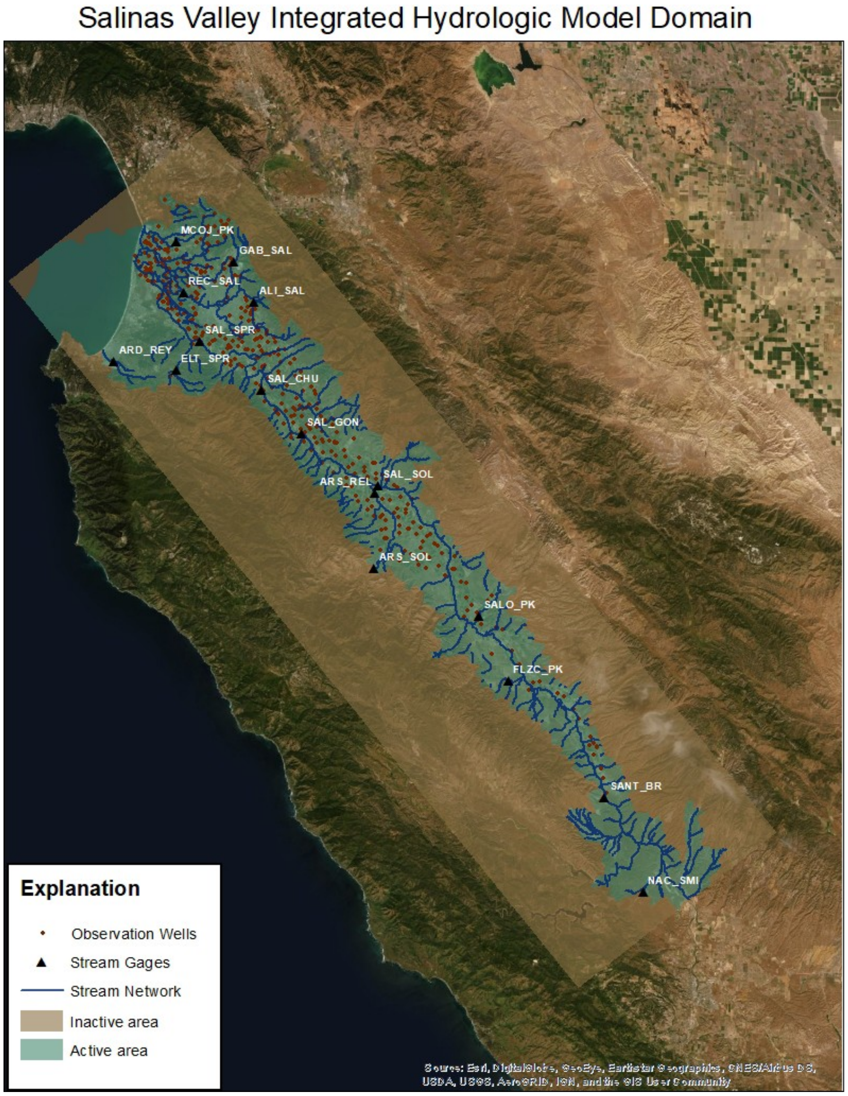


Figure 2: Salinas Valley Integrated Hydrologic Model (SVIHM) showing domain extent with inactive and active areas, stream network, stream gages, and observation wells.

The total active modeled area in the SVIHM is 10,266 mi^2. The model grid is uniform, where each grid cell is approximately 6.42 acres (529-by-529 ft). There are 976 rows, 567 columns, and 9 layers having a varying number of active cells in each layer, for a total of 265,382 active model cells. To assess changes in aquifer storage due to seawater intrusion, the model includes approximately 84,000 active cells onshore and 11,000 active cells offshore. The SVIHM includes nine model layers that correspond to locally defined hydrostratigraphic units such as the defined aquifers (180-Foot and 400-Foot aquifers), confining units, and geologic units (e.g., basement bedrock). The top of SVIHM is represented by the altitude of the land surface, but because hydrostratigraphic units are discontinuous across the study area, the uppermost active layer is a composite of model layers 1, 3, 5, 7, and 9.

The SVIHM is partitioned into 31 water balance subregions (WBS; Figure 3 and Table 1). Each WBS has simulatedwater demands for each land use and a unique set of available water supplies that can be used by the model to meet the demands. The model includes WBS representing the Zone 2C jurisdictional area and associated subareas, the Castroville Seawater Intrusion Project (CSIP) area, Seaside Basin, and areas outside the Zone 2C boundary but within the SVIHM model domain.

Table 1. Summary of water-balance subregions within the Salinas Valley Integrated Hydrologic Model, Monterey and San Luis Obispo Counties, California. (SW= Surface water, GW = Groundwater, None = No Deliveries).

Water Balance Subregion	Region Name	Region Description	Irrigation Water Supply
1	Riparian Corridor	Monterey and SLO Counties	None
2	CSIP Area	Castroville Seawater Intrusion Project Region	GW/SW/recycled water
3	Coastal Urban areas	Salinas, Castroville, Marina, Seaside, Sand City, Monterey, Del Rey Oaks	None
4	Inland Urban areas	Chualar, Gonzales, Soledad, Greenfield, King City, & San Ardo	None
5	Highlands South	North of Eastside outside of Zone 2C	GW
6	Granite Ridge	North of Eastside outside of Zone 2C	GW
7	Corral De Tierra	South of Pressure part within Zone 2C	GW
8	Blanco Drain Area	Drain subarea within Pressure subarea of Zone2C	GW
9	East Side	Remainder of Eastside subarea in Zone2C	GW
10	Pressure Northeast	Pressure subarea NE of Salinas River in Zone 2C	GW
11	Pressure Southwest	Pressure subarea SW of Salinas River in Zone 2C	GW
12	Forebay Northeast	Forebay subarea NE of Salinas River in Zone 2C	GW
13	Forebay Southwest	Forebay subarea SW of Salinas River in Zone 2C	GW
14	Arroyo Seco	Subarea SW of Salinas River outside of Zone 2C	GW
15	Clark Colony	Subarea SW of Salinas River partly outside of Zone 2C	SW/GW
16	Upper Valley Northeast	Upper Valley subarea NE of Salinas River and northeast of King City in Zone 2C	GW
17	Upper Valley Northwest	Upper Valley subarea NW of Salinas River and west of King City in Zone 2C	GW
18	Upper Valley Southeast	Upper Valley subarea SE of Salinas River and east of King City in Zone 2C	GW
19	Upper Valley Southwest	Upper Valley subarea SW of Salinas River and west of King City in Zone 2C	GW
20	Below Dam	Subregion below Nacimiento Dam and within Zone 2C	GW

21	Westside Region	Westside Regions of SVIHM outside of Zone 2C boundary in Monterey County Inland Southwest of Arroyo Seco and Clark Colony subregion	GW
22	Hames Valley	Outside Zone 2C but in Monterey County	GW
23	NE Quarries	Outside Zone 2C but in Monterey County	GW
24	Northeast Region	Northeast Regions of SVIHM outside of Zone 2C on the Northeast side of the Eastside, Granite Ridge, and Highlands South subregions	GW
25	Southwest Region	Southwest regions of SVIHM outside of Coastal Pressure subregion Zone 2C boundary in Monterey County	GW
26	Northeast Region	Northeast Region of SVIHM outside of Zone 2C Forebay subregion in Monterey County	GW
27	Southwest Region	Southwest regions of SVIHM outside of the Upper Valley and Forebay regions subregions of Zone 2C in Monterey County plus outside of Arroyo Seco, Hames Valley, and SLO active subregions	GW
28	Southeast Region	Southeast Region of SVIHM outside of Below Dam and Upper Valley subregions of Zone 2C boundary in Monterey County	GW
29	Paso Robles Region	Remainder of Paso Robles Basin in active model grid in San Luis Obispo County	GW
30	Seaside Basin	Seaside Adjudicated Basin (landward only)	GW
31	Offshore	Offshore (groundwater analysis only)	None

Water Balance Subregions

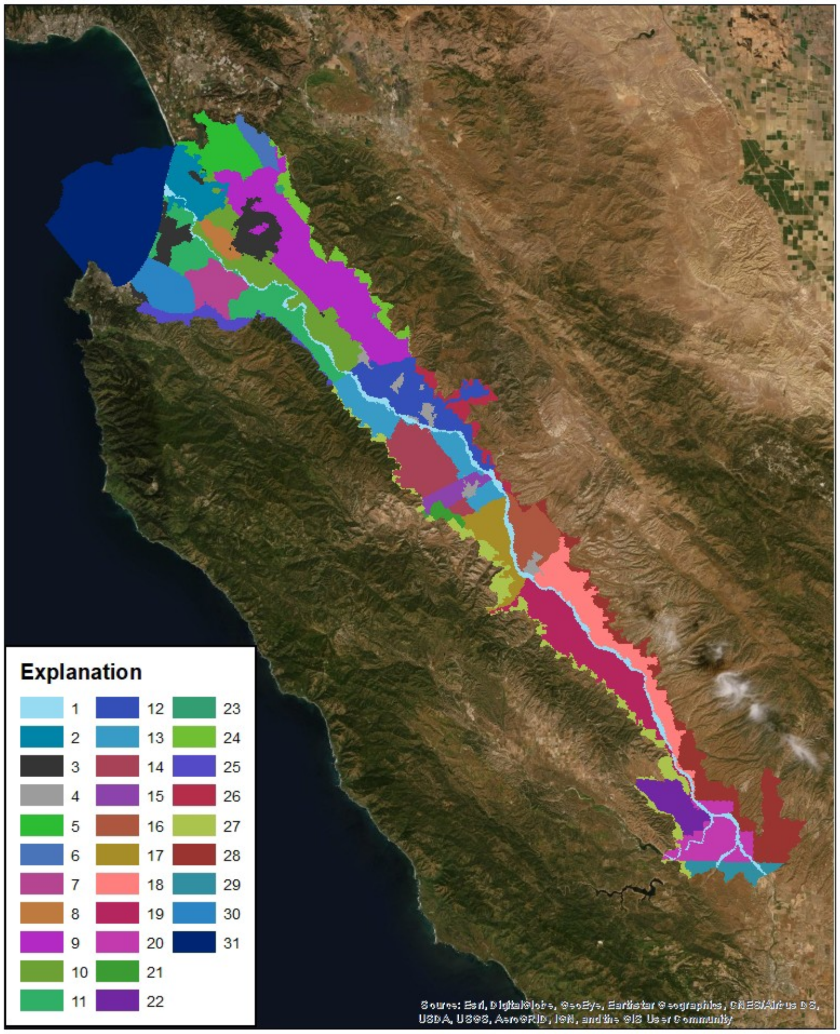


Figure 3: Salinas Valley Integrated Hydrologic Model Water Balance Subregions.

The SVIHM has 56 specified land use types (Table 2), each with defined water sources, irrigation type and efficiency (if applicable), and crop water demand properties (crop coefficients, area, crop development timeline). For each model year, two six-month land use maps were generated using a composite of available land use data from California Department of Water Resources, Monterey County, and the National Land Cover Database (NLCD, U.S. Geological Survey, 2014) and a newly developed method that leverages the California Pesticide Use Reporting (CalPUR) database.

The new CalPUR method is used to provide greater detail about the distribution of crops within areas with vague land use types such as “truck and vegetable crops” (Henson and others, in Prep). This approach captures complex cultivation methods including multi-cropping and crop rotations, providing a rich dataset for estimating agricultural water demands.

Table 2: Salinas Valley Integrated Hydrologic Model (SVIHM) Land Use Types

Land Use Type		Land Use Type		Land Use Type	
1	Celery – coastal	20	Root vegetables – inland	39	Outdoor nurseries – coastal
2	Celery – inland	21	Tomato/pepper – coastal	40	Outdoor nurseries – inland
3	Cucumber/melon/squash – coastal	22	Tomato/pepper – inland	41	Indoor nurseries
4	Cucumber/melon/squash – inland	23	Strawberries – coastal	42	Artichokes
5	Legumes – coastal	24	Strawberries – inland	43	Pasture
6	Legumes – inland	25	Corn – coastal	44	Non-irrigated
7	Lettuce – coastal	26	Corn – inland	45	Semi-agricultural
8	Lettuce – inland	27	Field crops – coastal	46	Idle/fallow
9	Rotational 30-day – coastal	28	Field crops – inland	47	Ag-trees
10	Rotational 30-day – inland	29	Grain crops – coastal	48	Golf course turf/parks
11	Crucifers/cabbages – coastal	30	Grain crops – inland	49	Urban
12	Crucifers/cabbages – inland	31	Cane/bush berries – coastal	50	Quarries
13	Unspecified irrigated row crops – coastal	32	Cane/bush berries – inland	51	Water
14	Unspecified irrigated row crops – inland	33	Deciduous fruits and nuts – coastal	52	Riparian
15	Carrots – coastal	34	Deciduous fruits and nuts – inland	53	Upland grasslands/shrub lands
16	Carrots – inland	35	Citrus/subtropical – coastal	54	Woodlands
17	Onions/garlic – coastal	36	Citrus/subtropical – inland	55	Beach/dunes
18	Onions/garlic – inland	37	Vineyards – coastal	56	Barren/burned
19	Root vegetables – coastal	38	Vineyards – inland		

The SVIHM was calibrated using over 63,098 monthly observations including: 1,738 measurements from the MCWRA observation well network (Figure 2); 6,448 streamflow measurements of at 17 streamgages (Figure 2 and Table 3); 127,683 monthly reported groundwater extraction values; and 162 reported monthly diversions. In addition, calibration included second-order observations of streamflow differences between gages and vertical hydraulic head differences between aquifers with multiple nested observation wells.

Table 3: Stream gage information showing Gage ID, U.S. Geological Survey National Water Information System (NWIS) gage number and gage name.

Gage ID	NWIS Gage Number	Gage Name
ARS_SOL	11152000	ARROYO SECO NR SOLEDAD CA
ARS_REL	11152050	ARROYO SECO BL RELIZ C NR SOLEDAD CA
SAL_SOL	11151700	SALINAS R A SOLEDAD CA
ELT_SPR	11152540	EL TORO C NR SPRECKELS CA
SAL_CHU	11152300	SALINAS R NR CHUALAR CA
ALI_SAL	11152570	ALISAL C NR SALINAS CA
SANT_BR	11150500	SALINAS R NR BRADLEY CA
SAL_SPR	11152500	SALINAS R NR SPRECKELS CA
SALO_PK	11151500	SAN LORENZO C A KING CITY CA
NAC_SMI	11149500	NACIMIENTO R BL NACIMIENTO DAM NR BRADLEY CA
REC_SAL	11152650	RECLAMATION DITCH NR SALINAS CA
GAB_SAL	11152600	GABILAN C NR SALINAS CA
ARD_REY	11143300	ARROYO DEL REY A DEL REY OAKS CA
FLZC_PK	11150700	FELIZ CYN TRIB NR SAN LUCAS CA
MCOJ_PK	11152700	MORO COJO SLOUGH TRIB NR CASTROVILLE CA
SAL_GON	11152200	SALINAS R NR GONZALES CA

In collaboration with MCWRA and the Pajaro Valley Water Management Agency, self-updating model tools have been developed which allow temporal datasets of MODFLOW-OWHM models to be updated using spreadsheets with updated temporal data. This approach is an improvement that allows models to continue to be updated and useful for the wide range of resource questions and scenarios that arise. These self-updating model tools can be used to update or correct input data describing climate data, ungaged inflow data, land use properties, observed hydraulic heads, groundwater extraction, wastewater reclamation, surface water diversions, reservoir releases, and agricultural pumping, irrigation types and efficiencies. All these updates can be completed without rebuilding the entire model. Model updates are described in the section “Future model updates, applications, and developments”.

Salinas Valley Operational Model

The Salinas Valley operational model (SVOM) uses the Surface Water Operations Module of MODFLOW-OWHM. This implementation of reservoir operations is based on a wealth of prior publications (Ferguson and others 2015; Ferguson and others, 2016; Hevesi and others, 2019; Hanson and others, 2020; Boyce and others, 2020). The SVOM is a baseline model that is used to evaluate water supply projects such as the reservoir modification and changes to operations to aide with groundwater sustainability efforts. The SVOM is similar to the SVIHM for simulation of hydrologic processes, surface and subsurface properties, and simulation of agricultural operations. In this model, the land use is fixed to 2014, the time step is shorter, about five to six days, and the reservoir operations are explicitly simulated. The reservoir operations rules are human readable text files that formulate the logic for the current mandated operational rules for conservation, water supply, flood mitigation, and water rights. These operations include fish passage rules that support the life cycle of threatened steelhead fish populations. These input data just translate existing flow charts and figures from the approved operations into text that the model can read in. These data are available from MCWRA upon request, both in the form used in the model and in public documents.

Model Representation of Seawater Intrusion, Groundwater Levels and Land Use

The following descriptions of methods are provided to illustrate how the model will inform future evaluations of Seawater Intrusion, groundwater sustainability evaluations and scenarios, and responses to changes in land use and climate.

Seawater Intrusion

Interactions with onshore freshwater aquifers and near-shore saltwater aquifers are driven by contrast in aquifer hydraulic heads and pore water densities between freshwater and seawater and the distribution of aquifer permeability along the coast. Seawater Intrusion (SWI) is estimated in the SVIHM as flux across the coastal boundary. The monthly elevation of the 9413450 NOAA Station buoy in Monterey Bay is used as a proxy for the sea water elevation (H_{sw}). In the model, the sea level is simulated as an equivalent freshwater head (h_{fw}) using the following relation from Motz (2005):

$$h_{fw} = \frac{\rho_{sw}}{\rho_{fw}} h_{sw} - \left(\frac{\rho_{sw} - \rho_{fw}}{\rho_{fw}} \right) Z$$

where

- h_{fw} is the seawater's equivalent freshwater hydraulic head at elevation Z (L),
- ρ_{sw} is the seawater density (M/L^3),
- ρ_{fw} is the freshwater density (M/L^3), and
- Z is the elevation point where the equivalent freshwater head is calculated (L).

Similar to other models in the region (Hanson, 2003a,b), the freshwater-seawater interface is simulated as general head boundary (GHB), that is, a boundary that depends on the aquifer hydraulic heads along the coast. To specify an ocean boundary condition with the GHB, the sea level is converted to an equivalent freshwater head at the model cell's center. The density of seawater is assumed to have an average value of 1,025 kg/m^3, and the density of freshwater is assumed to be 1,000 kg/m^3 (Motz, 2005). When hydraulic head in an aquifer is greater than h_{fw} along the coast, hydrologic flows are seaward. Conversely, when hydraulic head in an aquifer is less than h_{fw} along the coast, seawater intrusion into the aquifer occurs. The net annual flux values along the coastline for each aquifer are simulated by the SVIHM to inform interpretation of chloride monitoring by MCWRA.

Although these estimates do not provide information about the onshore spatial extent of SWI, the model is well-poised to be used to provide this information in future model updates and applications. These more explicit methods will be described in the Future model updates, applications, and developments section.

Groundwater Elevations

The SVIHM and SVOM estimate groundwater elevations using well-developed methods of the MODFLOW framework. MODFLOW uses the method of finite differences to solve the groundwater flow equation for each model cell. This approach assumes Darcian flow that is based upon hydraulic gradients within and among aquifers and the spatial distribution of hydraulic conductivity. Additional boundary conditions or processes that can increase or decrease hydraulic heads in the model are simulated such as barriers to flow (for example, faults), groundwater extraction (for example, municipal and agricultural pumping), stream-aquiferinteractions, sea water intrusion, and recharge.

After successful calculation of the hydraulic head in each aquifer, well depth-weighted composite heads are developed for wells screened in multiple aquifers. Composite- and single-well aquifer values for the simulated and observed hydraulic heads are compared. If the comparison between simulated and observed hydraulic heads is reasonable, the spatial distribution of simulated aquifer hydraulic heads provides another source for evaluating groundwater elevations and complements independently developed groundwater contour maps by MCWRA.

Land Use

Land use will be updated in future updates of the SVIHM using available spatial datasets and the CalPUR method to attribute vague land use categories. As new spatial data become available, they can be prioritized in the composite land use map and replace co-located data. The process for developing land use input data has four steps: develop a composite map, enhance map with CalPUR data, interpolate onto model grid, and generate the input files. In the future, new land use properties may need to be developed for new crop types not already represented in the current version of the historical model. An example of the 2017 land use map is provided to illustrate the representation of land use for every year in the model (Figure 4).

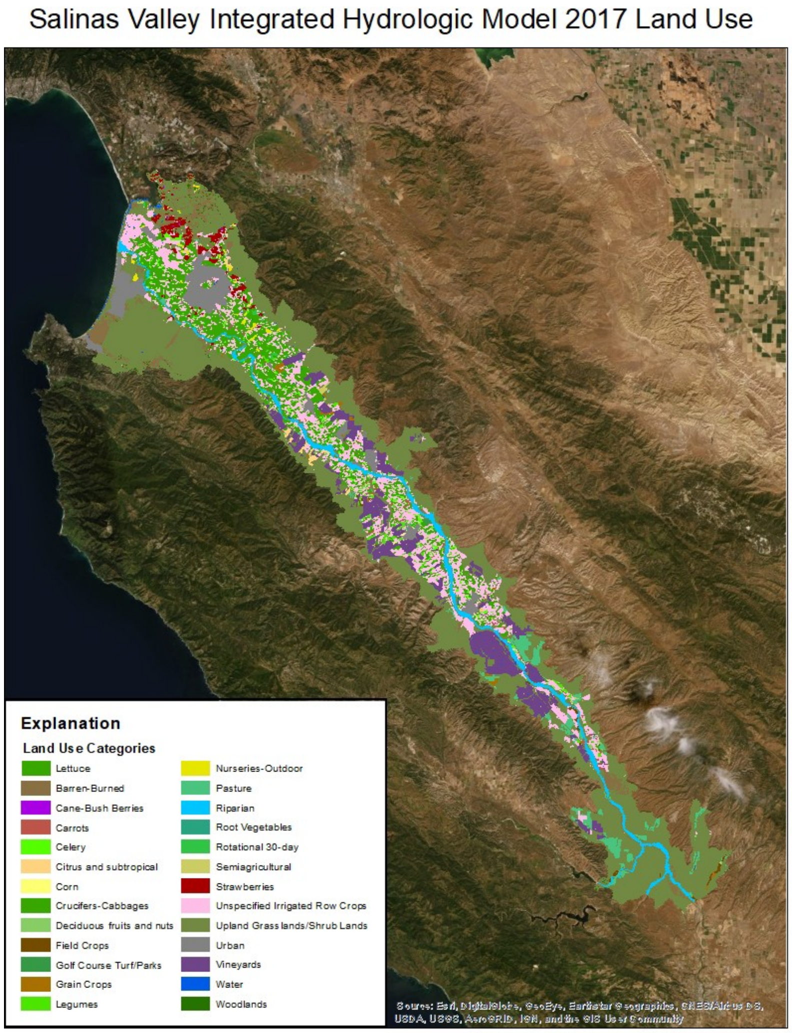


Figure 4: Salinas Valley Integrated Hydrologic Model (SVIHM) 2017 land use.

Model Review and Public Release

The model public release will consist of three elements: (1) a report about geologic and development and calibration of hydrologic models, (2) a data release with SVGM model input files and metadata, and (3) a data release with SVWM, SVIHM, and SVOM model input files and metadata in a public repository. The SVWM and SVIHM reports will document how the historical models were constructed. The SVOM report will include a description of the adaptations to the SVIHM to generate a baseline reservoir operations model, describe reservoir model implementation, and document implementation of rules. The report and data releases will be publicly available after completion of fundamental science review by the USGS. The USGS fundamental science review has multiple levels of scientific and technical review. These include technical, scientific, editorial, and regional review. This review ensures complete and accurate documentation of model development and results before data are potentially used for decision-making. The model is undergoing final calibration and has been updated through water year 2018. Final calibration is occurring simultaneously with report development.

The Salinas Valley models have been developed to address additional applications for ongoing regulatory and management efforts. A comprehensive 51-year climate, surface and groundwater, agricultural and reservoir operations model of the entire Salinas Valley is a substantial effort that warrants and benefits greatly from a sufficient technical review. This review provides a rigorous basis for further tool development and refinement and scenario testing. The technical review has been enhanced by use and further development of the Salinas Valley Suite in two regional projects, (1) the WaterSMART water supply vulnerability study cooperatively funded in partnership with the U.S. Bureau of Reclamation and (2) the Interlake Tunnel project. The WaterSMART Study includes forecast and analysis framework to evaluate conditions to 2100 for multiple possible climates, socio-economic growth scenarios, projects, and conservation strategies in the Salinas Valley and region. The Interlake Tunnel benefit analysis facilitated the operational model development which will benefit future project evaluations for years to come. These applications of the model allowed for more rigorous review of model input data, better implementation of important processes, and improved representation of land use.

Every effort is being made to publish the models within the estimated timeframe. However, it is important to note that the initial model scope was to address specific concerns about historical conditions for the Monterey County Basin Investigation. Since the start of project, the models have been refined with better representation wells and updated with four additional years of critical climate, land use, water supply, and reservoir storage, that represent drought recovery between 2014 and 2018. These data allow for (1) better representation of stakeholder conservation efforts that are essential for evaluation of water budgets and potential sustainability projects, (2) a longer duration for evaluation of operations, and (3) many updates to model input data sets to better represent the groundwater well network.

The Salinas Valley hydrologic model suite development has leveraged a unique opportunity to benefit multiple projects for stakeholders throughout the entire Salinas Valley. Although the technical review and model development has taken longer than anticipated, the value-added information and consistent analysis framework for these concurrent studies benefits both stakeholders and the models. As presented at the Model Workshop, the SVIHM is expected to be submitted for USGS Specialist Review in winter 2021-2022

Future model updates, developments, and applications

The SVWM and SVIHM will need annual updates to keep the models relevant for evaluating and reporting sustainability efforts for Sustainable Groundwater Management Act (SGMA) compliance or for use with other future projects. Updates to the SVIHM conceptual model, aquifer parameters, and input data facilitate timely SVOM updates, so that reservoir operations can continue to be refined to meet stakeholder needs. The SVWM and SVIHM will require periodic calibration to maintain model accuracy with potential changes in hydrology, climate, and land use. The model can also be improved with additional stakeholder support and refined to keep the model relevant to decision-making.

MCWRA and USGS continue to develop workflows and train staff to use model update tools. These self-updating model tools can convert MCWRA hydrologic data into model input. However, climate, land use, observation, extraction, diversion, and reservoir release datasets require some development. Data describing observed hydraulic heads, municipal and industrial groundwater extraction, wastewater reclamation, reported diversions, reservoir releases, and reported agricultural pumping are readily available in various MCWRA and Monterey County databases and require monthly aggregation and conversion to model units. These tools facilitate a model framework that can be readily updated with minimal lag time with support from the USGS.

PRISM climate data and climate station data are used to generate spatially distributed temperature, precipitation and potential evapotranspiration estimates using the BCM tools. There is a six-month lag time for some of these climate datasets. Climate data are used in the SVWM to develop ungaged watersheds inflows to the valley.

Land use will be updated in future updates of the SVIHM using available spatial datasets and the CalPUR method to attribute vague land use categories. As new spatial data become available, they can be prioritized in the composite land-use map and replace co-located data. The process for developing land-use input data will be to develop a composite map, enhance with CalPUR data, map onto model grid, and generate the input files. Additionally, new land use properties may need to be developed for new crop types not already represented in the current version of the historical model. As remote sensing technologies, such as satellite multi -spectral data analysis, are developed and refined alternate approaches to assigning time series crop water demand will be evaluated for future model updates.

The SVWM can be extended to look at nutrient and sediment loading and transport in the Salinas River watershed. This could be a powerful tool for soil conservation, nutrient evaluations, and water quality assessments. The SVWM can also be used to examine changes in runoff and recharge in response to land surface change. This can be a useful tool for initial assessments of potential surface storage sites, habitat restoration and flood flows.

The SVGM provides a basis for evaluating aquifer structure, evaluation of faults and other structures that may influence subsurface flow paths and facilitate interpretation of geophysics such as airborne electromagnetic (AEM) surveys.

The SVIHM can be extended to provide insights into several county initiatives: (1) assessment of Sea Water Intrusion (SWI) and contaminant transport, (2) evaluation of conceptual models of potential interactions between 180-ft and 400-ft aquifers (3) evaluation of optimal monitoring network expansion, (4) uncertainty estimates for important hydrologic predictions (SWI, GW-SW interactions, recharge).

The SVIHM could be extended to evaluate Sea Water Intrusion (SWI) more completely. Currently the model examines net volumes of landward flow from the ocean. In order of increasing effort, other options for SWI evaluation include particle tracking, the sharp water interface Modflow package (SWI2, Bakker and others 2013)), and coupled simulation of sea- and fresh water such as SEAWAT (Guo and Langevin, 2002; Langevin, 2001). The SVIHM geologic texture model, aquifer parameters, and model structure provide a backbone for any of these options for evaluating SWI.

SWI monitoring and analysis by the MCWRA has identified the occurrence of vertical migration of seawater from the overlying intruded Pressure 180-foot aquifer to the Pressure 400-foot aquifer (MCWRA, 2017). More information is needed to understand these interactions among aquifers and aquifer responses to stress. As monitoring and data collection efforts are refined and expanded, along with continued refinement of hydrostratigraphic information, the SVIHM can be used to evaluate new conceptual models of the aquifers and evaluate the aquifer’s response under various management scenarios.

Summary

A suite of geologic and hydrologic models has been developed to estimate water supply and availability in the Salinas Valley. These models will be documented and released to the public after completion of review and approval according to USGS fundamental science practices. After publication these models will continue to be updated to support future water management objectives.

Disclaimer

Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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Chapter 7
Appendix 7-A

MCWRA's CASGEM Monitoring Protocols

4.0 Monitoring Procedures

This section addresses the various procedures and protocols involved in collecting, processing, and reporting data from wells in the CASGEM network.

4.1 Monitoring Frequency and Timing

Nineteen (19) of the CASGEM wells are currently, and will continue to be, measured on a monthly basis. The three (3) voluntary wells are also measured monthly. MCWRA will use the monthly measurements from August and either January, February, or March to satisfy the biannual CASGEM reporting criteria.

To determine the monthly distribution of seasonal high and low groundwater elevations, MCWRA analyzed measurements from approximately 50 wells throughout the Salinas Valley Groundwater Basin. This included wells in the 180/400 Foot Aquifer, East Side Aquifer, Forebay Aquifer, and Upper Valley Aquifer. The measurements were collected during eight (8) different Water Years (WY): WY 1985, representative of near normal conditions; WY 1991, representative of dry conditions; and the six most recent Water Years, WY 2009 through WY 2014. MCWRA reports this data on a quarterly basis; a sample report is included in Appendix B.

Based on this analysis of historical data, August is typically representative of seasonal low conditions (Figure 10). A relaxation of groundwater levels, or seasonal high conditions, is evident during the period from January to March (Figure 11). Data from these three months will be evaluated and the highest groundwater elevation from that series will be submitted to the CASGEM online submittal system. The month chosen to be representative of the seasonal high groundwater conditions will be consistent across all data groups.

Nineteen (19) of the CASGEM wells are equipped with pressure transducers which collect depth to water data on an hourly basis. This data will be synthesized so that biannual measurements representing seasonal high and low conditions are available for CASGEM reporting. The groundwater level measurement collected at noon on the fifteenth day of the month will be selected and compared to other monthly data to ensure that it is a representative value. Data from the month of August will be used to represent the seasonal low and a fall/winter measurement from either January, February, or March will be used to represent the seasonal high; the same month will be used as was selected based on monthly well measurements, as discussed above.

Four (4) of the wells in the CASGEM network are currently measured once per year, during the period from November to January. Based on the recent analysis of seasonal groundwater highs, this period will be shifted to cover the months from January through March. An additional measurement event will be added during the month of August for these wells in order to also capture the seasonal groundwater low.

Appendix C contains a summary of the frequency and timing of measurement of wells in the CASGEM network. Any new wells that are brought into the CASGEM program will be monitored on a biannual basis, with data collection occurring on the same schedule as the other wells that are measured twice a year.

4.2 Well Locations

The latitude and longitude of each well was collected using a handheld GPS unit, which has accuracy to within one (1) meter. Coordinates for wells in the CASGEM network are shown in Appendix A. Any wells incorporated into the CASGEM network in the future will be geographically located using a similar method.

4.3 Reference Points

All of the wells that comprise the CASGEM network described herein are currently part of a groundwater level monitoring program conducted by MCWRA. As part of the existing monitoring programs, reference points (RP) have been established for all of the wells. To ensure consistency in measuring depth to water, a description of each well's RP is recorded in a field data collection notebook. In many cases, photographs have also been taken of the RP. Reference point elevations have been determined for all wells that are currently in a monitoring program; this data is listed in Appendix A.

A reference point will be determined for any new wells that are brought into the CASGEM network. Reference point elevations are determined using a digital elevation model from the United States Geological Survey (USGS) with a cell size of 32 feet by 32 feet.

Figure 10 – Distribution of Seasonal High Groundwater Elevations by Month

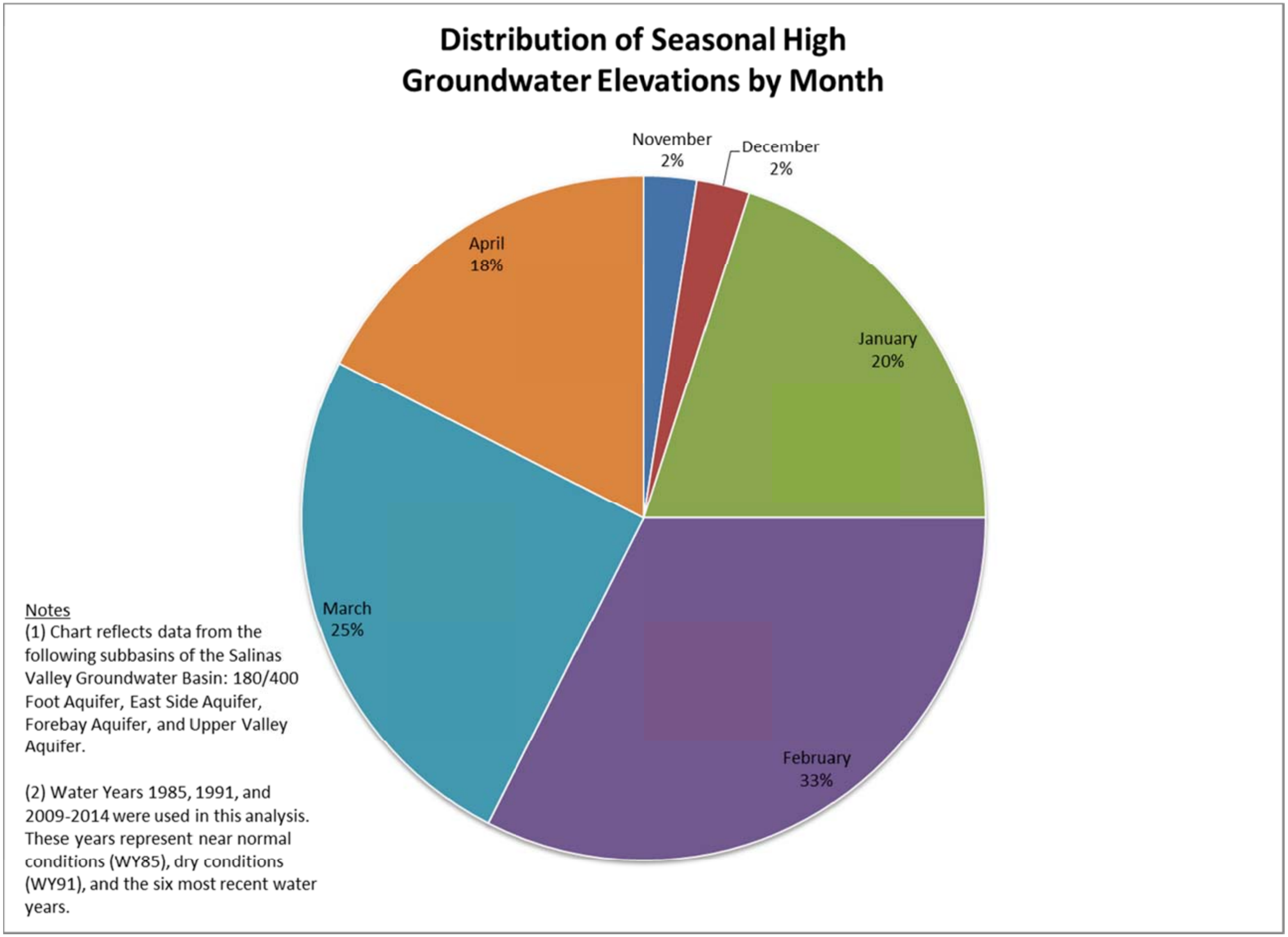
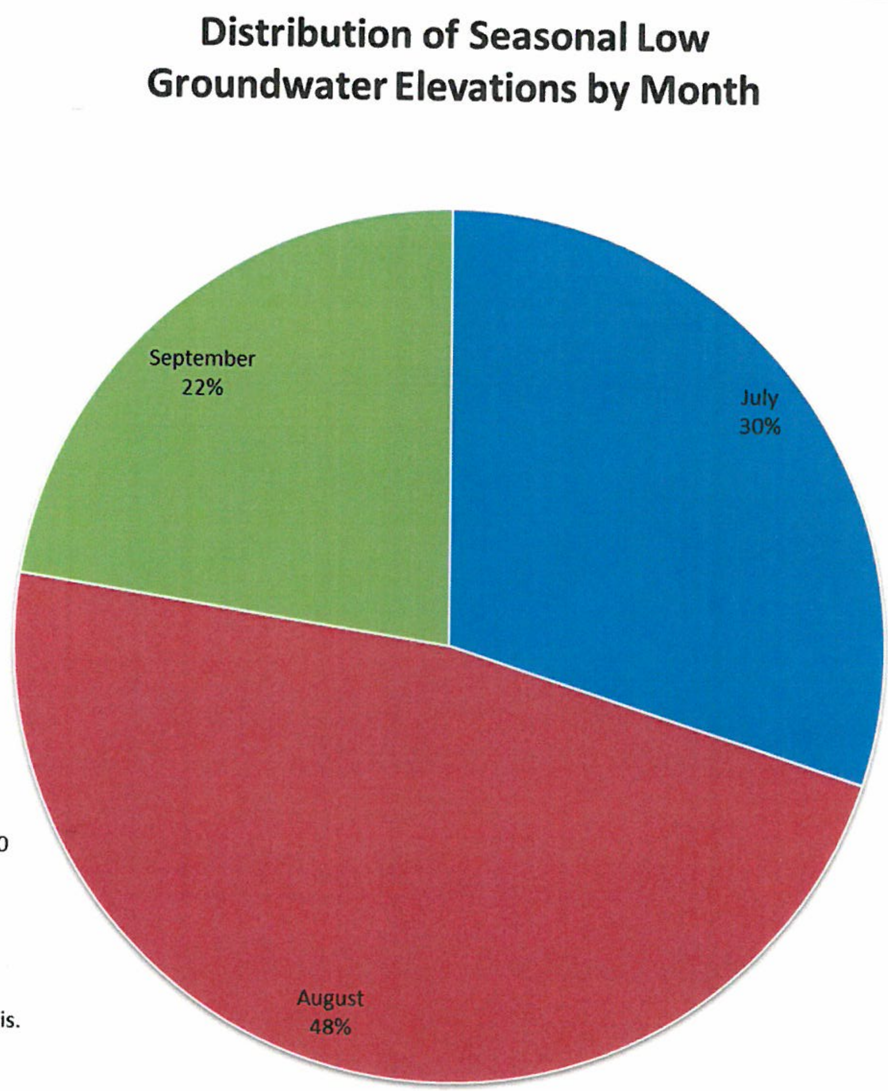


Figure 11 – Distribution of Seasonal Low Groundwater Elevations by Month



Notes

(1) Chart reflects data from the following subbasins of the Salinas Valley Groundwater Basin: 180/400 Foot Aquifer, East Side Aquifer, Forebay Aquifer, and Upper Valley Aquifer.

(2) Water Years 1985, 1991, and 2009-2014 were used in this analysis. These years represent near normal conditions (WY85), dry conditions (WY91), and the six most recent water years.

4.4 Field Methods

Groundwater elevation data collected from wells in the CASGEM network is intended to reflect static conditions. Best efforts will be made to ensure that wells have not recently been pumped prior to collecting a data point. Depth to water measurements will be made using one or more of the methods discussed in the following sections. Measurement methods described in the following sections are based on the Department of Water Resources document *Groundwater Elevation Monitoring Guidelines* (December 2010) with some alterations specific to wells in the monitored basins/subbasins described in this Monitoring Plan.

4.4.1 Graduated steel tape

Prior to measurement:

- Ensure that the reference point on the well can be clearly determined. Check notes in the field data collection notebook.
- Review the notes and comments for previous measurements in the field data collection notebook to determine if there are any unique circumstances at this well.
- Take note of whether oil has previously been present at this well; this will be recorded in the comments section of the data form.

Making a measurement:

- Use the previous depth to water measurement to estimate a length of tape that will be needed.
- Lower the tape into the well, feeling for a change in the weight of the tape, which typically indicates that either (a) the tape has reached the water surface or (b) the tape is sticking to the side of the well casing.
- Continue lowering the tape into the well until the next whole foot mark is at the reference point. This value on the tape should be recorded in the field data collection notebook.
- Bring the tape to the surface and record the number of the wetted interval to the nearest foot.
- If an oil layer is present, read the tape at the top of the oil mark to the nearest foot. Note in the comments section of the data form that oil was present.
- Repeat this procedure a second time and note any differences in measurement in the field data collection notebook.

4.4.2 Electric water level meter

This method of measurement employs a battery-powered water level meter and a small probe attached to a ruled length of cable. Depth to water measurements collected using this equipment are recorded to the nearest tenth of an inch. This instrument is sometimes referred to as a "sounder".

Prior to measurement:

- Review the field data sheet for the well and note whether oil has been present at this well in the past. The electric water level meter should not be used in wells where oil is present.
- Ensure that the reference point on the well can be clearly determined. Check notes in the field data collection notebook.
- Confirm that the water level meter is functioning and is turned on so that the beeping indicator will operate properly.

Making a measurement:

- Review previous depth to water measurements for the well to estimate the length of tape that will be needed.
- Lower the electrode into the well until the indicator sounds, showing the probe is in contact with the water surface.
- Place the tape against the reference point and read the depth to water to the nearest 0.1 foot. Record this value on the field data sheet.
- Make a second measurement and note any differences in measurement in the field data collection notebook.

4.4.3 Sonic water level meter

This meter uses sound waves to measure the depth to water in a well. The meter must be adjusted to the air temperature outside the well; there is a card with reference temperatures in the case with the sonic meter.

Making a measurement:

- Insert the meter probe into the access port and push the power-on switch. Record the depth from the readout.
- Record the depth to water measurement in the field data collection notebook.

4.4.4 Pressure transducer

Automated water-level measurements are made with a pressure transducer attached to a data logger. Pressure transducers are lowered to a depth below the water level in the well and fastened to the well head at a reference point. Data points are logged on an hourly basis. MCWRA uses factory-calibrated, vented pressure transducers (Appendix D). MCWRA staff collects the pressure transducer data once per quarter. During the data collection process, data loggers are stopped, and the data is downloaded onto a laptop, and then the data logger is reactivated and scheduled to begin collecting data again on the next hour. Upon return from the field, data is processed and reviewed for errors.

4.5 Data Collection, Processing, and Reporting

Following completion of all fieldwork, data is transcribed from field data sheets and checked for errors before being loaded into MCWRA's Oracle platform database. All data will be stored in the MCWRA database before being uploaded to the CASGEM website. Submittal of data to the CASGEM website will occur at a minimum of twice per year, no later than January 1 and July 1, per DWR CASGEM program guidelines.

Bi-annual submittal of data to the CASGEM website will include the following for each well in the CASGEM network, as described in the DWR document *CASGEM Procedures for Monitoring Entity Reporting*:

- Well identification number
- Measurement date
- Reference point and land surface elevation, in feet, using NAVD88 vertical datum
- Depth to water, in feet
- Method of measuring water depth
- Measurement quality codes
- Measuring agency identification
- Comments about measurement, if applicable

The following information will also be submitted to the CASGEM online system, as it is required by DWR unless otherwise noted:

- Monitoring Entity name, address, telephone number, contact person name and email address, and any other relevant contact information
- Groundwater basins being monitored (both entire and partial basins)
- State Well Identification number (recommended)
- Decimal latitude/longitude coordinates of well (NAD83)
- Groundwater basin or subbasin
- Reference point elevation of the well, in feet, using NAVD88 vertical datum
- Elevation of land surface datum at the well, in fee, using NAVD88 vertical datum
- Use of well
- Well completion type (e.g. single well, nested well, or multi-completion well)
- Depth of screened interval(s) and total depth of well, in feet, if available
- Well Completion Report number (DWR Form 188), if available

Chapter 7
Appendix 7-B

DDW and ILRP Wells in the Water Quality Monitoring Network

Upper Valley DDW Wells								
Well ID	Water System Name	Well Screen Info			Coordinates		Monitoring Date Range	
		Top of Screen Depth (ft bgs)	Bottom of Screen Depth (ft bgs)	Screen Length (ft)	Latitude (NAD83)	Longitude (NAD83)	First Year	Last Year
2710009-006	CWSC KING CITY	130	202	72	36.201588	-121.133359	5/24/1982	2/18/2020
2710009-012	CWSC KING CITY	182	254	50	36.211458	-121.138575	9/3/2002	2/25/2020
2702539-001	SCHEID VINEYARD WS	214	286	0	36.275651	-121.187493	NA	NA
2700728-001	SAN ARDO WD	80	152	50	36.013725	-120.915228	3/12/2003	5/11/2020
2701172-001	WILDHORSE CAFE WS	NA	NA	NA	36.187395	-121.076521	12/16/2003	9/28/2004
2701742-006	CALIFORNIA ORCHARD WS	NA	NA	NA	36.263361	-121.180681	6/1/2004	5/6/2020
2710009-001	CWSC KING CITY	36	111	75	36.204027	-121.129472	2/15/1983	8/20/1997
2710016-003	LITTLE BEAR WATER COMPANY	160	220	60	36.188337	-121.125296	12/16/1988	6/9/2020
2710016-002	LITTLE BEAR WATER COMPANY	147	193	46	36.192464	-121.133747	8/15/1983	6/9/2020
2710009-002	CWSC KING CITY	40	115	75	36.203869	-121.129512	5/24/1982	8/20/1997
2701742-002	CALIFORNIA ORCHARD WS	NA	NA	NA	36.262053	-121.180939	5/27/2004	5/27/2004
2701742-001	CALIFORNIA ORCHARD WS	176	252	76	36.263181	-121.180235	5/27/2004	10/12/2016
2710009-003	CWSC KING CITY	163	194	31	36.213602	-121.13308	9/2/1983	5/22/2001
2710009-004	CWSC KING CITY	188	224	36	36.213564	-121.133209	4/26/1983	5/22/2001
2701423-001	ECHO VALLEY RD WS #05	309	345	36	35.952222	-120.862139	9/10/2002	6/29/2020
2710009-008	CWSC KING CITY	125	200	75	36.204611	-121.140196	1/27/1994	2/18/2020
2700944-001	N/A	NA	NA	NA	36.2	-121.13	NA	NA
2710009-014	CWSC KING CITY	130	220	90	36.218114	-121.141231	6/7/2006	2/25/2020
2710016-001	LITTLE BEAR WATER COMPANY	NA	NA	NA	36.192778	-121.1325	2/4/1981	1/15/2020
2701171-002	CHEVRON OIL FIELD WS	NA	NA	NA	35.958057	-120.86345	4/11/2007	4/20/2020
2710009-007	CWSC KING CITY	180	280	100	36.211493	-121.135207	8/5/1991	5/12/2020
2710705-015	CAMP ROBERTS - CALIFORNIA NATIONAL GUARD	120	260	140	35.795765	-120.771726	3/23/1999	1/14/2020
2701187-001	AERA ENERGY LLC WS	NA	NA	NA	35.952222	-120.862138	9/15/2004	2/5/2020
2702539-002	SCHEID VINEYARD WS	NA	NA	NA	36.27547	-121.188951	NA	NA
2701676-001	SAN LUCAS WD	35	70	35	36.107027	-121.010111	10/17/2001	7/20/2016
2710705-003	CAMP ROBERTS - CALIFORNIA NATIONAL GUARD	0	50	50	35.800923	-120.76116	12/19/1985	1/14/2020
2701172-003	WILDHORSE CAFE WS	NA	NA	NA	36.18757	-121.076638	NA	NA
2700964-001	BRADLEY UNION SCHOOL WS	60	100	40	35.862745	-120.805978	3/19/2003	12/19/2019
2710009-015	CWSC KING CITY	130	220	90	36.209039	-121.140683	5/22/2006	6/10/2020
2710706-001	CAMP ROBERTS WELL 6A	0	50	50	35.82015	-120.75855	12/19/1985	4/25/2016
2700706-001	N/A	135	175	40	36.206127	-121.117903	NA	NA
2700943-001	N/A	NA	NA	NA	36.2	-121.12	NA	NA
2702141-001	N/A	NA	NA	NA	35.86	-120.8	1/13/2017	1/13/2017
2702486-001	BERNARDO RD WS #02	100	180	80	36.006831	-120.91821	4/14/2004	1/21/2020
2701741-001	MESA VERDE RD WS #01	NA	NA	NA	36.19	-121.06	5/3/2004	5/3/2004
2700983-003	HWY 101 SOUTH REST STOP-CT MAINT (DIST)	NA	NA	NA	35.849556	-120.769053	4/26/2010	3/30/2020
2702083-001	N/A	NA	NA	NA	36.2	-121.14	NA	NA
2700933-001	N/A	NA	NA	NA	36.19	-121.14	NA	NA
2701693-001	LOS LOBOS RD WS	NA	NA	NA	35.98	-120.9	NA	NA
2700984-001	HWY 101 NORTH REST STOP-CT MAINT (DIST)	100	160	60	35.830937	-120.757809	3/21/2000	3/30/2020

2701183-002	SAN ANTONIO LAKE PARK NORTH WS	300	520	220	35.958057	-120.86345	12/17/2003	12/13/2019
4000504-001	N/A	47	58	11	35.832	-120.58638	11/29/2002	11/29/2002
Upper Valley ILRP Wells								
Well ID	Well Type	Well Screen Info			Coordinates		Monitoring Date Range	
		Top of Screen Depth (ft bgs)	Bottom of Screen Depth (ft bgs)	Screen Length (ft)	Latitude (NAD83)	Longitude (NAD83)	First Year	Last Year
AGL020001410-H2-W3-DME-0386	ON-FARM DOMESTIC	NA	NA	NA	35.887827	-120.904645	6/27/2017	12/16/2019
AGL020018762-DOMESTIC #1	ON-FARM DOMESTIC	NA	NA	NA	36.190021	-121.070745	6/18/2015	6/18/2015
AGL020025002-CARTAN WELL 1	ON-FARM DOMESTIC	NA	NA	NA	35.85518255	-120.8498909	7/17/2014	12/4/2017
AGL020013091-WELL 30	ON-FARM DOMESTIC	NA	NA	NA	36.03643	-120.93206	11/27/2018	6/18/2019
AGL020014602-DOMESTIC WELL	ON-FARM DOMESTIC	NA	NA	NA	36.079444	-121.019722	12/10/2012	4/17/2013
AGL020004087-WELL	ON-FARM DOMESTIC	NA	NA	NA	35.890526	-120.92288	12/13/2012	10/31/2017
AGC100000001-CCGC_0386	ON-FARM DOMESTIC	NA	NA	NA	35.88783	-120.90468	8/6/2014	8/6/2014
AGL020000520-LO-D	ON-FARM DOMESTIC	NA	NA	NA	36.22792	-121.15575	11/9/2012	10/3/2017
AGC100000001-CCGC_0168	ON-FARM DOMESTIC	NA	NA	NA	36.2095	-121.12031	3/13/2014	3/13/2014
AGL020010828-AVILA DW	ON-FARM DOMESTIC	NA	NA	NA	35.9955556	-120.91	10/29/2012	12/13/2017
AGL020002562-DP-D2	ON-FARM DOMESTIC	NA	NA	NA	36.2004	-121.11534	4/3/2017	9/26/2017
AGL020001398-32-W2-DME-0062	ON-FARM DOMESTIC	NA	NA	NA	36.27565	-121.18744	6/27/2017	12/16/2019
AGL020009522-HOMEN D/I	ON-FARM DOMESTIC	NA	NA	NA	36.1923	-121.1569	11/28/2017	11/28/2017
AGL020000601-BLACKJCK DOM	ON-FARM DOMESTIC	NA	NA	NA	36.177333	-121.043361	6/7/2017	12/27/2017
AGL020003374-PRIMARY	ON-FARM DOMESTIC	NA	NA	NA	35.8819556	-120.7018389	11/26/2012	12/11/2017
AGC100000001-CCGC_0153	ON-FARM DOMESTIC	NA	NA	NA	36.07692	-120.94108	3/11/2014	3/11/2014
AGC100000001-CCGC_0163	ON-FARM DOMESTIC	NA	NA	NA	36.04762	-120.91392	3/11/2014	3/11/2014
AGC100000001-CCGC_0167	ON-FARM DOMESTIC	NA	NA	NA	36.20099	-121.11478	3/13/2014	3/13/2014
AGC100000001-CCGC_0171	ON-FARM DOMESTIC	NA	NA	NA	36.27786	-121.1557	3/13/2014	3/13/2014
AGC100000001-CCGC_0181	ON-FARM DOMESTIC	NA	NA	NA	36.21603	-121.14008	3/12/2014	3/12/2014
AGL020001067-DOMESTIC WELL	ON-FARM DOMESTIC	NA	NA	NA	36.01648	-120.92581	12/13/2012	11/16/2017
AGC100000001-CCGC_0391	ON-FARM DOMESTIC	NA	NA	NA	36.10711	-121.01009	8/6/2014	8/6/2014
AGL020001274-DW	ON-FARM DOMESTIC	NA	NA	NA	35.8276139	-120.700975	9/11/2012	3/19/2013
AGC100000001-CCGC_0636	ON-FARM DOMESTIC	NA	NA	NA	36.22839	-121.14111	8/25/2015	8/25/2015
AGL020003831-CLAUSEN_D	ON-FARM DOMESTIC	NA	NA	NA	36.07031	-120.93852	1/23/2014	7/15/2019

AGL020003990-DOMESTIC	ON-FARM DOMESTIC	NA	NA	NA	36.13496	-121.03881	5/24/2017	6/18/2019
AGL020000519-J-D	ON-FARM DOMESTIC	NA	NA	NA	36.24768	-121.15147	11/9/2012	5/16/2013
AGL020002905-R26-YARD1	ON-FARM DOMESTIC	NA	NA	NA	36.2384639	-121.1116694	4/27/2017	4/24/2018
AGC100000001-CCGC_0065	ON-FARM DOMESTIC	NA	NA	NA	36.19639	-121.14509	10/22/2013	10/22/2013
AGC100000001-CCGC_0016	ON-FARM DOMESTIC	NA	NA	NA	36.08955	-120.96629	10/22/2013	10/22/2013
AGL020000521-PS-D	ON-FARM DOMESTIC	NA	NA	NA	36.280571	-121.1575317	11/9/2012	5/16/2013
AGC100000001-CCGC_0180	ON-FARM DOMESTIC	NA	NA	NA	36.20898	-121.1388	3/12/2014	3/12/2014
AGC100000001-CCGC_0166	ON-FARM DOMESTIC	NA	NA	NA	36.19145	-121.10242	3/13/2014	3/13/2014
AGC100000001-CCGC_0510	ON-FARM DOMESTIC	NA	NA	NA	36.00671	-120.9271	8/28/2014	8/28/2014
AGL020002568-LE-D	ON-FARM DOMESTIC	NA	NA	NA	36.19452	-121.09258	11/15/2012	9/26/2017
AGL020003769-DOM WELL	ON-FARM DOMESTIC	NA	NA	NA	35.97902	-120.8714	9/3/2013	9/18/2017
AGL020009522-#9 HOMEN	ON-FARM DOMESTIC	NA	NA	NA	36.1964	-121.1451	5/26/2017	11/28/2017
AGL020037664-DOMMBVWELL	ON-FARM DOMESTIC	NA	NA	NA	35.99527	-120.91026	#N/A	#N/A
AGL020003724-WELL 19	ON-FARM DOMESTIC	NA	NA	NA	36.25576	-121.1783	6/19/2015	11/28/2017
AGL020003375-H-D	ON-FARM DOMESTIC	NA	NA	NA	36.2212	-121.176033	3/7/2018	3/7/2018
AGC100000001-CCGC_0170	ON-FARM DOMESTIC	NA	NA	NA	36.18385	-121.07059	3/13/2014	3/13/2014
AGL020008006-14-DOMESTIC	ON-FARM DOMESTIC	NA	NA	NA	36.08913889	-121.0038889	6/12/2017	10/12/2017
AGL020000601-SWEETWTR DOM	ON-FARM DOMESTIC	NA	NA	NA	36.186222	-121.067556	6/7/2017	11/20/2017
AGL020003665-WELL 97	ON-FARM DOMESTIC	NA	NA	NA	36.1497222	-121.0930556	7/13/2015	5/18/2020
AGL020002572-TO-D2	ON-FARM DOMESTIC	NA	NA	NA	36.18392	-121.07055	4/3/2017	9/26/2017
AGC100000001-CCGC_0013	ON-FARM DOMESTIC	NA	NA	NA	36.13467	-121.03912	10/25/2013	10/25/2013
AGL020002575-WW-D	ON-FARM DOMESTIC	NA	NA	NA	36.10071	-121.0229	11/15/2012	11/14/2017
AGC100000001-CCGC_0611	ON-FARM DOMESTIC	NA	NA	NA	36.22103	-121.17599	8/25/2015	8/25/2015
AGC100000001-CCGC_0066	ON-FARM DOMESTIC	NA	NA	NA	36.19675	-121.14436	10/22/2013	10/22/2013
AGL020003986-DOMESTIC	ON-FARM DOMESTIC	NA	NA	NA	36.18993	-121.0783	5/24/2017	6/18/2019
AGC100000001-CCGC_0200	ON-FARM DOMESTIC	NA	NA	NA	36.1864	-121.06728	3/20/2014	3/20/2014
AGC100000001-CCGC_0390	ON-FARM DOMESTIC	NA	NA	NA	36.03421	-120.92693	8/6/2014	8/6/2014
AGC100000001-CCGC_0639	ON-FARM DOMESTIC	NA	NA	NA	36.18392	-121.07066	4/27/2016	4/27/2016
AGL020002554-BH-D	ON-FARM DOMESTIC	NA	NA	NA	36.20259	-121.12006	4/3/2017	10/3/2017
AGL020002565-CR-D	ON-FARM DOMESTIC	NA	NA	NA	36.19144	-121.10238	4/24/2017	9/26/2017
AGL020000526-DW-D	ON-FARM DOMESTIC	NA	NA	NA	36.20624	-121.11591	4/3/2017	4/3/2017
AGL020000518-M-D	ON-FARM DOMESTIC	NA	NA	NA	36.26437	-121.15433	3/30/2017	10/3/2017
AGL020000522-PN-D	ON-FARM DOMESTIC	NA	NA	NA	36.28627	-121.16267	11/9/2012	10/3/2017

AGL020003371-M-D	ON-FARM DOMESTIC	NA	NA	NA	36.207883	-121.1688	3/7/2018	1/8/2020
AGC100000001-CCGC_0204	ON-FARM DOMESTIC	NA	NA	NA	35.99311	-120.87786	3/20/2014	3/20/2014
AGC100000001-CCGC_0058	ON-FARM DOMESTIC	NA	NA	NA	36.189933	-121.0783	10/25/2013	10/25/2013
AGC100000001-CCGC_0387	ON-FARM DOMESTIC	NA	NA	NA	35.87984	-120.88783	8/6/2014	4/27/2016
AGL020017563-WELL DOM	ON-FARM DOMESTIC	NA	NA	NA	36.0522	-120.92059	6/23/2017	9/20/2017
AGC100000001-CCGC_0567	ON-FARM DOMESTIC	NA	NA	NA	36.01108	-120.92167	6/25/2015	6/25/2015
AGC100000001-CCGC_0203	ON-FARM DOMESTIC	NA	NA	NA	36.01504	-120.88847	3/20/2014	3/20/2014
AGL020000624-LOMBARDI DOM	ON-FARM DOMESTIC	NA	NA	NA	35.993139	-120.877833	6/7/2017	11/20/2017
AGL020016682-LDR DOMESTIC	ON-FARM DOMESTIC	NA	NA	NA	36.138663	-121.092158	6/15/2015	8/28/2019
AGC100000001-CCGC_0172	ON-FARM DOMESTIC	NA	NA	NA	36.26444	-121.15429	3/13/2014	3/13/2014
AGC100000001-CCGC_0169	ON-FARM DOMESTIC	NA	NA	NA	36.1945	-121.09245	3/13/2014	3/13/2014
AGC100000001-CCGC_0201	ON-FARM DOMESTIC	NA	NA	NA	36.17736	-121.04335	3/20/2014	3/20/2014
AGC100000001-CCGC_0609	ON-FARM DOMESTIC	NA	NA	NA	36.22846	-121.14108	8/25/2015	8/25/2015
AGL020003988-DOMESTIC	ON-FARM DOMESTIC	NA	NA	NA	36.08955	-120.96629	5/24/2017	6/18/2019
AGL020001348-RES WELL	ON-FARM DOMESTIC	NA	NA	NA	35.895	-120.9263889	12/4/2012	10/31/2017
AGC100000001-CCGC_0062	ON-FARM DOMESTIC	NA	NA	NA	36.27565	-121.18744	10/23/2013	10/23/2013
AGL020011783-WELL DOM	ON-FARM DOMESTIC	NA	NA	NA	36.08914	-120.96497	6/23/2017	9/20/2017
AGL020007439-CCGC_0181	ON-FARM DOMESTIC	NA	NA	NA	36.21559	-121.14024	6/29/2017	4/2/2018
AGL020000740-DOM WELL	ON-FARM DOMESTIC	NA	NA	NA	36.01115	-120.92178	9/11/2017	3/12/2019
AGL020007443-CCGC_0609	ON-FARM DOMESTIC	NA	NA	NA	36.22839	-121.141125	6/29/2017	4/12/2018
AGL020011482-CCGC_0391	ON-FARM DOMESTIC	NA	NA	NA	36.10704	-121.01019	6/27/2017	4/12/2018
AGL020007443-CCGC_0636	ON-FARM DOMESTIC	NA	NA	NA	36.2283	-121.14912	6/29/2017	4/12/2018
AGL020015908-DOM WELL	ON-FARM DOMESTIC	NA	NA	NA	36.00685	-120.91829	9/18/2017	3/18/2019
AGL020007439-CCGC_0180	ON-FARM DOMESTIC	NA	NA	NA	36.20901	-121.13908	4/12/2018	4/12/2018
AGL020000527-DE-4	IRRIGATION SUPPLY	NA	NA	NA	36.19844	-121.09241	3/13/2017	9/26/2017
AGL020015908-AG WELL	IRRIGATION SUPPLY	NA	NA	NA	36.00657	-120.91817	9/11/2017	3/12/2019
AGL020015982-AG WELL	IRRIGATION SUPPLY	NA	NA	NA	35.98386	-120.90356	9/18/2017	9/18/2017
AGL020017562-WELL 3	IRRIGATION SUPPLY	NA	NA	NA	36.0661	-120.93617	6/23/2017	9/20/2017
AGL020027405-AG WELL	IRRIGATION SUPPLY	NA	NA	NA	35.86313	-120.86211	#N/A	#N/A
AGL020014062-SUNSET DOM 1	IRRIGATION SUPPLY	NA	NA	NA	35.90102	-120.91522	3/11/2013	7/11/2018
AGL020028048-TH-1	IRRIGATION SUPPLY	NA	NA	NA	36.26788	-121.15219	3/30/2017	9/27/2017
AGL020007443-0203-002	IRRIGATION SUPPLY	NA	NA	NA	36.21737	-121.14126	6/29/2017	4/12/2018

AGL020000628-TOGNETTI #1 IRR	IRRIGATION SUPPLY	NA	NA	NA	36.184167	-121.090556	6/7/2017	11/20/2017
AGL020003990-WELL 5	IRRIGATION SUPPLY	NA	NA	NA	36.13488	-121.09866	5/24/2017	6/18/2019
AGL020006647-MARSINO 22	IRRIGATION SUPPLY	NA	NA	NA	36.1713	-121.1128	3/11/2013	3/11/2013
AGL020008006-14-21	IRRIGATION SUPPLY	NA	NA	NA	36.09555556	-121.0102778	6/12/2017	10/12/2017
AGL020011484-3486-012	IRRIGATION SUPPLY	NA	NA	NA	36.10474	-121.01498	6/27/2017	4/12/2018
AGL020000537-WELL	IRRIGATION SUPPLY	NA	NA	NA	35.983809	-120.903617	12/11/2012	5/30/2017
AGL020001384-50-W1-AME	IRRIGATION SUPPLY	NA	NA	NA	36.08752	-120.9773	6/27/2017	12/16/2019
AGL020003831-CLAUSEN1_I	IRRIGATION SUPPLY	NA	NA	NA	36.06889	-120.93917	1/23/2014	7/15/2019
AGL020032858-GARIN	IRRIGATION SUPPLY	NA	NA	NA	36.24489	-121.15809	4/12/2018	9/25/2018
AGL020017082-41-W5-AME	IRRIGATION SUPPLY	NA	NA	NA	36.264356	-121.183842	6/27/2017	12/16/2019
AGL020016902-20-2	IRRIGATION SUPPLY	NA	NA	NA	36.1923611	-121.0778056	6/12/2017	10/12/2017
AGL020037664-AG WELL	IRRIGATION SUPPLY	NA	NA	NA	36.00335	-120.915785	#N/A	#N/A
AGL020010828-AVILA AW	IRRIGATION SUPPLY	NA	NA	NA	36.003325	-120.9157167	6/23/2013	12/13/2017
AGL020025482-BV_WELL_1	IRRIGATION SUPPLY	NA	NA	NA	35.85305556	-120.7185694	6/20/2017	12/14/2017
AGL020010162-AG_WELL	IRRIGATION SUPPLY	NA	NA	NA	36.17053	-121.05384	12/21/2017	12/21/2017
AGL020011783-WELL 4	IRRIGATION SUPPLY	NA	NA	NA	36.07395	-120.93812	6/23/2017	9/20/2017
AGL020027951-IV AG WELL	IRRIGATION SUPPLY	NA	NA	NA	35.87038	-120.659199	6/14/2017	12/6/2017
AGL020001410-H2-W1-AMD	IRRIGATION SUPPLY	NA	NA	NA	35.874863	-120.881318	6/27/2017	12/16/2019
AGL020003769-AG WELL	IRRIGATION SUPPLY	NA	NA	NA	35.97943	-120.87569	9/3/2013	9/18/2017
AGL020003714-SLV #2	IRRIGATION SUPPLY	NA	NA	NA	36.090047	-120.983152	7/28/2014	6/23/2015
AGL020003665-WELL 3	IRRIGATION SUPPLY	NA	NA	NA	36.1894444	-121.1272222	7/13/2015	7/13/2015
AGL020001622-WELL 5	IRRIGATION SUPPLY	NA	NA	NA	36.05777	-120.93294	11/20/2017	4/22/2019
AGL020007446-0416-004	IRRIGATION SUPPLY	NA	NA	NA	36.2332	-121.15762	6/29/2017	4/12/2018
AGL020002564-JP-3	IRRIGATION SUPPLY	NA	NA	NA	36.19259	-121.10583	3/13/2017	9/26/2017
AGL020008006-14-9	IRRIGATION SUPPLY	NA	NA	NA	36.08694444	-120.9782222	6/12/2017	10/12/2017
AGL020002969-HENRY	IRRIGATION SUPPLY	NA	NA	NA	36.165083	-121.065841	7/2/2013	7/2/2013
AGL020000527-D-5	IRRIGATION SUPPLY	NA	NA	NA	36.19743	-121.08986	11/15/2012	5/16/2013
AGL020000528-R-1	IRRIGATION SUPPLY	NA	NA	NA	36.20724	-121.11576	4/19/2017	9/26/2017
AGL020002568-LE-1	IRRIGATION SUPPLY	NA	NA	NA	36.14498	-121.04722	4/19/2017	9/29/2017
AGL020002573-LA-1	IRRIGATION SUPPLY	NA	NA	NA	36.18253	-121.06138	3/13/2017	11/14/2017
AGL020007855-24 ACRE	IRRIGATION SUPPLY	NA	NA	NA	35.97231	-120.8804	3/25/2013	11/6/2017
AGL020007855-DIESEL	IRRIGATION SUPPLY	NA	NA	NA	36.006	-120.90308	3/25/2013	11/6/2017
AGL020007855-RUTHYS	IRRIGATION SUPPLY	NA	NA	NA	36.01279	-120.90755	3/25/2013	11/6/2017

AGL020000523-T-4	IRRIGATION SUPPLY	NA	NA	NA	36.28147	-121.17158	11/9/2012	12/19/2017
AGL020000615-BORZINI #1	IRRIGATION SUPPLY	NA	NA	NA	36.207	-121.119111	6/7/2017	11/20/2017
AGL020000617-LYNCH #2	IRRIGATION SUPPLY	NA	NA	NA	36.022556	-120.91	11/20/2017	11/20/2017
AGL020000632-BELLA VISTA #3	IRRIGATION SUPPLY	NA	NA	NA	36.17725	-121.083494	6/7/2017	11/20/2017
AGL020000601-SLRCMAG6 IRR	IRRIGATION SUPPLY	NA	NA	NA	36.1785	-121.072972	6/7/2017	11/20/2017
AGL020000624-LOMBRD#2 IRR	IRRIGATION SUPPLY	NA	NA	NA	35.980833	-120.874111	6/7/2017	11/20/2017
AGL020002574-WE-3	IRRIGATION SUPPLY	NA	NA	NA	36.19308	-121.0843	11/15/2012	9/29/2017
AGL020002554-BH-2	IRRIGATION SUPPLY	NA	NA	NA	36.20259	-121.12006	4/19/2017	9/27/2017
AGL020003665-WELL 9	IRRIGATION SUPPLY	NA	NA	NA	36.178611	-121.1113889	7/13/2015	11/23/2015
AGL020003714-SLV #3	IRRIGATION SUPPLY	NA	NA	NA	36.089878	-120.982209	7/28/2014	6/23/2015
AGL020006581-ARROYO LOMA 7	IRRIGATION SUPPLY	NA	NA	NA	36.1547	-121.1048	3/11/2013	3/11/2013
AGL020006627-HOBSON 9	IRRIGATION SUPPLY	NA	NA	NA	36.1639	-121.1125	3/11/2013	3/25/2019
AGL020006643-LOS OSITOS 8A	IRRIGATION SUPPLY	NA	NA	NA	36.1627	-121.1117	3/11/2013	3/11/2013
AGL020007855-SHOP	IRRIGATION SUPPLY	NA	NA	NA	36.00172	-120.90166	5/11/2017	11/6/2017
AGL020006688-VICTORIA 7	IRRIGATION SUPPLY	NA	NA	NA	36.1547	-121.1048	3/11/2013	3/11/2013
AGL020007818-WELL 6	IRRIGATION SUPPLY	NA	NA	NA	36.08132	-120.94896	9/27/2017	9/27/2017
AGL020011482-3485-10	IRRIGATION SUPPLY	NA	NA	NA	36.10575	-121.01294	6/27/2017	4/12/2018
AGL020011796-WELL 2	IRRIGATION SUPPLY	NA	NA	NA	36.08622	-120.9501	6/23/2017	9/20/2017
AGL020013091-WELL 4	IRRIGATION SUPPLY	NA	NA	NA	36.03877	-120.92974	11/20/2017	4/22/2019
AGL020014062-SUNSET 1	IRRIGATION SUPPLY	NA	NA	NA	35.87686	-120.89101	3/11/2013	3/25/2019
AGL020014602-WELL #2	IRRIGATION SUPPLY	NA	NA	NA	36.105555	-121.018333	12/10/2012	4/17/2013
AGL020010822-RICKS 14	IRRIGATION SUPPLY	NA	NA	NA	36.1518	-121.1037	3/11/2013	3/11/2013
AGL020018762-MISTRAL WELL #1	IRRIGATION SUPPLY	NA	NA	NA	36.189794	-121.071303	6/18/2015	6/18/2015
AGL020016902-LONO14 02	IRRIGATION SUPPLY	NA	NA	NA	36.1922222	-121.0775	5/8/2013	9/9/2014
AGL020021842-ALANS VINE WELL	IRRIGATION SUPPLY	NA	NA	NA	36.2716666	-121.185	5/21/2014	5/31/2017
AGL020026124-BUCHMAN WELL 3	IRRIGATION SUPPLY	NA	NA	NA	35.85505556	-120.8498472	7/17/2014	12/4/2017
AGL020032741-PVR AW 4	IRRIGATION SUPPLY	NA	NA	NA	36.088061	-120.979222	10/9/2018	10/7/2019
AGL020003763-AG WELL	IRRIGATION SUPPLY	NA	NA	NA	35.8683	-120.87031	9/3/2013	9/18/2017
AGL020001067-WELL #1 ELECTRI	IRRIGATION SUPPLY	NA	NA	NA	36.01619	-120.92582	12/13/2012	11/16/2017
AGL020017563-WELL 1	IRRIGATION SUPPLY	NA	NA	NA	36.0521	-120.9207	6/23/2017	9/20/2017

AGL020002560-BE-1	IRRIGATION SUPPLY	NA	NA	NA	36.19125	-121.09152	3/13/2017	9/29/2017
AGL020000621-CHERRY#1 IRR	IRRIGATION SUPPLY	NA	NA	NA	36.013722	-120.892028	6/7/2017	11/20/2017
AGL020016902-20-1	IRRIGATION SUPPLY	NA	NA	NA	36.1928333	-121.0786389	6/12/2017	10/12/2017
AGL020002565-CR-1	IRRIGATION SUPPLY	NA	NA	NA	36.19112	-121.10207	4/24/2017	9/27/2017
AGL020003714-SLV #5	IRRIGATION SUPPLY	NA	NA	NA	36.089585	-120.980914	7/28/2014	6/23/2015
AGL020006582-AIRPORT WELL 7	IRRIGATION SUPPLY	NA	NA	NA	36.1547	-121.1048	3/11/2013	3/11/2013
AGL020006640-KRISTY 22	IRRIGATION SUPPLY	NA	NA	NA	36.1713	-121.1128	3/11/2013	3/25/2019
AGL020006645-LAGO 7	IRRIGATION SUPPLY	NA	NA	NA	36.1547	-121.1048	3/11/2013	3/11/2013
AGL020006682-RANCHO SOLO MAI	IRRIGATION SUPPLY	NA	NA	NA	36.2713	-121.226	3/11/2013	3/11/2013
AGL020023542-PIANETTA A	IRRIGATION SUPPLY	NA	NA	NA	35.821723	-120.705872	6/14/2017	12/6/2017
AGL020007439-0104-005	IRRIGATION SUPPLY	NA	NA	NA	36.2187	-121.14785	6/29/2017	4/12/2018
AGL020004087-AG WELL	IRRIGATION SUPPLY	NA	NA	NA	35.89169	-120.92473	6/21/2013	10/31/2017
AGL020007540-GH12-09	IRRIGATION SUPPLY	NA	NA	NA	36.23173	-121.17025	10/31/2012	6/10/2020
AGL020007855-CAT	IRRIGATION SUPPLY	NA	NA	NA	36.00396	-120.90034	3/25/2013	11/6/2017
AGL020027705-WELL 8	IRRIGATION SUPPLY	NA	NA	NA	36.10984	-121.02679	9/8/2015	10/10/2017
AGL020002562-DP-2	IRRIGATION SUPPLY	NA	NA	NA	36.19913	-121.11515	4/3/2017	9/27/2017
AGL020002572-TO-1	IRRIGATION SUPPLY	NA	NA	NA	36.18205	-121.07132	3/13/2017	9/29/2017
AGL020002575-WW-1	IRRIGATION SUPPLY	NA	NA	NA	36.10783	-121.02544	4/3/2017	10/2/2017
AGL020008006-14-11	IRRIGATION SUPPLY	NA	NA	NA	36.05722222	-120.9865556	6/12/2017	10/12/2017
AGL020003665-WELL 26	IRRIGATION SUPPLY	NA	NA	NA	36.186651	-121.124801	5/9/2017	5/18/2020
AGL020028032-EADE AG	IRRIGATION SUPPLY	NA	NA	NA	36.097301	-120.985367	8/23/2016	11/6/2017
AGL020003988-WELL 2	IRRIGATION SUPPLY	NA	NA	NA	36.08957	-120.96568	5/24/2017	6/18/2019
AGL020007819-WELL	IRRIGATION SUPPLY	NA	NA	NA	36.02317	-120.90131	9/27/2017	6/10/2019
AGL020007855-E PUMP	IRRIGATION SUPPLY	NA	NA	NA	36.00147	-120.88004	3/25/2013	11/6/2017
AGL020000523-T-3	IRRIGATION SUPPLY	NA	NA	NA	36.28204	-121.16853	3/30/2017	11/14/2017
AGL020000618-DUDLEY #1 IRR	IRRIGATION SUPPLY	NA	NA	NA	36.026944	-120.904333	6/7/2017	11/20/2017
AGL020000625-GALLAGHER #2	IRRIGATION SUPPLY	NA	NA	NA	35.978806	-120.874889	6/7/2017	11/20/2017
AGL020007855-TOMAS PUMP	IRRIGATION SUPPLY	NA	NA	NA	35.98424	-120.90152	5/11/2017	11/6/2017
AGL020007538-GH15-02	IRRIGATION SUPPLY	NA	NA	NA	36.25572	-121.176605	10/31/2012	6/10/2020
AGL020000519-J-26	IRRIGATION SUPPLY	NA	NA	NA	36.2497	-121.16016	4/19/2017	11/14/2017
AGL020000526-DW-1	IRRIGATION SUPPLY	NA	NA	NA	36.20667	-121.11623	4/3/2017	9/29/2017
AGL020014082-R. LEGADO 15	IRRIGATION SUPPLY	NA	NA	NA	36.1821	-121.1038	3/11/2013	3/11/2013

AGL020003375-H-1	IRRIGATION SUPPLY	NA	NA	NA	36.226017	-121.186133	12/19/2017	12/19/2017
AGL020004746-AW	IRRIGATION SUPPLY	NA	NA	NA	35.870326	-120.695199	9/11/2012	3/19/2013
AGL020001212-AG WELL	IRRIGATION SUPPLY	NA	NA	NA	35.979099	-120.882249	4/23/2013	6/27/2013
AGL020001398-32-W1-AME	IRRIGATION SUPPLY	NA	NA	NA	36.275426	-121.18892	6/27/2017	12/16/2019
AGL020028337-WELL	IRRIGATION SUPPLY	NA	NA	NA	35.9808	-120.90174	1/4/2018	1/4/2018
AGL020016902-LONO14 01	IRRIGATION SUPPLY	NA	NA	NA	36.1925	-121.0786111	5/8/2013	5/2/2014
AGL020021763-2015-002	IRRIGATION SUPPLY	NA	NA	NA	36.22604	-121.13736	6/29/2017	4/12/2018
AGL020027705-RESERVOIR	IRRIGATION SUPPLY	NA	NA	NA	36.10176	-121.03619	9/8/2015	10/10/2017
AGL020016902-20-3	IRRIGATION SUPPLY	NA	NA	NA	36.1909167	-121.0748333	6/12/2017	10/12/2017
AGL020000617-LYNCH #1	IRRIGATION SUPPLY	NA	NA	NA	36.027167	-120.912139	6/7/2017	11/20/2017
AGL020000518-M-24	IRRIGATION SUPPLY	NA	NA	NA	36.27044	-121.16477	3/30/2017	10/2/2017
AGL020016902-LONO14 RES	IRRIGATION SUPPLY	NA	NA	NA	36.1941667	-121.0780556	5/8/2013	5/8/2013
AGL020000623-GLAU #1 IRR	IRRIGATION SUPPLY	NA	NA	NA	36.008278	-120.885861	6/7/2017	11/20/2017
AGL020006580-ALTA LOMA 7	IRRIGATION SUPPLY	NA	NA	NA	36.1547	-121.1048	3/11/2013	3/11/2013
AGL020003762-AG WELL	IRRIGATION SUPPLY	NA	NA	NA	36.00663	-120.91818	9/3/2013	9/18/2017
AGL020002571-MA-3	IRRIGATION SUPPLY	NA	NA	NA	36.18073	-121.07991	4/3/2017	12/12/2017
AGL020006621-CASA GRANDE MAI	IRRIGATION SUPPLY	NA	NA	NA	36.251	-121.2145	3/11/2013	6/1/2017
AGL020008006-14-10	IRRIGATION SUPPLY	NA	NA	NA	36.09152778	-120.9895556	6/12/2017	10/12/2017
AGL020006583-MONROE CANYON 7	IRRIGATION SUPPLY	NA	NA	NA	36.1547	-121.1048	3/11/2013	3/11/2013
AGL020026123-PORTER WELL 2	IRRIGATION SUPPLY	NA	NA	NA	35.8635265	-120.8542988	7/17/2014	12/4/2017
AGL020007855-FORD	IRRIGATION SUPPLY	NA	NA	NA	35.99107	-120.90346	3/25/2013	11/6/2017
AGL020036284-WELL 10	IRRIGATION SUPPLY	NA	NA	NA	36.0257	-120.91318	12/4/2019	2/5/2020
AGL020000626-ROSENBERG #3	IRRIGATION SUPPLY	NA	NA	NA	35.986806	-120.885556	6/7/2017	11/20/2017
AGL020000519-J-6	IRRIGATION SUPPLY	NA	NA	NA	36.2456	-121.15915	3/30/2017	10/2/2017
AGL020000613-FERRINI #2	IRRIGATION SUPPLY	NA	NA	NA	36.011083	-120.888861	6/7/2017	11/20/2017
AGL020014062-SUNSET IRR 3	IRRIGATION SUPPLY	NA	NA	NA	35.876858	-120.891094	7/11/2018	7/11/2018
AGL020003714-SLV #1	IRRIGATION SUPPLY	NA	NA	NA	36.090002	-120.983502	7/28/2014	6/23/2015
AGL020006686-VENTANA SOUTH	IRRIGATION SUPPLY	NA	NA	NA	36.1914	-121.1429	3/11/2013	6/1/2017
AGL020000612-FOLETTA #1 IRR	IRRIGATION SUPPLY	NA	NA	NA	36.023361	-120.898389	6/7/2017	11/20/2017
AGL020000740-BODEGA 6	IRRIGATION SUPPLY	NA	NA	NA	36.00891	-120.91984	9/11/2017	3/12/2019
AGL020000524-G-1	IRRIGATION SUPPLY	NA	NA	NA	36.27188	-121.16399	3/30/2017	10/2/2017

Chapter 7

Appendix 7-**C**

Central Coast Ag Order 3.0 **and Ag Order 4.0**

Monitoring and Reporting Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

MONITORING AND REPORTING PROGRAM
ORDER NO. R3-2017-0002-01

TIER 1

DISCHARGERS ENROLLED UNDER
CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR
DISCHARGES FROM IRRIGATED LANDS

This Monitoring and Reporting Program Order No. R3-2017-0002-01 (MRP) is issued pursuant to California Water Code (Water Code) sections 13267 and 13269, which authorize the California Regional Water Quality Control Board, Central Coast Region (hereafter Central Coast Water Board) to require preparation and submittal of technical and monitoring reports. Water Code section 13269 requires a waiver of waste discharge requirements to include as a condition the performance of monitoring and the public availability of monitoring results. *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands*, Order No. R3-2017-0002 (Order) includes criteria and requirements for three tiers. This MRP sets forth monitoring and reporting requirements for **Tier 1 Dischargers** enrolled under the Order. A summary of the requirements is shown below.

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS FOR TIER 1:

Part 1: Surface Receiving Water Monitoring and Reporting *(cooperative or individual)*
Part 2: Groundwater Monitoring and Reporting *(cooperative or individual)*

Pursuant to Water Code section 13269(a)(2), monitoring requirements must be designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. The monitoring and reports required by this MRP are to evaluate effects of discharges of waste from irrigated agricultural operations and individual farms/ranches on waters of the state and to determine compliance with the Order.

MONITORING AND REPORTING BASED ON TIERS

The Order and MRP include criteria and requirements for three tiers, based upon those characteristics of individual farms/ranches at the operation that present the highest level of waste discharge or greatest risk to water quality. Dischargers must meet conditions of the Order and MRP for the appropriate tier that applies to their land and/or the individual farm/ranch. Within a tier, Dischargers comply with requirements based on the specific level of discharge and threat to water quality from individual farms/ranches. The lowest tier, Tier 1, applies to dischargers who discharge the lowest level of waste (amount or concentration) or pose the lowest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. The highest tier, Tier 3, applies to dischargers who discharge the highest level of waste or pose the greatest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. Tier 2 applies to dischargers whose discharge has a moderate threat to water quality. Water quality is defined in terms of regional, state, or federal numeric or narrative water quality standards. Per the Order, Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. If the Executive Officer approves a transfer to a lower tier, any interested person may request that the Central Coast Water Board conduct a review of the Executive Officer's determination.

PART 1. SURFACE RECEIVING WATER MONITORING AND REPORTING REQUIREMENTS

The surface receiving water monitoring and reporting requirements described herein are generally a continuation of the surface receiving water monitoring and reporting requirements of Monitoring and Reporting Program Order No. 2012-0011-01, as revised August 22, 2016, with the intent of uninterrupted regular monitoring and reporting during the transition from Order No. R3-2012-0011-01 to Order No. R3-2017-0002-01.

Monitoring and reporting requirements for surface receiving water identified in Part 1.A. and Part 1.B. apply to Tier 1 Dischargers. Surface receiving water refers to water flowing in creeks and other surface waters of the State. Surface receiving water monitoring may be conducted through a cooperative monitoring program on behalf of Dischargers, or Dischargers may choose to conduct surface receiving water monitoring and reporting individually. Key monitoring and reporting requirements for surface receiving water are shown in Tables 1 and 2.

A. Surface Receiving Water Quality Monitoring

1. Dischargers must elect a surface receiving water monitoring option (cooperative monitoring program or individual receiving water monitoring) to comply with surface receiving water quality monitoring requirements, and identify the option selected on the Notice of Intent (NOI).

2. Dischargers are encouraged to choose participation in a cooperative monitoring program (e.g., the existing Cooperative Monitoring Program or a similar program) to comply with receiving water quality monitoring requirements. Dischargers not participating in a cooperative monitoring program must conduct surface receiving water quality monitoring individually that achieves the same purpose.

3. Dischargers (individually or as part of a cooperative monitoring program) must conduct surface receiving water quality monitoring to a) assess the impacts of their waste discharges from irrigated lands to receiving water, b) assess the status of receiving water quality and beneficial use protection in impaired waterbodies dominated by irrigated agricultural activity, c) evaluate status, short term patterns and long term trends (five to ten years or more) in receiving water quality, d) evaluate water quality impacts resulting from agricultural discharges (including but not limited to tile drain discharges), e) evaluate stormwater quality, f) evaluate condition of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat, including degradation resulting from erosion or agricultural discharges of waste, and g) assist in the identification of specific sources of water quality problems.

<u>Surface Receiving Water Quality Sampling and Analysis Plan</u>

4. **By March 1, 2018, or as directed by the Executive Officer**, Dischargers (individually or as part of a cooperative monitoring program) must submit a surface receiving water quality Sampling and Analysis Plan (SAAP) and Quality Assurance Project Plan (QAPP); this requirement is satisfied if an approved SAAP and QAPP addressing all surface receiving water quality monitoring requirements described in this Order has been submitted pursuant to Order No. R3-2012-0011 and associated Monitoring and Reporting Programs. Dischargers (or a third party cooperative monitoring program) must develop the Sampling and Analysis Plan to describe how the proposed monitoring will achieve the objectives of the MRP and evaluate compliance with the Order. The Sampling and Analysis Plan may propose alternative monitoring site locations, adjusted monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water. The Executive Officer must approve the Sampling and Analysis Plan and QAPP.

5. The Sampling and Analysis Plan must include the following minimum required components:
    a. Monitoring strategy to achieve objectives of the Order and MRP;
    b. Map of monitoring sites with GIS coordinates;
    c. Identification of known water quality impairments and impaired waterbodies per the 2010 Clean Water Act 303(d) List of Impaired Waterbodies (List of Impaired Waterbodies);
    d. Identification of beneficial uses and applicable water quality standards;
    e. Identification of applicable Total Maximum Daily Loads;
    f. Monitoring parameters;
    g. Monitoring schedule, including description and frequencies of monitoring events;

h. Description of data analysis methods;

6. The QAPP must include receiving water and site-specific information, project organization and responsibilities, and quality assurance components of the MRP. The QAPP must also include the laboratory and field requirements to be used for analyses and data evaluation. The QAPP must contain adequate detail for project and Water Board staff to identify and assess the technical and quality objectives, measurement and data acquisition methods, and limitations of the data generated under the surface receiving water quality monitoring. All sampling and laboratory methodologies and QAPP content must be consistent with U.S. EPA methods, State Water Board's Surface Water Ambient Monitoring Program (SWAMP) protocols and the Central Coast Water Board's Central Coast Ambient Monitoring Program (CCAMP). Following U.S. EPA guidelines[1] and SWAMP templates[2], the receiving water quality monitoring QAPP must include the following minimum required components:
    a. Project Management. This component addresses basic project management, including the project history and objectives, roles and responsibilities of the participants, and other aspects.
    b. Data Generation and Acquisition. This component addresses all aspects of project design and implementation. Implementation of these elements ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality control activities are employed and are properly documented. Quality control requirements are applicable to all the constituents sampled as part of the MRP, as described in the appropriate method.
    c. Assessment and Oversight. This component addresses the activities for assessing the effectiveness of the implementation of the project and associated QA and QC activities. The purpose of the assessment is to provide project oversight that will ensure that the QA Project Plan is implemented as prescribed.
    d. Data Validation and Usability. This component addresses the quality assurance activities that occur after the data collection, laboratory analysis and data generation phase of the project is completed. Implementation of these elements ensures that the data conform to the specified criteria, thus achieving the MRP objectives.

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[1] USEPA. 2001 (2006) USEPA Requirements for Quality Assurance Project Plans (QA/R-5) Office of Environmental Information, Washington, D.C. USEPA QA/R-5

[2] http://waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa

7. The Central Coast Water Board may conduct an audit of contracted laboratories at any time in order to evaluate compliance with the QAPP.

8. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may also revise the Sampling and Analysis Plan, including adding, removing, or changing monitoring site locations, changing monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water.

<u>Surface Receiving Water Quality Monitoring Sites</u>

9. The Sampling and Analysis Plan must, at a minimum, include monitoring sites to evaluate waterbodies identified in Table 1, unless otherwise approved by the Executive Officer. The Sampling and Analysis Plan must include sites to evaluate receiving water quality impacts most directly resulting from areas of agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long term monitoring sites included in related monitoring programs (e.g. CCAMP and the existing CMP). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges. Any modifications must consider sampling consistency for purposes of trend evaluation.

<u>Surface Receiving Water Quality Monitoring Parameters</u>

10. The Sampling and Analysis Plan must, at a minimum, include the following types of monitoring and evaluation parameters listed below and identified in Table 2:

    a. Flow Monitoring;
    b. Water Quality (physical parameters, metals, nutrients, pesticides);
    c. Toxicity (water and sediment);
    d. Assessment of Benthic Invertebrates.

11. All analyses must be conducted at a laboratory certified for such analyses by the State Department of Public Health (CDPH) or at laboratories approved by the Executive Officer. Unless otherwise noted, all sampling, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, U.S. EPA, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link: <u>http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls</u>

12. Water quality and flow monitoring is used to assess the sources, concentrations, and loads of waste discharges from individual farms/ranches and groups of Dischargers to surface waters, to evaluate impacts to water quality and beneficial uses, and to evaluate the short term patterns and long term trends in receiving water quality. Monitoring data must be compared to existing numeric and narrative water quality objectives.

13. Toxicity testing is to evaluate water quality relative to the narrative toxicity objective. Water column toxicity analyses must be conducted on 100% (undiluted) sample. At sites where persistent unresolved toxicity is found, the Executive Officer may require concurrent toxicity and chemical analyses and a Toxicity Identification Evaluation (TIE) to identify the individual discharges causing the toxicity.

Surface Receiving Water Quality Monitoring Frequency and Schedule

14. The Sampling and Analysis Plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. Table 2 includes minimum monitoring frequency and parameter lists. Agricultural parameters that are less common may be monitored less frequently. Modifications to the receiving water quality monitoring parameters, frequency, and schedule may be submitted for Executive Officer consideration and approval. At a minimum, the Sampling and Analysis Plan schedule must consist of monthly monitoring of common agricultural parameters in major agricultural areas, including two major storm events during the wet season (October 1 – April 30).

15. Storm event monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event that results in significant increase in stream flow. For purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion or other water quality problem. A significant storm event will generally result in greater than 1-inch of rain within a 24-hour period.

16. Dischargers (individually or as part of a cooperative monitoring program) must perform receiving water quality monitoring per the Sampling and Analysis Plan and QAPP approved by the Executive Officer.

B. Surface Receiving Water Quality Reporting

Surface Receiving Water Quality Data Submittal

1. Dischargers (individually or as part of a cooperative monitoring program) must submit water quality monitoring data to the Central Coast Water Board electronically, in a format specified by the Executive Officer and compatible with SWAMP/CCAMP electronic submittal guidelines, each January 1, April 1, July 1, and October 1.

Surface Receiving Water Quality Monitoring Annual Report

2. **By July 1, 2017,** and every July 1 annually thereafter, Dischargers (individually or as part of a cooperative monitoring program) must submit an Annual Report, electronically, in a format specified by the Executive Officer including the following minimum elements:

a. Signed Transmittal Letter;
b. Title Page;
c. Table of Contents;
d. Executive Summary;
e. Summary of Exceedance Reports submitted during the reporting period;
f. Monitoring objectives and design;
g. Monitoring site descriptions and rainfall records for the time period covered;
h. Location of monitoring sites and map(s);
i. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible;
j. Summary of water quality data for any sites monitored as part of related monitoring programs, and used to evaluate receiving water as described in the Sampling and Analysis Plan.
k. Discussion of data to clearly illustrate compliance with the Order and water quality standards;
l. Discussion of short term patterns and long term trends in receiving water quality and beneficial use protection;
m. Evaluation of pesticide and toxicity analyses results, and recommendation of candidate sites for Toxicity Identification Evaluations (TIEs);
n. Identification of the location of any agricultural discharges observed discharging directly to surface receiving water;
o. Laboratory data submitted electronically in a SWAMP/CCAMP comparable format;
p. Sampling and analytical methods used;
q. Copy of chain-of-custody forms;
r. Field data sheets, signed laboratory reports, laboratory raw data;
s. Associated laboratory and field quality control samples results;
t. Summary of Quality Assurance Evaluation results;

u. Specify the method used to obtain flow at each monitoring site during each monitoring event;
v. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
w. Conclusions.

PART 2. GROUNDWATER MONITORING AND REPORTING REQUIREMENTS

Groundwater monitoring may be conducted through a cooperative monitoring and reporting program on behalf of growers, or Dischargers may choose to conduct groundwater monitoring and reporting individually. Qualifying cooperative groundwater monitoring and reporting programs must implement the groundwater monitoring and reporting requirements described in this Order, unless otherwise approved by the Executive Officer. An interested person may seek review by the Central Coast Water Board of the Executive Officer's approval or denial of a cooperative groundwater monitoring and reporting program.

Key monitoring and reporting requirements for groundwater are shown in Table 3.

A. Groundwater Monitoring

1. Dischargers must sample private domestic wells and the primary irrigation well on their farm/ranch to evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for nitrogen loading and exceedance of drinking water standards, and identify priority areas for follow up actions.

2. Dischargers must sample at least one groundwater well for each farm/ranch on their operation, including groundwater wells that are located within the property boundary of the enrolled county assessor parcel numbers (APNs). For farms/ranches with multiple groundwater wells, Dischargers must sample all domestic wells and the primary irrigation well. For the purposes of this MRP, a "domestic well" is any well that is used or may be used for domestic use purposes, including any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes. Groundwater monitoring parameters must include well screen interval depths (if available), general chemical parameters, and general cations and anions listed in Table 3.

3. Dischargers must conduct two rounds of monitoring of required groundwater wells during calendar year 2017; one sample collected during spring (**March - June)** and one sample collected during fall **(September - December)**.

4. Groundwater samples must be collected by a qualified third party (e.g., consultant, technician, person conducting cooperative monitoring) using proper sampling methods, chain-of-custody, and quality assurance/quality

control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

5. Laboratory analyses for groundwater samples must be conducted by a State certified laboratory according to U.S. EPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link below: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/resources4growers/2016_04_11_labs.pdf

6. If a discharger determines that water in any domestic well exceeds 10 mg/L of nitrate as N, the discharger or third party must provide notice to the Central Coast Water Board within 24 hours of learning of the exceedance. For domestic wells on a Discharger's farm/ranch that exceed 10 mg/L nitrate as N, the Discharger must provide written notification to the users within 10 days of learning of the exceedance and provide written confirmation of the notification to the Central Coast Water Board.

   The drinking water notification must include the statement that the water poses a human health risk due to elevated nitrate concentration, and include a warning against the use of the water for drinking or cooking. In addition, Dischargers must also provide prompt written notification to any new well users (e.g. tenants and employees with access to the affected well), whenever there is a change in occupancy.

   For all other domestic wells not on a Discharger's farm/ranch but that may be impacted by nitrate, the Central Coast Water Board will notify the users promptly.

   The drinking water notification and confirmation letters required by this Order are available to the public.

B. Groundwater Reporting

1. **Within 60 days of sample collection,** Dischargers must coordinate with the laboratory to submit the following groundwater monitoring results and information, electronically, using the Water Board's GeoTracker electronic deliverable format (EDF):
   a. GeoTracker Ranch Global Identification Number

b. Field point name (Well Name)
c. Field Point Class (Well Type)
d. Latitude
e. Longitude
f. Sample collection date
g. Analytical results
h. Well construction information (e.g., total depth, screened intervals, depth to water), as available

2. Dischargers must submit groundwater well information required in the electronic Notice of Intent (eNOI) for each farm/ranch and update the eNOI to reflect changes in the farm/ranch information within 30 days of the change. Groundwater well information reported on the eNOI includes, but is not limited to:

a. Number of groundwater wells present at each farm/ranch
b. Identification of any groundwater wells abandoned or destroyed (including method destroyed) in compliance with the Order
c. Use for fertigation or chemigation
d. Presence of back flow prevention devices
e. Number of groundwater wells used for agricultural purposes
f. Number of groundwater wells used for or may be used for domestic use purposes (domestic wells).

PART 3. GENERAL MONITORING AND REPORTING REQUIREMENTS

A. Submittal of Technical Reports

1. Dischargers must submit reports in a format specified by the Executive Officer. A transmittal letter must accompany each report, containing the following penalty of perjury statement signed by the Discharger or the Discharger’s authorized agent:

   “In compliance with Water Code §13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment”.

2. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g. trade secrets or secret processes), the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. The

Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). The Central Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff will notify the Discharger prior to making such report or portions of such report available for public inspection.

B. Central Coast Water Board Authority

1. Monitoring reports are required pursuant to section 13267 of the California Water Code. Pursuant to section 13268 of the Water Code, a violation of a request made pursuant to section 13267 may subject you to civil liability of up to $1000 per day.

2. The Water Board needs the required information to determine compliance with Order No.R3-2017-0002. The evidence supporting these requirements is included in the findings of Order No.R3-2017-0002.

John M. Robertson
Executive Officer

March 8, 2017
Date

Table 1. Major Waterbodies in Agricultural Areas[1]

Hydrologic SubArea	Waterbody Name	Hydrologic SubArea	Waterbody Name
30510	Pajaro River	30920	Quail Creek
30510	Salsipuedes Creek	30920	Salinas Reclamation Canal
30510	Watsonville Slough	31022	Chorro Creek
30510	Watsonville Creek[2]	31023	Los Osos Creek
30510	Beach Road Ditch[2]	31023	Warden Creek
30530	Carnadero Creek	31024	San Luis Obispo Creek
30530	Furlong Creek[2]	31024	Prefumo Creek
30530	Llagas Creek	31031	Arroyo Grande Creek
30530	Miller's Canal	31031	Los Berros Creek
30530	San Juan Creek	31210	Bradley Canyon Creek
30530	Tesquisquita Slough	31210	Bradley Channel
30600	Moro Cojo Slough	31210	Green Valley Creek
30910	Alisal Slough	31210	Main Street Canal
30910	Blanco Drain	31210	Orcutt Solomon Creek
30910	Old Salinas River	31210	Oso Flaco Creek
30910	Salinas River (below Gonzales Rd.)	31210	Little Oso Flaco Creek
30920	Salinas River (above Gonzales Rd. and below Nacimiento R.)	31210	Santa Maria River
30910	Santa Rita Creek[2]	31310	San Antonio Creek[2]
30910	Tembladero Slough	31410	Santa Ynez River
30920	Alisal Creek	31531	Bell Creek
30920	Chualar Creek	31531	Glenn Annie Creek
30920	Espinosa Slough	31531	Los Carneros Creek[2]
30920	Gabilan Creek	31534	Arroyo Paredon Creek
30920	Natividad Creek	31534	Franklin Creek

[1] At a minimum, monitoring sites must be included for these waterbodies in agricultural areas, unless otherwise approved by the Executive Officer. Monitoring sites may be proposed for addition or modification to better assess the impacts of waste discharges from irrigated lands to surface water. Dischargers choosing to comply with surface receiving water quality monitoring, individually (not part of a cooperative monitoring program) must only monitor sites for waterbodies receiving the discharge.
[2] These creeks are included because they are newly listed waterbodies on the 2010 303(d) list of Impaired Waters that are associated with areas of agricultural discharge.

Table 2. Surface Receiving Water Quality Monitoring Parameters

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Photo Monitoring		
Upstream and downstream photographs at monitoring location		With every monitoring event
WATER COLUMN SAMPLING		
Physical Parameters and General Chemistry		
Flow (field measure) (CFS) following SWAMP field SOP[9]	.25	Monthly, including 2 stormwater events
pH (field measure)	0.1	”
Electrical Conductivity (field measure) (µS/cm)	2.5	”
Dissolved Oxygen (field measure) (mg/L)	0.1	”
Temperature (field measure) (^oC)	0.1	”
Turbidity (NTU)	0.5	”
Total Dissolved Solids (mg/L)	10	”
Total Suspended Solids (mg/L)	0.5	”
Nutrients		
Total Nitrogen (mg/L)	0.5	Monthly, including 2 stormwater events
Nitrate + Nitrite (as N) (mg/L)	0.1	”
Total Ammonia (mg/L)	0.1	”
Unionized Ammonia (calculated value, mg/L))		”
Total Phosphorus (as P) (mg/L)	0.02	
Soluble Orthophosphate (mg/L)	0.01	”
Water column chlorophyll a (µg/L)	1.0	“
Algae cover, Floating Mats, % coverage	-	“
Algae cover, Attached, % coverage	-	“
Water Column Toxicity Test		
Algae - *Selenastrum capricornutum (*96-hour chronic; Method1003.0 in EPA/821/R-02/013)	-	4 times each year, twice in dry season, twice in wet season
Water Flea – *Ceriodaphnia dubia* (7-day chronic; Method 1002.0 in EPA/821/R-02/013)	-	”
Midge - *Chironomus spp.* (96-hour acute; Alternate test species in EPA 821-R-02-012)	-	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Toxicity Identification Evaluation (TIE)	-	As directed by Executive Officer
Pesticides[2] /Herbicides (µg/L)		
Organophosphate Pesticides		
Azinphos-methyl	0.02	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Chlorpyrifos	0.005	”
Diazinon	0.005	”
Dichlorvos	0.01	”
Dimethoate	0.01	”
Dimeton-s	0.005	”
Disulfoton (Disyton)	0.005	”
Malathion	0.005	”
Methamidophos	0.02	”
Methidathion	0.02	“
Parathion-methyl	0.02	“
Phorate	0.01	“
Phosmet	0.02	“
Neonicotinoids		
Thiamethoxam	.002	“
Imidacloprid	.002	“
Thiacloprid	.002	“
Dinotefuran	.006	“
Acetamiprid	.01	“
Clothianidin	.02	“
Herbicides		
Atrazine	0.05	“
Cyanazine	0.20	“
Diuron	0.05	“
Glyphosate	2.0	“
Linuron	0.1	“
Paraquat	0.20	“
Simazine	0.05	“
Trifluralin	0.05	“
Metals (µg/L)		
Arsenic (total) [5,7]	0.3	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Boron (total) [6,7]	10	“
Cadmium (total & dissolved) [4.5,7]	0.01	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Copper (total and dissolved) [4,7]	0.01	“
Lead (total and dissolved) [4,7]	0.01	“
Nickel (total and dissolved) [4,7]	0.02	“
Molybdenum (total) [7]	1	“
Selenium (total)[7]	0.30	“
Zinc (total and dissolved) [4.5,7]	0.10	“
Other (µg/L)		
Total Phenolic Compounds[8]	5	2 times in 2017, once in spring (April-May) and once in fall (August-September)
Hardness (mg/L as CaCO3)	1	“
Total Organic Carbon (ug/L)	0.6	“
SEDIMENT SAMPLING		
Sediment Toxicity - *Hyalella azteca* 10-day static renewal (EPA, 2000)		2 times each year, once in spring (April-May) and once in fall (August-September)
Pyrethroid Pesticides in Sediment (µg/kg)		
Gamma-cyhalothrin	2	2 times in both 2017 and 2018, once in spring (April-May) and once in fall (August-September) of each year, concurrent with sediment toxicity sampling
Lambda-cyhalothrin	2	“
Bifenthrin	2	“
Beta-cyfluthrin	2	“
Cyfluthrin	2	“
Esfenvalerate	2	“
Permethrin	2	“
Cypermethrin	2	“
Danitol	2	“
Fenvalerate	2	“
Fluvalinate	2	“
Other Monitoring in Sediment		
Chlorpyrifos (µg/kg)	2	“
Total Organic Carbon	0.01%	“
		“
Sediment Grain Size Analysis	1%	“

[1]Monitoring frequency may be used as a guide for developing alternative Sampling and Analysis Plans implemented by individual growers.
[2]Pesticide list may be modified based on specific pesticide use in Central Coast Region. Analytes on this list must be reported, at a minimum.
[3] Reporting Limit, taken from SWAMP where applicable.
[4] Holmgren, Meyer, Cheney and Daniels. 1993. Cadmium, Lead, Zinc, Copper and Nickel in Agricultural Soils of the United States. J. of Environ. Quality 22:335-348.

[5]Sax and Lewis, ed. 1987. Hawley's Condensed Chemical Dictionary. 11th ed. New York: Van Nostrand Reinhold Co., 1987. Zinc arsenate is an insecticide.
[6]Http://www.coastalagro.com/products/labels/9%25BORON.pdf; Boron is applied directly or as a component of fertilizers as a plant nutrient.
[7]Madramootoo, Johnston, Willardson, eds. 1997. Management of Agricultural Drainage Water Quality. International Commission on Irrigation and Drainage. U.N. FAO. SBN 92-6-104058.3.
[8]http://cat.inist.fr/?aModele=afficheN&cpsidt=14074525; Phenols are breakdown products of herbicides and pesticides. Phenols can be directly toxic and cause endocrine disruption.
[9]See SWAMP field measures SOP, p. 17
mg/L – milligrams per liter; ug/L – micrograms per liter; ug/kg – micrograms per kilogram;
NTU – Nephelometric Turbidity Units; CFS – cubic feet per second.

Table 3. Groundwater Sampling Parameters

Parameter	RL	Analytical Method[3]	Units
pH	0.1	Field or Laboratory Measurement EPA General Methods	pH Units
Specific Conductance	2.5		µS/cm
Total Dissolved Solids	10		mg/L
Total Alkalinity as $CaCO_3$		EPA Method 310.1 or 310.2	
Calcium	0.05	General Cations[1] EPA 200.7, 200.8, 200.9	
Magnesium	0.02		
Sodium	0.1		
Potassium	0.1		
Sulfate (SO4)	1.0	General Anions EPA Method 300 or EPA Method 353.2	
Chloride	0.1		
Nitrate + Nitrite (as N)[2] or Nitrate as N	0.1		

[1]General chemistry parameters (major cations and anions) represent geochemistry of water bearing zone and assist in evaluating quality assurance/quality control of groundwater monitoring and laboratory analysis.
[2]The MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short holding time required for nitrate.
[3]Dischargers may use alternative analytical methods approved by EPA.
RL – Reporting Limit; µS/cm – micro siemens per centimeter

Table 4. Tier 1 - Time Schedule for Key Monitoring and Reporting Requirements (MRPs)

REQUIREMENT	TIME SCHEDULE[1]
Submit Sampling And Analysis Plan and Quality Assurance Project Plan (SAAP/QAPP) for Surface Receiving Water Quality Monitoring *(individually or through cooperative monitoring program)*	By March 1, 2018, or as directed by the Executive Officer; satisfied if an approved SAAP/QAPP has been submitted pursuant to Order No. R3-2012-0011 and associated MRPs
Initiate surface receiving water quality monitoring *(individually or through cooperative monitoring program)*	Per an approved SAAP and QAPP
Submit surface receiving water quality monitoring data *(individually or through cooperative monitoring program)*	Each January 1, April 1, July 1, and October 1

Submit surface receiving water quality Annual Monitoring Report *(individually or through cooperative monitoring program)*	By July 1 2017; annually thereafter by July 1
Initiate monitoring of groundwater wells	First sample from March-June 2017, second sample from September-December 2017
Submit groundwater monitoring results	Within 60 days of the sample collection

[1] Dates are relative to adoption of this Order, unless otherwise specified.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

MONITORING AND REPORTING PROGRAM
ORDER NO. R3-2017-0002-02

TIER 2

DISCHARGERS ENROLLED UNDER
THE CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

This Monitoring and Reporting Program Order No. R3-2017-0002-02 (MRP) is issued pursuant to California Water Code (Water Code) sections 13267 and 13269, which authorize the California Regional Water Quality Control Board, Central Coast Region (hereafter Central Coast Water Board) to require preparation and submittal of technical and monitoring reports. Water Code section 13269 requires a waiver of waste discharge requirements to include as a condition the performance of monitoring and the public availability of monitoring results. *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands*, Order No. R3-2017-0002 (Order) includes criteria and requirements for three tiers. This MRP sets forth monitoring and reporting requirements for **Tier 2 Dischargers** enrolled under the Order. A summary of the requirements is shown below.

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS FOR TIER 2:

Part 1: Surface Receiving Water Monitoring and Reporting *(cooperative or individual)*
Part 2: Groundwater Monitoring and Reporting *(cooperative or individual)*
Total Nitrogen Applied Reporting *(required for subset of Tier 2 Dischargers if farm/ranch growing any crop with high nitrate loading risk to groundwater);*
Part 3: Annual Compliance Form

Pursuant to Water Code section 13269(a)(2), monitoring requirements must be designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. The monitoring and reports required by this MRP are to evaluate effects of discharges of waste from irrigated agricultural operations and individual farms/ranches on waters of the state and to determine compliance with the Order.

MONITORING AND REPORTING BASED ON TIERS

The Order and MRP include criteria and requirements for three tiers, based upon those characteristics of the individual farms/ranches at the operation that present the highest level of waste discharge or greatest risk to water quality. Dischargers must meet conditions of the Order and MRP for the appropriate tier that applies to their land and/or the individual farm/ranch. Within a tier, Dischargers comply with requirements based on the specific level of discharge and threat to water quality from individual farms/ranches. The lowest tier, Tier 1, applies to dischargers who discharge the lowest level of waste (amount or concentration) or pose the lowest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. The highest tier, Tier 3, applies to dischargers who discharge the highest level of waste or pose the greatest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. Tier 2 applies to dischargers whose discharge has a moderate threat to water quality. Water quality is defined in terms of regional, state, or federal numeric or narrative water quality standards. Per the Order, Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. If the Executive Officer approves a transfer to a lower tier, any interested person may request that the Central Coast Water Board conduct a review of the Executive Officer's determination.

PART 1. SURFACE RECEIVING WATER MONITORING AND REPORTING REQUIREMENTS

The surface receiving water monitoring and reporting requirements described herein are generally a continuation of the surface receiving water monitoring and reporting requirements of Monitoring and Reporting Program Order No. 2012-0011-02, as revised August 22, 2016, with the intent of uninterrupted regular monitoring and reporting during the transition from Order No. R3-2012-0011-02 to Order No. R3-2017-0002-02.

Monitoring and reporting requirements for surface receiving water identified in Part 1.A. and Part 1.B. apply to Tier 2 Dischargers. Surface receiving water refers to water flowing in creeks and other surface waters of the State. Surface receiving water monitoring may be conducted through a cooperative monitoring program on behalf of Dischargers, or Dischargers may choose to conduct surface receiving water monitoring and reporting individually. Key monitoring and reporting requirements for surface receiving water are shown in Tables 1 and 2. Time schedules are shown in Table4.

A. Surface Receiving Water Quality Monitoring

1. Dischargers must elect a surface receiving water monitoring option (cooperative monitoring program or individual receiving water monitoring) to comply with surface receiving water quality monitoring requirements, and identify the option selected on the Notice of Intent (NOI).

2. Dischargers are encouraged to choose participation in a cooperative monitoring program (e.g., the existing Cooperative Monitoring Program or a similar program) to comply with receiving water quality monitoring requirements. Dischargers not participating in a cooperative monitoring program must conduct surface receiving water quality monitoring individually that achieves the same purpose.

3. Dischargers (individually or as part of a cooperative monitoring program) must conduct surface receiving water quality monitoring to a) assess the impacts of their waste discharges from irrigated lands to receiving water, b) assess the status of receiving water quality and beneficial use protection in impaired waterbodies dominated by irrigated agricultural activity, c) evaluate status, short term patterns and long term trends (five to ten years or more) in receiving water quality, d) evaluate water quality impacts resulting from agricultural discharges (including but not limited to tile drain discharges), e) evaluate stormwater quality, f) evaluate condition of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat, including degradation resulting from erosion or agricultural discharges of waste, and g) assist in the identification of specific sources of water quality problems.

<u>Surface Receiving Water Quality Sampling and Analysis Plan</u>

4. **By March 1, 2018, or as directed by the Executive Officer**, Dischargers (individually or as part of a cooperative monitoring program) must submit a surface receiving water quality Sampling and Analysis Plan (SAAP) and Quality Assurance Project Plan (QAPP); this requirement is satisfied if an approved SAAP and QAPP addressing all surface receiving water quality monitoring requirements described in this Order has been submitted pursuant to Order No.R3-2012-0011 and associated Monitoring and Reporting Programs. Dischargers (or a third party cooperative monitoring program) must develop the Sampling and Analysis Plan to describe how the proposed monitoring will achieve the objectives of the MRP and evaluate compliance with the Order. The Sampling and Analysis Plan may propose alternative monitoring site locations, adjusted monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water. The Executive Officer must approve the Sampling and Analysis Plan and QAPP.

5. The Sampling and Analysis Plan must include the following minimum required components:
    a. Monitoring strategy to achieve objectives of the Order and MRP;
    b. Map of monitoring sites with GIS coordinates;

c. Identification of known water quality impairments and impaired waterbodies per the 2010 Clean Water Act 303(d) List of Impaired Waterbodies (List of Impaired Waterbodies);
d. Identification of beneficial uses and applicable water quality standards;
e. Identification of applicable Total Maximum Daily Loads;
f. Monitoring parameters;
g. Monitoring schedule, including description and frequencies of monitoring events;
h. Description of data analysis methods;

6. The QAPP must include receiving water and site-specific information, project organization and responsibilities, and quality assurance components of the MRP. The QAPP must also include the laboratory and field requirements to be used for analyses and data evaluation. The QAPP must contain adequate detail for project and Water Board staff to identify and assess the technical and quality objectives, measurement and data acquisition methods, and limitations of the data generated under the surface receiving water quality monitoring. All sampling and laboratory methodologies and QAPP content must be consistent with U.S. EPA methods, State Water Board's Surface Water Ambient Monitoring Program (SWAMP) protocols and the Central Coast Water Board's Central Coast Ambient Monitoring Program (CCAMP). Following U.S. EPA guidelines[1] and SWAMP templates[2], the receiving water quality monitoring QAPP must include the following minimum required components:
    a. Project Management. This component addresses basic project management, including the project history and objectives, roles and responsibilities of the participants, and other aspects.
    b. Data Generation and Acquisition. This component addresses all aspects of project design and implementation. Implementation of these elements ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality control activities are employed and are properly documented. Quality control requirements are applicable to all the constituents sampled as part of the MRP, as described in the appropriate method.
    c. Assessment and Oversight. This component addresses the activities for assessing the effectiveness of the implementation of the project and associated QA and QC activities. The purpose of the assessment is to provide project oversight that

[1] USEPA 2001 (2006) USEPA requirements for Quality Assurance Project Plans (QA/R-5) Office of Environmental Information, Washington, D.C. USEPA QA/R-5
[2] http://waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa

will ensure that the QA Project Plan is implemented as prescribed.

d. Data Validation and Usability. This component addresses the quality assurance activities that occur after the data collection, laboratory analysis and data generation phase of the project is completed. Implementation of these elements ensures that the data conform to the specified criteria, thus achieving the MRP objectives.

7. The Central Coast Water Board may conduct an audit of contracted laboratories at any time in order to evaluate compliance with the QAPP.

8. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may also revise the Sampling and Analysis Plan, including adding, removing, or changing monitoring site locations, changing monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water.

<u>Surface Receiving Water Quality Monitoring Sites</u>

9. The Sampling and Analysis Plan must, at a minimum, include monitoring sites to evaluate waterbodies identified in Table 1, unless otherwise approved by the Executive Officer. The Sampling and Analysis Plan must include sites to evaluate receiving water quality impacts most directly resulting from areas of agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long term monitoring sites included in related monitoring programs (e.g. CCAMP and the existing CMP). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges. Any modifications must consider sampling consistency for purposes of trend evaluation.

<u>Surface Receiving Water Quality Monitoring Parameters</u>

10. The Sampling and Analysis Plan must, at a minimum, include the following types of monitoring and evaluation parameters listed below and identified in Table 2:

    a. Flow Monitoring;
    b. Water Quality (physical parameters, metals, nutrients, pesticides);
    c. Toxicity (water and sediment);
    d. Assessment of Benthic Invertebrates.

11. All analyses must be conducted at a laboratory certified for such analyses by the State Department of Public Health (CDPH) or at laboratories approved by the Executive Officer. Unless otherwise noted, all sampling, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, U.S. EPA, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link: http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls

12. Water quality and flow monitoring is used to assess the sources, concentrations, and loads of waste discharges from individual farms/ranches and groups of Dischargers to surface waters, to evaluate impacts to water quality and beneficial uses, and to evaluate the short term patterns and long term trends in receiving water quality. Monitoring data must be compared to existing numeric and narrative water quality objectives.

13. Toxicity testing is to evaluate water quality relative to the narrative toxicity objective. Water column toxicity analyses must be conducted on 100% (undiluted) sample. At sites where persistent unresolved toxicity is found, the Executive Officer may require concurrent toxicity and chemical analyses and a Toxicity Identification Evaluation (TIE) to identify the individual discharges causing the toxicity.

Surface Receiving Water Quality Monitoring Frequency and Schedule

14. The Sampling and Analysis Plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. Table 2 includes minimum monitoring frequency and parameter lists. Agricultural parameters that are less common may be monitored less frequently. Modifications to the receiving water quality monitoring parameters, frequency, and schedule may be submitted for Executive Officer consideration and approval. At a minimum, the Sampling and Analysis Plan schedule must consist of monthly monitoring of common agricultural parameters in major agricultural areas, including two major storm events during the wet season (October 1 – April 30).

15. Storm event monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event that results in significant increase in stream flow. For purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion or other water quality problem. A

significant storm event will generally result in greater than 1-inch of rain within a 24-hour period.

16. Dischargers (individually or as part of a cooperative monitoring program) must perform receiving water quality monitoring per the Sampling and Analysis Plan and QAPP approved by the Executive Officer.

B. Surface Receiving Water Quality Reporting

<u>Surface Receiving Water Quality Data Submittal</u>

1. Dischargers (individually or as part of a cooperative monitoring program) must submit water quality monitoring data to the Central Coast Water Board electronically, in a format specified by the Executive Officer and compatible with SWAMP/CCAMP electronic submittal guidelines, each January 1, April 1, July 1, and October 1.

<u>Surface Receiving Water Quality Monitoring Annual Report</u>

2. **By July 1, 2017,** and every July 1 annually thereafter, Dischargers (individually or as part of a cooperative monitoring program) must submit an Annual Report, electronically, in a format specified by the Executive Officer including the following minimum elements:
   a. Signed Transmittal Letter;
   b. Title Page;
   c. Table of Contents;
   d. Executive Summary;
   e. Summary of Exceedance Reports submitted during the reporting period;
   f. Monitoring objectives and design;
   g. Monitoring site descriptions and rainfall records for the time period covered;
   h. Location of monitoring sites and map(s);
   i. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible;
   j. Summary of water quality data for any sites monitored as part of related monitoring programs, and used to evaluate receiving water as described in the Sampling and Analysis Plan.
   k. Discussion of data to clearly illustrate compliance with the Order and water quality standards;
   l. Discussion of short term patterns and long term trends in receiving water quality and beneficial use protection;
   m. Evaluation of pesticide and toxicity analyses results, and recommendation of candidate sites for Toxicity Identification Evaluations (TIEs);

n. Identification of the location of any agricultural discharges observed discharging directly to surface receiving water;
o. Laboratory data submitted electronically in a SWAMP/CCAMP comparable format;
p. Sampling and analytical methods used;
q. Copy of chain-of-custody forms;
r. Field data sheets, signed laboratory reports, laboratory raw data;
s. Associated laboratory and field quality control samples results;
t. Summary of Quality Assurance Evaluation results;
u. Specify the method used to obtain flow at each monitoring site during each monitoring event;
v. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
w. Conclusions.

PART 2. GROUNDWATER MONITORING AND REPORTING REQUIREMENTS

Groundwater monitoring may be conducted through a cooperative monitoring and reporting program on behalf of growers, or Dischargers may choose to conduct groundwater monitoring and reporting individually. Qualifying cooperative groundwater monitoring and reporting programs must implement the groundwater monitoring and reporting requirements described in this Order, unless otherwise approved by the Executive Officer. An interested person may seek review by the Central Coast Water Board of the Executive Officer’s approval or denial of a cooperative groundwater monitoring and reporting program.

Key monitoring and reporting requirements for groundwater are shown in Table 3.

A. Groundwater Monitoring

1. Dischargers must sample private domestic wells and the primary irrigation well on their farm/ranch to evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for nitrogen loading and exceedance of drinking water standards, and identify priority areas for follow up actions.

2. Dischargers must sample at least one groundwater well for each farm/ranch on their operation, including groundwater wells that are located within the property boundary of the enrolled county assessor parcel numbers (APNs). For farms/ranches with multiple groundwater wells, Dischargers must sample all domestic wells and the primary irrigation well. For the purposes of this MRP, a “domestic well” is any well that is used or may be used for domestic use purposes, including any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes. Groundwater monitoring

parameters must include well screen interval depths (if available), general chemical parameters, and general cations and anions listed in Table 3.

3. Dischargers must conduct two rounds of monitoring of required groundwater wells during calendar year 2017; one sample collected during spring (**March - June)** and one sample collected during fall **(September - December)**.

4. Groundwater samples must be collected by a qualified third party (e.g., consultant, technician, person conducting cooperative monitoring) using proper sampling methods, chain-of-custody, and quality assurance/quality control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

5. Laboratory analyses for groundwater samples must be conducted by a State certified laboratory according to U.S. EPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link below: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/resources4growers/2016_04_11_labs.pdf

6. If a discharger determines that water in any domestic well exceeds 10 mg/L of nitrate as N, the discharger or third party must provide notice to the Central Coast Water Board within 24 hours of learning of the exceedance. For domestic wells on a Discharger's farm/ranch, that exceed 10 mg/L of nitrate as N, the Discharger must provide written notification to the users within 10 days of learning of the exceedance and provide written confirmation of the notification to the Central Coast Water Board.

   The drinking water notification must include the statement that the water poses a human health risk due to elevated nitrate concentration, and include a warning against the use of the water for drinking or cooking. In addition, Dischargers must also provide prompt written notification to any new well users (e.g. tenants and employees with access to the affected well), whenever there is a change in occupancy.

   For all other domestic wells not on a Discharger's farm/ranch but that may be impacted by nitrate, the Central Coast Water Board will notify the users promptly.

The drinking water notification and confirmation letters required by this Order are available to the public.

B. Groundwater Reporting

1. **Within 60 days of sample collection,** Dischargers must coordinate with the laboratory to submit the following groundwater monitoring results and information, electronically, using the Water Board's GeoTracker electronic deliverable format (EDF):
   a. GeoTracker Ranch Global Identification Number
   b. Field point name (Well Name)
   c. Field Point Class (Well Type)
   d. Latitude
   e. Longitude
   f. Sample collection date
   g. Analytical results
   h. Well construction information (e.g., total depth, screened intervals, depth to water), as available

2. Dischargers must submit groundwater well information required in the electronic Notice of Intent (eNOI) for each farm/ranch and update the eNOI to reflect changes in the farm/ranch information within 30 days of the change. Groundwater well information reported on the eNOI includes, but is not limited to:
   a. Number of groundwater wells present at each farm/ranch
   b. Identification of any groundwater wells abandoned or destroyed (including method destroyed) in compliance with the Order
   c. Use for fertigation or chemigation
   d. Presence of back flow prevention devices
   e. Number of groundwater wells used for agricultural purposes
   f. Number of groundwater wells used for or may be used for domestic use purposes (domestic wells).

C. Total Nitrogen Applied Reporting

1. By March 1, 2018, and by March 1 annually thereafter, Tier 2 Dischargers growing any crop with a high potential to discharge nitrogen to groundwater must record and report total nitrogen applied for each specific crop that was irrigated and grown for commercial purposes on that farm/ranch during the preceding calendar year (January through December).

   Crops with a high potential to discharge nitrogen to groundwater are: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), spinach, strawberry, pepper (fruiting), and parsley.

Total nitrogen applied must be reported on the Total Nitrogen Applied Report form as described in the Total Nitrogen Applied Report form instructions.

Total nitrogen applied includes any product containing any form or concentration of nitrogen including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, and extracts.

2. The Total Nitrogen Applied Report form includes the following information:
    a. General ranch information such as GeoTracker file numbers, name, location, acres.
    b. Nitrogen concentration of irrigation water
    c. Nitrogen applied in pounds per acre with irrigation water
    d. Nitrogen present in the soil
    e. Nitrogen applied with compost and amendments
    f. Specific crops grown
    g. Nitrogen applied in pounds per acre with fertilizers and other materials to each specific crop grown
    h. Crop acres of each specific crop grown
    i. Whether each specific crop was grown organically or conventionally
    j. Basis for the nitrogen applied
    k. Explanation and comments section
    l. Certification statement with penalty of perjury declaration
    m. Additional information regarding whether each specific crop was grown in a nursery, greenhouse, hydroponically, in containers, and similar variables.

PART 3. ANNUAL COMPLIANCE FORM

Tier 2 Dischargers must submit annual compliance information, electronically, on the Annual Compliance Form. The purpose of the electronic Annual Compliance Form is to provide information to the Central Coast Water Board to assist in the evaluation of threat to water quality from individual agricultural discharges of waste and measure progress towards water quality improvement and verify compliance with the Order and MRP. Time schedules are shown in Table 4.

A. Annual Compliance Form

1. **By March 1, 2018, and updated annually thereafter by March 1**, Tier 2 Dischargers must submit an Annual Compliance Form electronically, in a

format specified by the Executive Officer. The electronic Annual Compliance Form includes, but is not limited to the following minimum requirements[1]:

a. Question regarding consistency between the Annual Compliance Form and the electronic Notice of Intent (eNOI);
b. Information regarding type and characteristics of discharge (e.g., number of discharge points, estimated flow/volume, number of tailwater days);
c. Identification of any direct agricultural discharges to a stream, lake, estuary, bay, or ocean;
d. Identification of specific farm water quality management practices completed, in progress, and planned to address water quality impacts caused by discharges of waste including irrigation management, pesticide management, nutrient management, salinity management, stormwater management, and sediment and erosion control to achieve compliance with this Order; and identification of specific methods used, and described in the Farm Plan consistent with Order Provision 44.g., for the purposes of assessing the effectiveness of management practices implemented and the outcomes of such assessments;
e. Proprietary information question and justification;
f. Authorization and certification statement and declaration of penalty of perjury.

PART 5. GENERAL MONITORING AND REPORTING REQUIREMENTS

A. Submittal of Technical Reports

1. Dischargers must submit reports in a format specified by the Executive Officer. A transmittal letter must accompany each report, containing the following penalty of perjury statement signed by the Discharger or the Discharger's authorized agent:

   "In compliance with Water Code §13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment".

[1] Items reported in the Annual Compliance Form are due by March 1, 2018, and annually thereafter, unless otherwise specified.

2. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g. trade secrets or secret processes), the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. The Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). The Central Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff will notify the Discharger prior to making such report or portions of such report available for public inspection.

B. Central Coast Water Board Authority

1. Monitoring reports are required pursuant to section 13267 of the California Water Code. Pursuant to section 13268 of the Water Code, a violation of a request made pursuant to section 13267 may subject you to civil liability of up to $1000 per day.

2. The Water Board needs the required information to determine compliance with Order No. R3-2017-0002. The evidence supporting these requirements is included in the findings of Order No. R3-2017-0002.

____
John M. Robertson
Executive Officer

March 8, 2017
____
Date

Table 1. Major Waterbodies in Agricultural Areas[1]

Hydrologic SubArea	Waterbody Name	Hydrologic SubArea	Waterbody Name
30510	Pajaro River	30920	Quail Creek
30510	Salsipuedes Creek	30920	Salinas Reclamation Canal
30510	Watsonville Slough	31022	Chorro Creek
30510	Watsonville Creek[2]	31023	Los Osos Creek
30510	Beach Road Ditch[2]	31023	Warden Creek
30530	Carnadero Creek	31024	San Luis Obispo Creek
30530	Furlong Creek[2]	31024	Prefumo Creek
30530	Llagas Creek	31031	Arroyo Grande Creek
30530	Miller's Canal	31031	Los Berros Creek
30530	San Juan Creek	31210	Bradley Canyon Creek
30530	Tesquisquita Slough	31210	Bradley Channel
30600	Moro Cojo Slough	31210	Green Valley Creek
30910	Alisal Slough	31210	Main Street Canal
30910	Blanco Drain	31210	Orcutt Solomon Creek
30910	Old Salinas River	31210	Oso Flaco Creek
30910	Salinas River (below Gonzales Rd.)	31210	Little Oso Flaco Creek
30920	Salinas River above Gonzales Rd. and below Nacimiento R.)	31210	Santa Maria River
30910	Santa Rita Creek[2]	31310	San Antonio Creek[2]
30910	Tembladero Slough	31410	Santa Ynez River
30920	Alisal Creek	31531	Bell Creek
30920	Chualar Creek	31531	Glenn Annie Creek
30920	Espinosa Slough	31531	Los Carneros Creek[2]
30920	Gabilan Creek	31534	Arroyo Paredon Creek
30920	Natividad Creek	31534	Franklin Creek

[1] At a minimum, monitoring sites must be included for these waterbodies in agricultural areas, unless otherwise approved by the Executive Officer. Monitoring sites may be proposed for addition or modification to better assess the impacts of waste discharges from irrigated lands to surface water. Dischargers choosing to comply with surface receiving water quality monitoring, individually (not part of a cooperative monitoring program) must only monitor sites for waterbodies receiving the discharge.
[2] These creeks are included because they are newly listed waterbodies on the 2010 303(d) list of Impaired Waters that are associated with areas of agricultural discharge.

Table 2. Surface Receiving Water Quality Monitoring Parameters

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Photo Monitoring		
Upstream and downstream photographs at monitoring location		With every monitoring event
WATER COLUMN SAMPLING **Physical Parameters and General Chemistry**		
Flow (field measure) (CFS) following SWAMP field SOP[9]	.25	Monthly, including 2 stormwater events
pH (field measure)	0.1	”
Electrical Conductivity (field measure) (µS/cm)	2.5	”
Dissolved Oxygen (field measure) (mg/L)	0.1	”
Temperature (field measure) (°C)	0.1	”
Turbidity (NTU)	0.5	”
Total Dissolved Solids (mg/L)	10	”
Total Suspended Solids (mg/L)	0.5	”
Nutrients		
Total Nitrogen (mg/L)	0.5	Monthly, including 2 stormwater events
Nitrate + Nitrite (as N) (mg/L)	0.1	”
Total Ammonia (mg/L)	0.1	”
Unionized Ammonia (calculated value, mg/L))		”
Total Phosphorus (as P) (mg/L)	0.02	
Soluble Orthophosphate (mg/L)	0.01	”
Water column chlorophyll a (µg/L)	1.0	“
Algae cover, Floating Mats, % coverage	-	“
Algae cover, Attached, % coverage	-	“
Water Column Toxicity Test		
Algae - *Selenastrum capricornutum (*96-hour chronic; Method1003.0 in EPA/821/R-02/013)	-	4 times each year, twice in dry season, twice in wet season
Water Flea – *Ceriodaphnia dubia* (7-day chronic; Method 1002.0 in EPA/821/R-02/013)	-	”
Midge - *Chironomus spp.* (96-hour acute; Alternate test species in EPA 821-R-02-012)	-	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Toxicity Identification Evaluation (TIE)	-	As directed by Executive Officer
Pesticides[2] /Herbicides (µg/L)		
Organophosphate Pesticides		
Azinphos-methyl	0.02	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Chlorpyrifos	0.005	”
Diazinon	0.005	”
Dichlorvos	0.01	”
Dimethoate	0.01	”
Dimeton-s	0.005	”
Disulfoton (Disyton)	0.005	”
Malathion	0.005	”
Methamidophos	0.02	”
Methidathion	0.02	“
Parathion-methyl	0.02	“
Phorate	0.01	“
Phosmet	0.02	“
Neonicotinoids		
Thiamethoxam	.002	“
Imidacloprid	.002	“
Thiacloprid	.002	“
Dinotefuran	.006	“
Acetamiprid	.01	“
Clothianidin	.02	
Herbicides		
Atrazine	0.05	“
Cyanazine	0.20	“
Diuron	0.05	“
Glyphosate	2.0	“
Linuron	0.1	“
Paraquat	0.20	“
Simazine	0.05	“
Trifluralin	0.05	“
Metals (µg/L)		
Arsenic (total) [5,7]	0.3	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Boron (total) [6,7]	10	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Cadmium (total & dissolved)[4,5,7]	0.01	“
Copper (total and dissolved)[4,7]	0.01	“
Lead (total and dissolved)[4,7]	0.01	“
Nickel (total and dissolved)[4,7]	0.02	“
Molybdenum (total)[7]	1	“
Selenium (total)[7]	0.30	“
Zinc (total and dissolved)[4,5,7]	0.10	“
Other (µg/L)		
Total Phenolic Compounds[8]	5	2 times in 2017, once in spring (April-May) and once in fall (August-September)
Hardness (mg/L as CaCO3)	1	“
Total Organic Carbon (ug/L)	0.6	“
SEDIMENT SAMPLING		
Sediment Toxicity - *Hyalella azteca* 10-day static renewal (EPA, 2000)		2 times each year, once in spring (April-May) and once in fall (August-September)
Pyrethroid Pesticides in Sediment (µg/kg)		
Gamma-cyhalothrin	2	2 times in both 2017 and 2018, once in spring (April-May) and once in fall (August-September) of each year, concurrent with sediment toxicity sampling
Lambda-cyhalothrin	2	“
Bifenthrin	2	“
Beta-cyfluthrin	2	“
Cyfluthrin	2	“
Esfenvalerate	2	“
Permethrin	2	“
Cypermethrin	2	“
Danitol	2	“
Fenvalerate	2	“
Fluvalinate	2	“
Other Monitoring in Sediment		
Chlorpyrifos (µg/kg)	2	“
Total Organic Carbon	0.01%	“
		“
Sediment Grain Size Analysis	1%	“

[1]Monitoring is ongoing through all five years of the Order, unless otherwise specified. Monitoring frequency may be used as a guide for developing alternative Sampling and Analysis Plan.
[2]Pesticide list may be modified based on specific pesticide use in Central Coast Region. Analytes on this list must be reported, at a minimum.

[3] Reporting Limit, taken from SWAMP where applicable.
[4] Holmgren, Meyer, Cheney and Daniels. 1993. Cadmium, Lead, Zinc, Copper and Nickel in Agricultural Soils of the United States. J. of Environ. Quality 22:335-348.
[5] Sax and Lewis, ed. 1987. Hawley's Condensed Chemical Dictionary. 11^{th} ed. New York: Van Nostrand Reinhold Co., 1987. Zinc arsenate is an insecticide.
[6] Http://www.coastalagro.com/products/labels/9%25BORON.pdf; Boron is applied directly or as a component of fertilizers as a plant nutrient.
[7] Madramootoo, Johnston, Willardson, eds. 1997. Management of Agricultural Drainage Water Quality. International Commission on Irrigation and Drainage. U.N. FAO. SBN 92-6-104058.3.
[8] http://cat.inist.fr/?aModele=afficheN&cpsidt=14074525; Phenols are breakdown products of herbicides and pesticides. Phenols can be directly toxic and cause endocrine disruption.
[9] See SWAMP field measures SOP, p. 17
mg/L – milligrams per liter; ug/L – micrograms per liter; ug/kg – micrograms per kilogram;
NTU – Nephelometric Turbidity Units; CFS – cubic feet per second;

Table 3. Groundwater Monitoring Parameters

Parameter	RL	Analytical Method[3]	Units
pH	0.1	Field or Laboratory Measurement EPA General Methods	pH Units
Specific Conductance	2.5		µS/cm
Total Dissolved Solids	10		mg/L
Total Alkalinity as CaCO3	1	EPA Method 310.1 or 310.2	
Calcium	0.05	General Cations[1] EPA 200.7, 200.8, 200.9	
Magnesium	0.02		
Sodium	0.1		
Potassium	0.1		
Sulfate (SO4)	1.0	General Anions EPA Method 300 or EPA Method 353.2	
Chloride	0.1		
Nitrate + Nitrite (as N)[2] or Nitrate as N	0.1		

[1] General chemistry parameters (major cations and anions) represent geochemistry of water bearing zone and assist in evaluating quality assurance/quality control of groundwater sampling and laboratory analysis.
[2] The MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short holding time required for nitrate.
[3] Dischargers may use alternative analytical methods approved by EPA.
RL – Reporting Limit; µS/cm – micro siemens per centimeter

Table4. Tier 2 - Time Schedule for Key Monitoring and Reporting Requirements (MRPs)

REQUIREMENT	TIME SCHEDULE[1]
Submit Sampling And Analysis Plan and Quality Assurance Project Plan (SAAP/QAPP) for Surface Receiving Water Quality Monitoring (*individually or through cooperative monitoring program*)	By March 1, 2018, or as directed by the Executive Officer; satisfied if an approved SAAP/QAPP has been submitted pursuant to Order No. R3-2012-0011 and associated MRPs
Initiate surface receiving water quality monitoring (*individually or through cooperative monitoring program*)	Per an approved SAAP and QAPP
Submit surface receiving water quality monitoring data (*individually or through cooperative monitoring program*)	Each January 1, April 1, July 1, and October 1
Submit surface receiving water quality Annual Monitoring Report *(individually or through cooperative monitoring program*)	By July 12017: annually thereafter by July 1
Initiate monitoring of groundwater wells	First sample from March-June 2017, second sample from September-December 2017
Submit electronic Annual Compliance Form	March 1, 2018 and every March 1 annually thereafter
Submit groundwater monitoring results	Within 60 days of the sample collection
Tier 2 Dischargers with farms/ranches growing high risk crops: Report total nitrogen applied on the Total Nitrogen Applied form	March 1, 2018 and every March 1annually thereafter

[1] Dates are relative to adoption of this Order or enrollment date for Dischargers enrolled after the adoption of this Order, unless otherwise specified.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

MONITORING AND REPORTING PROGRAM
ORDER NO. R3-2017-0002-03

TIER 3

DISCHARGERS ENROLLED UNDER
CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR
DISCHARGES FROM IRRIGATED LANDS

This Monitoring and Reporting Program Order No. R3-2017-0002-03 (MRP) is issued pursuant to California Water Code (Water Code) sections 13267 and 13269, which authorize the California Regional Water Quality Control Board, Central Coast Region (hereafter Central Coast Water Board) to require preparation and submittal of technical and monitoring reports. Water Code section 13269 requires a waiver of waste discharge requirements to include as a condition, the performance of monitoring and the public availability of monitoring results. *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands,* Order No. R3-2017-0002 (Order), includes criteria and requirements for three tiers. This MRP sets forth monitoring and reporting requirements for **Tier 3 Dischargers** enrolled under the Order. A summary of the requirements is shown below.

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS FOR TIER 3:

Part 1: Surface Receiving Water Monitoring and Reporting *(cooperative or individual)*
Part 2: Groundwater Monitoring and Reporting *(cooperative or individual)*
Total Nitrogen Applied Reporting *(required for subset of Tier 3 Dischargers if farm/ranch growing any crop with high nitrate loading risk to groundwater);*
Part 3: Annual Compliance Form
Part 5: Individual Surface Water Discharge Monitoring and Reporting
Part 6: Irrigation and Nutrient Management Plan *(required for subset of Tier 3 Dischargers if farm/ranch has High Nitrate Loading Risk)*
Part 7: Water Quality Buffer Plan *(required for subset of Tier 3 Dischargers if farm/ranch contains or is adjacent to a waterbody impaired for temperature, turbidity or sediment)*

Pursuant to Water Code section 13269(a)(2), monitoring requirements must be designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. The monitoring and reports required by this MRP are to evaluate effects of discharges of waste from irrigated agricultural operations and individual farms/ranches on waters of the state and to determine compliance with the Order.

MONITORING AND REPORTING BASED ON TIERS

The Order and MRP includes criteria and requirements for three tiers, based upon those characteristics of the individual farms/ranches at the operation that present the highest level of waste discharge or greatest risk to water quality. Dischargers must meet conditions of the Order and MRP for the appropriate tier that applies to their land and/or the individual farm/ranch. Within a tier, Dischargers comply with requirements based on the specific level of discharge and threat to water quality from individual farms/ranches. The lowest tier, Tier 1, applies to dischargers who discharge the lowest level of waste (amount or concentration) or pose the lowest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. The highest tier, Tier 3, applies to dischargers who discharge the highest level of waste or pose the greatest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. Tier 2 applies to dischargers whose discharge has a moderate threat to water quality. Water quality is defined in terms of regional, state, or federal numeric or narrative water quality standards. Per the Order, Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. If the Executive Officer approves a transfer to a lower tier, any interested person may request that the Central Coast Water Board conduct a review of the Executive Officer's determination.

PART 1. SURFACE RECEIVING WATER MONITORING AND REPORTING REQUIREMENTS

The surface receiving water monitoring and reporting requirements described herein are generally a continuation of the surface receiving water monitoring and reporting requirements of Monitoring and Reporting Program Order No. 2012-0011-03, as revised August 22, 2016, with the intent of uninterrupted regular monitoring and reporting during the transition from Order No. R3-2012-0011-03 to Order No. R3-2017-0002-03.

Monitoring and reporting requirements for surface receiving water identified in Part 1.A. and Part 1.B. apply to Tier 3 Dischargers. Surface receiving water refers to water flowing in creeks and other surface waters of the State. Surface receiving water monitoring may be conducted through a cooperative monitoring program on behalf of Dischargers, or Dischargers may choose to conduct surface receiving water monitoring and reporting individually. Key monitoring and reporting requirements for surface receiving water are shown in Tables 1 and 2. Time schedules are shown in Table 5.

A. Surface Receiving Water Quality Monitoring

1. Dischargers must elect a surface receiving water monitoring option (cooperative monitoring program or individual receiving water monitoring) to comply with surface receiving water quality monitoring requirements, and identify the option selected on the Notice of Intent (NOI).

2. Dischargers are encouraged to choose participation in a cooperative monitoring program (e.g., the existing Cooperative Monitoring Program or a similar program) to comply with receiving water quality monitoring requirements. Dischargers not participating in a cooperative monitoring program must conduct surface receiving water quality monitoring individually that achieves the same purpose.

3. Dischargers (individually or as part of a cooperative monitoring program) must conduct surface receiving water quality monitoring to a) assess the impacts of their waste discharges from irrigated lands to receiving water, b) assess the status of receiving water quality and beneficial use protection in impaired waterbodies dominated by irrigated agricultural activity, c) evaluate status, short term patterns and long term trends (five to ten years or more) in receiving water quality, d) evaluate water quality impacts resulting from agricultural discharges (including but not limited to tile drain discharges), e) evaluate stormwater quality, f) evaluate condition of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat, including degradation resulting from erosion or agricultural discharges of waste, and g) assist in the identification of specific sources of water quality problems.

Surface Receiving Water Quality Sampling and Analysis Plan

4. **By March 1, 2018, or as directed by the Executive Officer**, Dischargers (individually or as part of a cooperative monitoring program) must submit a surface receiving water quality Sampling and Analysis Plan (SAAP) and Quality Assurance Project Plan (QAPP); this requirement is satisfied if an approved SAAP and QAPP addressing all surface receiving water quality monitoring requirements described in this Order has been submitted pursuant to Order No.R3-2012-0011 and associated Monitoring and Reporting Programs. Dischargers (or a third party cooperative monitoring program) must develop the Sampling and Analysis Plan to describe how the proposed monitoring will achieve the objectives of the MRP and evaluate compliance with the Order. The Sampling and Analysis Plan may propose alternative monitoring site locations, adjusted monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water. The Executive Officer must approve the Sampling and Analysis Plan and QAPP.

5. The Sampling and Analysis Plan must include the following minimum required components:
    a. Monitoring strategy to achieve objectives of the Order and MRP;
    b. Map of monitoring sites with GIS coordinates;

c. Identification of known water quality impairments and impaired waterbodies per the 2010 Clean Water Act 303(d) List of Impaired Waterbodies (List of Impaired Waterbodies);
d. Identification of beneficial uses and applicable water quality standards;
e. Identification of applicable Total Maximum Daily Loads;
f. Monitoring parameters;
g. Monitoring schedule, including description and frequencies of monitoring events;
h. Description of data analysis methods;

6. The QAPP must include receiving water and site-specific information, project organization and responsibilities, and quality assurance components of the MRP. The QAPP must also include the laboratory and field requirements to be used for analyses and data evaluation. The QAPP must contain adequate detail for project and Water Board staff to identify and assess the technical and quality objectives, measurement and data acquisition methods, and limitations of the data generated under the surface receiving water quality monitoring. All sampling and laboratory methodologies and QAPP content must be consistent with U.S. EPA methods, State Water Board's Surface Water Ambient Monitoring Program (SWAMP) protocols and the Central Coast Water Board's Central Coast Ambient Monitoring Program (CCAMP). Following U.S. EPA guidelines[1] and SWAMP templates[2], the receiving water quality monitoring QAPP must include the following minimum required components:
   a. Project Management. This component addresses basic project management, including the project history and objectives, roles and responsibilities of the participants, and other aspects.
   b. Data Generation and Acquisition. This component addresses all aspects of project design and implementation. Implementation of these elements ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality control activities are employed and are properly documented. Quality control requirements are applicable to all the constituents sampled as part of the MRP, as described in the appropriate method.
   c. Assessment and Oversight. This component addresses the activities for assessing the effectiveness of the implementation of the project and associated QA and QC activities. The purpose of the assessment is to provide project oversight that

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[1] USEPA. 2001 (2006) USEPA Requirements for Quality Assurance Project Plans (QA/R-5) Office of Environmental Information, Washington, D.C. USEPA QA/R-5
[2] http://waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa

will ensure that the QA Project Plan is implemented as prescribed.

d. Data Validation and Usability. This component addresses the quality assurance activities that occur after the data collection, laboratory analysis and data generation phase of the project is completed. Implementation of these elements ensures that the data conform to the specified criteria, thus achieving the MRP objectives.

7. The Central Coast Water Board may conduct an audit of contracted laboratories at any time in order to evaluate compliance with the QAPP.

8. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may also revise the Sampling and Analysis Plan, including adding, removing, or changing monitoring site locations, changing monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water.

Surface Receiving Water Quality Monitoring Sites

9. The Sampling and Analysis Plan must, at a minimum, include monitoring sites to evaluate waterbodies identified in Table 1, unless otherwise approved by the Executive Officer. The Sampling and Analysis Plan must include sites to evaluate receiving water quality impacts most directly resulting from areas of agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long term monitoring sites included in related monitoring programs (e.g. CCAMP and the existing CMP). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges. Any modifications must consider sampling consistency for purposes of trend evaluation.

Surface Receiving Water Quality Monitoring Parameters

10. The Sampling and Analysis Plan must, at a minimum, include the following types of monitoring and evaluation parameters listed below and identified in Table 2:

    a. Flow Monitoring;
    b. Water Quality (physical parameters, metals, nutrients, pesticides);
    c. Toxicity (water and sediment);
    d. Assessment of Benthic Invertebrates.

11. All analyses must be conducted at a laboratory certified for such analyses by the State Department of Public Health (CDPH) or at laboratories approved by the Executive Officer. Unless otherwise noted, all sampling, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, U.S. EPA, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link: http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls

12. Water quality and flow monitoring is used to assess the sources, concentrations, and loads of waste discharges from individual farms/ranches and groups of Dischargers to surface waters, to evaluate impacts to water quality and beneficial uses, and to evaluate the short term patterns and long term trends in receiving water quality. Monitoring data must be compared to existing numeric and narrative water quality objectives.

13. Toxicity testing is to evaluate water quality relative to the narrative toxicity objective. Water column toxicity analyses must be conducted on 100% (undiluted) sample. At sites where persistent unresolved toxicity is found, the Executive Officer may require concurrent toxicity and chemical analyses and a Toxicity Identification Evaluation (TIE) to identify the individual discharges causing the toxicity.

Surface Receiving Water Quality Monitoring Frequency and Schedule

14. The Sampling and Analysis Plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. Table 2 includes minimum monitoring frequency and parameter lists. Agricultural parameters that are less common may be monitored less frequently. Modifications to the receiving water quality monitoring parameters, frequency, and schedule may be submitted for Executive Officer consideration and approval. At a minimum, the Sampling and Analysis Plan schedule must consist of monthly monitoring of common agricultural parameters in major agricultural areas, including two major storm events during the wet season (October 1 – April 30).

15. Storm event monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event that results in significant increase in stream flow. For purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion or other water quality problem. A

significant storm event will generally result in greater than 1-inch of rain within a 24-hour period.

16. Dischargers (individually or as part of a cooperative monitoring program) must perform receiving water quality monitoring per the Sampling and Analysis Plan and QAPP approved by the Executive Officer.

B. Surface Receiving Water Quality Reporting

<u>Surface Receiving Water Quality Data Submittal</u>

1. Dischargers (individually or as part of a cooperative monitoring program) must submit water quality monitoring data to the Central Coast Water Board electronically, in a format specified by the Executive Officer and compatible with SWAMP/CCAMP electronic submittal guidelines, each January 1, April 1, July 1, and October 1.

<u>Surface Receiving Water Quality Monitoring Annual Report</u>

2. **By July 1, 2017,** and every July 1 annually thereafter, Dischargers (individually or as part of a cooperative monitoring program) must submit an Annual Report, electronically, in a format specified by the Executive Officer including the following minimum elements:
   a. Signed Transmittal Letter;
   b. Title Page;
   c. Table of Contents;
   d. Executive Summary;
   e. Summary of Exceedance Reports submitted during the reporting period;
   f. Monitoring objectives and design;
   g. Monitoring site descriptions and rainfall records for the time period covered;
   h. Location of monitoring sites and map(s);
   i. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible;
   j. Summary of water quality data for any sites monitored as part of related monitoring programs, and used to evaluate receiving water as described in the Sampling and Analysis Plan.
   k. Discussion of data to clearly illustrate compliance with the Order and water quality standards;
   l. Discussion of short term patterns and long term trends in receiving water quality and beneficial use protection;

m. Evaluation of pesticide and toxicity analyses results, and recommendation of candidate sites for Toxicity Identification Evaluations (TIEs);
n. Identification of the location of any agricultural discharges observed discharging directly to surface receiving water;
o. Laboratory data submitted electronically in a SWAMP/CCAMP comparable format;
p. Sampling and analytical methods used;
q. Copy of chain-of-custody forms;
r. Field data sheets, signed laboratory reports, laboratory raw data;
s. Associated laboratory and field quality control samples results;
t. Summary of Quality Assurance Evaluation results;
u. Specify the method used to obtain flow at each monitoring site during each monitoring event;
v. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
w. Conclusions.

PART 2. GROUNDWATER MONITORING AND REPORTING REQUIREMENTS

Groundwater monitoring may be conducted through a cooperative monitoring and reporting program on behalf of growers, or Dischargers may choose to conduct groundwater monitoring and reporting individually. Qualifying cooperative groundwater monitoring and reporting programs must implement the groundwater monitoring and reporting requirements described in this Order, unless otherwise approved by the Executive Officer. An interested person may seek review by the Central Coast Water Board of the Executive Officer's approval or denial of a cooperative groundwater monitoring and reporting program.

Key monitoring and reporting requirements for groundwater are shown in Table 3.

A. Groundwater Monitoring

1. Dischargers must sample private domestic wells and the primary irrigation well on their farm/ranch to evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for nitrogen loading and exceedance of drinking water standards, and identify priority areas for follow up actions.

2. Dischargers must sample at least one groundwater well for each farm/ranch on their operation, including groundwater wells that are located within the property boundary of the enrolled county assessor parcel numbers (APNs). For farms/ranches with multiple groundwater wells, Dischargers must sample all domestic wells and the primary irrigation well. For the purposes of this MRP, a "domestic well" is any well that is used or may be used for domestic

use purposes, including any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes. Groundwater monitoring parameters must include well screen interval depths (if available), general chemical parameters, and general cations and anions listed in Table 3.

3. Dischargers must conduct two rounds of monitoring of required groundwater wells during calendar year 2017; one sample collected during spring (**March - June)** and one sample collected during fall **(September - December)**.

4. Groundwater samples must be collected by a qualified third party (e.g., consultant, technician, person conducting cooperative monitoring) using proper sampling methods, chain-of-custody, and quality assurance/quality control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

5. Laboratory analyses for groundwater samples must be conducted by a State certified laboratory according to U.S. EPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link below: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/resources4growers/2016_04_11_labs.pdf

6. If a discharger determines that water in any domestic well exceeds 10 mg/L of nitrate as N, the discharger or third party must provide notice to the Central Coast Water Board within 24 hours of learning of the exceedance. For domestic wells on a Discharger's farm/ranch that exceed 10 mg/L nitrate as N, the Discharger must provide written notification to the users within 10 days of learning of the exceedance and provide written confirmation of the notification to the Central Coast Water Board.

   The drinking water notification must include the statement that the water poses a human health risk due to elevated nitrate concentration, and include a warning against the use of the water for drinking or cooking. In addition, Dischargers must also provide prompt written notification to any new well users (e.g. tenants and employees with access to the affected well), whenever there is a change in occupancy.

For all other domestic wells not on a Discharger's property, the Central Coast Water Board will notify the users promptly.

The drinking water notification and confirmation letters required by this Order are available to the public.

B. Groundwater Reporting

1. **Within 60 days of sample collection,** Dischargers must coordinate with the laboratory to submit the following groundwater monitoring results and information, electronically, using the Water Board's GeoTracker electronic deliverable format (EDF):
    a. GeoTracker Ranch Global Identification Number
    b. Field point name (Well Name)
    c. Field Point Class (Well Type)
    d. Latitude
    e. Longitude
    f. Sample collection date
    g. Analytical results
    h. Well construction information (e.g., total depth, screened intervals, depth to water), as available

2. Dischargers must submit groundwater well information required in the electronic Notice of Intent (eNOI) for each farm/ranch and update the eNOI to reflect changes in the farm/ranch information within 30 days of the change. Groundwater well information reported on the eNOI includes, but is not limited to:
    a. Number of groundwater wells present at each farm/ranch
    b. Identification of any groundwater wells abandoned or destroyed (including method destroyed) in compliance with the Order
    c. Use for fertigation or chemigation
    d. Presence of back flow prevention devices
    e. Number of groundwater wells used for agricultural purposes
    f. Number of groundwater wells used for or may be used for domestic use purposes (domestic wells)

C. Total Nitrogen Applied Reporting

1. By March 1, 2018, and by March 1 annually thereafter, Tier 3 Dischargers growing any crop with a high potential to discharge nitrogen to groundwater must record and report total nitrogen applied for each specific crop that was irrigated and grown for commercial purposes on that farm/ranch during the preceding calendar year (January through December).

    Crops with a high potential to discharge nitrogen to groundwater are: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), spinach, strawberry, pepper (fruiting), and parsley.

Total nitrogen applied must be reported on the Total Nitrogen Applied Report form as described in the Total Nitrogen Applied Report form instructions.

Total nitrogen applied includes any product containing any form or concentration of nitrogen including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, and extracts.

2. The Total Nitrogen Applied Report form includes the following information:
   a. General ranch information such as GeoTracker file numbers, name, location, acres.
   b. Nitrogen concentration of irrigation water
   c. Nitrogen applied in pounds per acre with irrigation water
   d. Nitrogen present in the soil
   e. Nitrogen applied with compost and amendments
   f. Specific crops grown
   g. Nitrogen applied in pounds per acre with fertilizers and other materials to each specific crop grown
   h. Crop acres of each specific crop grown
   i. Whether each specific crop was grown organically or conventionally
   j. Basis for the nitrogen applied
   k. Explanation and comments section
   l. Certification statement with penalty of perjury declaration
   m. Additional information regarding whether each specific crop was grown in a nursery, greenhouse, hydroponically, in containers, and similar variables.

PART 3. ANNUAL COMPLIANCE FORM

Tier 3 Dischargers must submit annual compliance information, electronically, on the Annual Compliance Form. The purpose of the electronic Annual Compliance Form is to provide information to the Central Coast Water Board to assist in the evaluation of threat to water quality from individual agricultural discharges of waste and measure progress towards water quality improvement and verify compliance with the Order and MRP. Time schedules are shown in Table 5.

A. Annual Compliance Form

1. **By March 1, 2018, and updated annually thereafter by March 1**, Tier 3 Dischargers must submit an Annual Compliance Form electronically, in a format specified by the Executive Officer. The electronic Annual Compliance Form includes, but is not limited to the following minimum requirements[1]:
    a. Question regarding consistency between the Annual Compliance Form and the electronic Notice of Intent (eNOI);
    b. Information regarding type and characteristics of discharge (e.g., number of discharge points, estimated flow/volume, number of tailwater days);
    c. Identification of any direct agricultural discharges to a stream, lake, estuary, bay, or ocean;
    d. Identification of specific farm water quality management practices completed, in progress, and planned to address water quality impacts caused by discharges of waste including irrigation management, pesticide management, nutrient management, salinity management, stormwater management, and sediment and erosion control to achieve compliance with this Order; and identification of specific methods used, and described in the Farm Plan consistent with Order Provision 44.g., for the purposes of assessing the effectiveness of management practices implemented and the outcomes of such assessments:
    e. Proprietary information question and justification;
    f. Authorization and certification statement and declaration of penalty of perjury.

PART 5. INDIVIDUAL SURFACE WATER DISCHARGE MONITORING AND REPORTING REQUIREMENTS

Monitoring and reporting requirements for individual surface water discharge identified in Part 5.A. and Part 5.B. apply to Tier 3 Dischargers with irrigation water or stormwater discharges to surface water from an outfall. Outfalls are locations where irrigation water and stormwater exit a farm/ranch, or otherwise leave the control of the discharger, after being conveyed by pipes, ditches, constructed swales, tile drains, containment structures, or other discrete structures or features that transport the water. Discharges that have commingled with discharges from another farm/ranch are considered to have left the control of the discharger. Key monitoring and reporting requirements for individual surface water discharge are shown in Tables 4A and 4B. Time schedules are shown in Table 5.

[1] Items reported in the Annual Compliance Form are due by March 1 2018, and annually thereafter, unless otherwise specified.

A. Individual Surface Water Discharge Monitoring

1. Tier 3 Dischargers must conduct individual surface water discharge monitoring to a) evaluate the quality of individual waste discharges, including concentration and load of waste (in kilograms per day) for appropriate parameters, b) evaluate effects of waste discharge on water quality and beneficial uses, and c) evaluate progress towards compliance with water quality improvement milestones in the Order.

<u>Individual Sampling and Analysis Plan</u>

2. **By March 1, 2018, or as directed by the Executive Officer**, Tier 3 Dischargers must submit an individual surface water discharge Sampling and Analysis Plan (SAAP) and QAPP to monitor individual discharges of irrigation water and stormwater that leaves their farm/ranch from an outfall. The Sampling and Analysis Plan and QAPP must be submitted to the Executive Officer; this requirement is satisfied if an approved SAAP and QAPP addressing all individual surface water discharge monitoring requirements described in this Order has been submitted pursuant to Order No.R3-2012-0011 and associated Monitoring and Reporting Programs.

3. The Sampling and Analysis Plan must include the following minimum required components to monitor irrigation water and stormwater discharges:
   a. Number and location of outfalls (identified with latitude and longitude or on a scaled map);
   b. Number and location of monitoring points;
   c. Description of typical irrigation runoff patterns;
   d. Map of discharge and monitoring points;
   e. Sample collection methods;
   f. Monitoring parameters;
   g. Monitoring schedule and frequency of monitoring events;

4. The QAPP must include appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, quality control activities, and documentation.

5. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may require modifications to the Sampling and Analysis Plan or Tier 3 Dischargers may propose Sampling and Analysis Plan modifications for Executive Officer approval, when modifications are justified to accomplish the objectives of the MRP.

Individual Surface Water Discharge Monitoring Points

6. Tier 3 Dischargers must select monitoring points to characterize at least 80% of the estimated maximum irrigation run-off discharge volume from each farm/ranch based on that farm's/ranch's typical discharge patterns[1], including tailwater discharges and discharges from tile drains. Sample must be taken when irrigation activity is causing maximal run-off. Load estimates will be generated by multiplying flow volume of discharge by concentration of contaminants. Tier 3 Dischargers must include at least one monitoring point from each farm/ranch which drains areas where chlorpyrifos or diazinon are applied, and monitoring of runoff or tailwater must be conducted within one week of chemical application. If discharge is not routinely present, Discharger may characterize typical run-off patterns in the Annual Report. See Table 4A for additional details.

7. Tier 3 Dischargers must also monitor storage ponds and other terminal surface water containment structures that collect irrigation and stormwater runoff, unless the structure is (1) part of a tail-water return system where a major portion of the water in such structure is reapplied as irrigation water, or (2) the structure is primarily a sedimentation pond by design with a short hydraulic residence time (96 hours or less) and a discharge to surface water when functioning. If multiple ponds are present, sampling must cover at least those structures that would account for 80% of the maximum storage volume of the containment features. See Table 4B for additional details. Where water is reapplied as irrigation water. Dischargers shall document reuse in the Farm Plan.

Individual Surface Water Discharge Monitoring Parameters, Frequency, and Schedule

8. Tier 3 Dischargers must conduct monitoring for parameters, laboratory analytical methods, frequency and schedule described in Tables 4A and 4B. Dischargers may utilize in-field water testing instruments/equipment as a substitute for laboratory analytical methods if the method is approved by U.S. EPA, meets reporting limits (RL) and practical quantitation limits (PQL) specifications in the MRP, and appropriate sampling methodology and quality assurance checks can be applied to ensure that QAPP standards are met to ensure accuracy of the test.

[1] The requirement to select monitoring points to characterize at least 80% of the estimated maximum irrigation run-off based on typical discharge patterns is for the purposes of attempting to collect samples that represent a majority of the volume of irrigation run-off discharged; however the Board recognizes that predetermining these locations is not always possible and that sampling results may vary. The MRP does not specify the number or location of monitoring points to provide maximum flexibility for growers to determine how many sites necessary and exact locations are given the anticipated site-specific conditions.

9. Tier 3 Dischargers must initiate individual surface water discharge monitoring per an approved Sampling and Analysis Plan and QAPP, unless otherwise directed by the Executive Officer.

B. Individual Surface Water Discharge Reporting

Individual Surface Water Discharge Monitoring Data Submittal

By March 1, 2018, and annually thereafter by March 1, Tier 3 Dischargers must submit individual surface water discharge monitoring data and information to the Central Coast Water Board electronically, in a pdf format, containing at least the following items, or as otherwise approved by the Executive Officer:

a. Electronic laboratory data
- All reports of results must contain Ranch name and Global ID, site name(s), project contact, and date.
- Electronic laboratory data reports of chemical results shall include analytical results, as well as associated quality assurance data including method detection limits, reporting limits, matrix spikes, matrix spike duplicates, laboratory blanks, and other quality assurance results required by the analysis method.
- Electronic laboratory data reports of toxicity results shall include summary results comparable to those required in a CEDEN file delivery, including test and control results. For each test result, the mean, associated control performance, calculated percent of control, statistical test results and determination of toxicity, must be included. Test results must specify the control ID used to calculate statistical outcomes.
- Field data results, including temperature, pH, conductivity, turbidity and flow measurements, any field duplicates or blanks, and field observations.
- Calculations of un-ionized ammonia concentrations
- Calculations of total flow and pollutant loading (for nitrate, pesticides if sampled, total ammonia, and turbidity) (include formulas);

b. Narrative description of typical irrigation runoff patterns;
c. Location of sampling sites and map(s);
d. Sampling and analytical methods used;
e. Specify the method used to obtain flow at each monitoring site during each monitoring event;
f. Photos obtained from all monitoring sites, clearly labeled with location and date;
g. Sample chain-of-custody forms do not need to be submitted but must be made available to Central Coast Water Board staff, upon request.

PART 6. IRRIGATION AND NUTRIENT MANAGEMENT PLAN

Monitoring and reporting requirements related to the Irrigation and Nutrient Management Plan (INMP) identified in Part 6.A., and 6.B, apply to <u>Tier 3 Dischargers identified by the Executive Officer that are newly enrolled in Order No. R3-2017-0002, and Tier 3 Dischargers that were subject to Irrigation and Nutrient Management Plan Requirements in Order R3-2012-0011 per MRP Order No. R3-2012-0011-03</u> Time schedules are shown in Table 5.

A. Irrigation and Nutrient Management Plan Monitoring

1. Tier 3 Dischargers required in Order No. R3-2012-0011 to develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional, are required to update (as necessary) and implement their INMP throughout the term of this Order.

2. The Executive Officer will assess whether an INMP is required for new Tier 3 Dischargers that enroll in Order No. R3-2017-0002 during the term of the Order. The Executive Officer will use the criteria established in Order No. R3-2012-0011 to make this assessment. If a Tier 3 Discharger is required to develop an INMP, the Tier 3 discharger must develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional, **within 18 months** of the Executive Officer's assessment of the INMP requirement.
3. The purpose of the INMP is to budget and manage the nutrients applied to each farm/ranch considering all sources of nutrients, crop requirements, soil types, climate, and local conditions in order to minimize nitrate loading to surface water and groundwater in compliance with this Order. The professional certification of the INMP must indicate that the relevant expert has reviewed all necessary documentation and testing results, evaluated total nitrogen applied relative to typical crop nitrogen uptake and nitrogen removed at harvest, with consideration to potential nitrate loading to groundwater, and conducted field verification to ensure accuracy of reporting.
4. Tier 3 Dischargers required to develop and initiate implementation an (INMP) must include the following elements in the INMP. The INMP is not submitted to the Central Coast Water Board, with the exception of the INMP Effectiveness Report:
    a. Proof of INMP certification;
    b. Map locating each farm/ranch;
    c. Identification of crop nitrogen uptake values for use in nutrient balance calculations;

d. Record keeping annually by either Method 1 or Method 2:

e. To meet the requirement to record total nitrogen in the soil,dischargers may take a nitrogen soil sample (e.g. laboratory analysis or nitrate quick test) or use an alternative method to evaluate nitrogen content in soil, prior to planting or seeding the field or prior to the time of pre-sidedressing, or at an alternative time when it is most effective to determine nitrogen present in the soil that is available for the next crop and to minimize nitrate leaching to groundwater. The amount of nitrogen remaining in the soil must be accounted for as a source of nitrogen when budgeting, and the soil sample or alternative method results must be maintained in the INMP.

f. Identification of irrigation and nutrient management practices in progress (identify start date), completed (identify completion date), and planned (identify anticipated start date) to reduce nitrate loading to groundwater to achieve compliance with this Order.

g. Description of methods Discharger will use to verify overall effectiveness of the INMP.

5. Tier 3 Dischargers must evaluate the effectiveness of the INMP. Irrigation and Nutrient Management Plan effectiveness monitoring must evaluate reduction in new nitrogen[1] loading potential based on minimized fertilizer use and improved irrigation and nutrient management practices in order to minimize new nitrogen loading to surface water and groundwater. Evaluation methods used may include, but are not limited to analysis of groundwater well monitoring data or soil sample data, or analysis of trends in new nitrogen application data.

B. Irrigation and Nutrient Management Plan Reporting

1. **By March 1, 2019**, Tier 3 Dischargers required to develop and initiate implementation of an INMP must submit an INMP Effectiveness Report to evaluate reductions in nitrate loading to surface water and groundwater based on the implementation of irrigation and nutrient management practices in a format specified by the Executive Officer. Dischargers in the same groundwater basin or subbasin may choose to comply with this requirement as a group by submitting a single report that evaluates the overall effectiveness of the broad scale implementation of irrigation and nutrient management practices identified in individual INMPs to protect groundwater. Group efforts must use data from each farm/ranch (e.g., data from individual groundwater wells, soil samples, or nitrogen application). The INMP

[1] New nitrogen is nitrogen from fertilizers, amendments, and other nitrogen sources applied other than nitrogen present in groundwater.

Effectiveness Report must include a description of the methodology used to evaluate and verify effectiveness of the INMP.

PART 7. WATER QUALITY BUFFER PLAN

Monitoring and reporting requirements related to the Water Quality Buffer Plan identified in Part 7.A. and Part 7.B. apply to Tier 3 Dischargers that have farms/ranches *that contain or are adjacent to waterbody identified on the List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment).* Time schedules are shown in Table 5.

A. **Water Quality Buffer Plan**

1. **By 18 months following enrollment in Order No. R3-2017-0002 of a Tier 3 farm/ranch**, Tier 3 Dischargers adjacent to or containing a waterbody identified on the List of Impaired Waterbodies as impaired for temperature, turbidity or sediment must submit a Water Quality Buffer Plan (WQBP) to the Executive Officer that protects the listed waterbody and its associated perennial and intermittent tributaries. The purpose of the Water Quality Buffer Plan is to prevent waste discharge, comply with water quality standards (e.g., temperature, turbidity, sediment), and protect beneficial uses in compliance with this Order and the following Basin Plan requirement:

   Basin Plan (Chapter 5, p. V-13, Section V.G.4 – Erosion and Sedimentation, *"A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, must be maintained, wherever possible, between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip must be thirty feet, wherever possible…."*

2. The Water Quality Buffer Plan must include the following or the functional equivalent, to address discharges of waste and associated water quality impairments:

   a. A minimum 30 foot buffer (as measured horizontally from the top of bank on either side of the waterway, or from the high water mark of a lake and mean high tide of an estuary);
   b. Any necessary increases in buffer width to adequately prevent the discharge of waste that may cause or contribute to any excursion above or outside the acceptable range for any Regional, State, or Federal numeric or narrative water quality standard (e.g., temperature, turbidity);

c. Any buffer less than 30 feet must provide equivalent water quality protection and be justified based on an analysis of site-specific conditions and be approved by the Executive Officer;
d. Identification of any alternatives implemented to comply with this requirement, that are functionally equivalent to described buffer;
e. Schedule for implementation;
f. Maintenance provisions to ensure water quality protection;
g. Annual photo monitoring;

2. The WQPB must be submitted using the Water Quality Buffer Plan form, or, if an alternative to the WQBP is submitted, in a format approved by the Executive Officer.

3. **By March 1, 2019**, Tier 3 Dischargers that submitted a WQBP pursuant to Order No. R3-2012-0011 or Order No. R3-2017-0002, are required to update (as necessary) and implement their WQBP, and annually submit a WQBP Status Report of their WQBP implementation using the Water Quality Buffer Plan form, or, if an alternative to the WQBP was submitted, an Alternative to WQBP Status Report, electronically, in a format approved by the Executive Officer.

PART 8. GENERAL MONITORING AND REPORTING REQUIREMENTS

A. Submittal of Technical Reports

1. Dischargers must submit reports in a format specified by the Executive Officer (reports will be submitted electronically, unless otherwise specified by the Executive Officer). A transmittal letter must accompany each report, containing the following penalty of perjury statement signed by the Discharger or the Discharger's authorized agent:

   "In compliance with Water Code §13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment".

2. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g. trade secrets or secret processes), the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. The

Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). The Central Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff will notify the Discharger prior to making such report or portions of such report available for public inspection.

B. Central Coast Water Board Authority

1. Monitoring reports are required pursuant to section 13267 of the California Water Code. Pursuant to section 13268 of the Water Code, a violation of a request made pursuant to section 13267 may subject you to civil liability of up to $1000 per day.

2. The Water Board needs the required information to determine compliance with Order No.R3-2017-0002. The evidence supporting these requirements is included in the findings of Order No.R3-2017-0002.

John M. Robertson
Executive Officer

Date

Table 1. Major Waterbodies in Agricultural Areas[1]

Hydrologic SubArea	Waterbody Name	Hydrologic SubArea	Waterbody Name
30510	Pajaro River	30920	Quail Creek
30510	Salsipuedes Creek	30920	Salinas Reclamation Canal
30510	Watsonville Slough	31022	Chorro Creek
30510	Watsonville Creek[2]	31023	Los Osos Creek
30510	Beach Road Ditch[2]	31023	Warden Creek
30530	Carnadero Creek	31024	San Luis Obispo Creek
30530	Furlong Creek[2]	31024	Prefumo Creek
30530	Llagas Creek	31031	Arroyo Grande Creek
30530	Miller's Canal	31031	Los Berros Creek
30530	San Juan Creek	31210	Bradley Canyon Creek
30530	Tesquisquita Slough	31210	Bradley Channel
30600	Moro Cojo Slough	31210	Green Valley Creek
30910	Alisal Slough	31210	Main Street Canal
30910	Blanco Drain	31210	Orcutt Solomon Creek
30910	Old Salinas River	31210	Oso Flaco Creek
30910	Salinas River (below Gonzales Rd.)	31210	Little Oso Flaco Creek
30920	Salinas River (above Gonzales Rd. and below Nacimiento R.)	31210	Santa Maria River
30910	Santa Rita Creek[2]	31310	San Antonio Creek[2]
30910	Tembladero Slough	31410	Santa Ynez River
30920	Alisal Creek	31531	Bell Creek
30920	Chualar Creek	31531	Glenn Annie Creek
30920	Espinosa Slough	31531	Los Carneros Creek[2]
30920	Gabilan Creek	31534	Arroyo Paredon Creek
30920	Natividad Creek	31534	Franklin Creek

[1] At a minimum, monitoring sites must be included for these waterbodies in agricultural areas, unless otherwise approved by the Executive Officer. Monitoring sites may be proposed for addition or modification to better assess the impacts of waste discharges from irrigated lands to surface water. Dischargers choosing to comply with surface receiving water quality monitoring, individually (not part of a cooperative monitoring program) must only monitor sites for waterbodies receiving the discharge.

[2] These creeks are included because they are newly listed waterbodies on the 2010 303(d) list of Impaired Waters that are associated with areas of agricultural discharge.

Table 2. Surface Receiving Water Quality Monitoring Parameters

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Photo Monitoring		
Upstream and downstream photographs at monitoring location		With every monitoring event
<u>WATER COLUMN SAMPLING</u>		
Physical Parameters and General Chemistry		
Flow (field measure) (CFS) following SWAMP field SOP[9]	.25	Monthly, including 2 stormwater events
pH (field measure)	0.1	”
Electrical Conductivity (field measure) (µS/cm)	2.5	”
Dissolved Oxygen (field measure) (mg/L)	0.1	”
Temperature (field measure) (^{o}C)	0.1	”
Turbidity (NTU)	0.5	”
Total Dissolved Solids (mg/L)	10	”
Total Suspended Solids (mg/L)	0.5	”
Nutrients		
Total Nitrogen (mg/L)	0.5	Monthly, including 2 stormwater events
Nitrate + Nitrite (as N) (mg/L)	0.1	”
Total Ammonia (mg/L)	0.1	”
Unionized Ammonia (calculated value, mg/L))		”
Total Phosphorus (as P) (mg/L)	0.02	
Soluble Orthophosphate (mg/L)	0.01	”
Water column chlorophyll a (µg/L)	1.0	“
Algae cover, Floating Mats, % coverage	-	“
Algae cover, Attached, % coverage	-	“
Water Column Toxicity Test		
Algae - *Selenastrum capricornutum (*96-hour chronic; Method1003.0 in EPA/821/R-02/013)	-	4 times each year, twice in dry season, twice in wet season
Water Flea – *Ceriodaphnia dubia* (7-day chronic; Method 1002.0 in EPA/821/R-02/013)	-	”
Midge - *Chironomus spp.* (96-hour acute; Alternate test species in EPA 821-R-02-012)	-	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Toxicity Identification Evaluation (TIE)	-	As directed by Executive Officer
Pesticides[2] /Herbicides (µg/L)		
Organophosphate Pesticides		
Azinphos-methyl	0.02	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Chlorpyrifos	0.005	”
Diazinon	0.005	”
Dichlorvos	0.01	”
Dimethoate	0.01	”
Dimeton-s	0.005	”
Disulfoton (Disyton)	0.005	”
Malathion	0.005	”
Methamidophos	0.02	”
Methidathion	0.02	“
Parathion-methyl	0.02	“
Phorate	0.01	“
Phosmet	0.02	“
Neonicotinoids		
Thiamethoxam	.002	“
Imidacloprid	.002	“
Thiacloprid	.002	“
Dinotefuran	.006	“
Acetamiprid	.01	“
Clothianidin	.02	
Herbicides		
Atrazine	0.05	“
Cyanazine	0.20	“
Diuron	0.05	“
Glyphosate	2.0	“
Linuron	0.1	“
Paraquat	0.20	“
Simazine	0.05	“
Trifluralin	0.05	“
Metals (µg/L)		
Arsenic (total) [5,7]	0.3	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Boron (total) [6,7]	10	“
Cadmium (total & dissolved) [4.5,7]	0.01	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Copper (total and dissolved) [4,7]	0.01	"
Lead (total and dissolved) [4,7]	0.01	"
Nickel (total and dissolved) [4,7]	0.02	"
Molybdenum (total) [7]	1	"
Selenium (total)[7]	0.30	"
Zinc (total and dissolved) [4.5,7]	0.10	"
Other (µg/L)		
Total Phenolic Compounds[8]	5	2 times in 2017, once in spring (April-May) and once in fall (August-September)
Hardness (mg/L as CaCO3)	1	"
Total Organic Carbon (ug/L)	0.6	"
SEDIMENT SAMPLING		
Sediment Toxicity - *Hyalella azteca* 10-day static renewal (EPA, 2000)		2 times each year, once in spring (April-May) and once in fall (August-September)
Pyrethroid Pesticides in Sediment (µg/kg)		
Gamma-cyhalothrin	2	2 times in both 2017 and 2018, once in spring (April-May) and once in fall (August-September) of each year, concurrent with sediment toxicity sampling
Lambda-cyhalothrin	2	"
Bifenthrin	2	"
Beta-cyfluthrin	2	"
Cyfluthrin	2	"
Esfenvalerate	2	"
Permethrin	2	"
Cypermethrin	2	"
Danitol	2	"
Fenvalerate	2	"
Fluvalinate	2	"
Other Monitoring in Sediment		
Chlorpyrifos (µg/kg)	2	"
Total Organic Carbon	0.01%	"
		"
Sediment Grain Size Analysis	1%	"

[1]Monitoring is ongoing through all five years of the Order, unless otherwise specified. Monitoring frequency may be used as a guide for developing alternative Sampling and Analysis Plan.
[2]Pesticide list may be modified based on specific pesticide use in Central Coast Region. Analytes on this list must be reported, at a minimum.
[3] Reporting Limit, taken from SWAMP where applicable.

[4] Holmgren, Meyer, Cheney and Daniels. 1993. Cadmium, Lead, Zinc, Copper and Nickel in Agricultural Soils of the United States. J. of Environ. Quality 22:335-348.
[5]Sax and Lewis, ed. 1987. Hawley's Condensed Chemical Dictionary. 11th ed. New York: Van Nostrand Reinhold Co., 1987. Zinc arsenate is an insecticide.
[6]Http://www.coastalagro.com/products/labels/9%25BORON.pdf; Boron is applied directly or as a component of fertilizers as a plant nutrient.
[7]Madramootoo, Johnston, Willardson, eds. 1997. Management of Agricultural Drainage Water Quality. International Commission on Irrigation and Drainage. U.N. FAO. SBN 92-6-104058.3.
[8]http://cat.inist.fr/?aModele=afficheN&cpsidt=14074525; Phenols are breakdown products of herbicides and pesticides. Phenols can be directly toxic and cause endocrine disruption.
[9]See SWAMP field measures SOP, p. 17
mg/L – milligrams per liter; ug/L – micrograms per liter; ug/kg – micrograms per kilogram;
NTU – Nephelometric Turbidity Units; CFS – cubic feet per second;

Table 3. Groundwater Monitoring Parameters

Parameter	RL	Analytical Method[3]	Units
pH	0.1	Field or Laboratory Measurement EPA General Methods	pH Units
Specific Conductance	2.5		µS/cm
Total Dissolved Solids	10		mg/L
Total Alkalinity as $CaCO_3$	1	EPA Method 310.1 or 310.2	
Calcium	0.05	General Cations[1] EPA 200.7, 200.8, 200.9	
Magnesium	0.02		
Sodium	0.1		
Potassium	0.1		
Sulfate (SO_4)	1.0	General Anions EPA Method 300 or EPA Method 353.2	
Chloride	0.1		
Nitrate + Nitrite (as N)[2] *or* Nitrate as N	0.1		

[1]General chemistry parameters (major cations and anions) represent geochemistry of water bearing zone and assist in evaluating quality assurance/quality control of groundwater monitoring and laboratory analysis.
[2]The MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short holding time required for nitrate.
[3]Dischargers may use alternative analytical methods approved by EPA.
RL – Reporting Limit; µS/cm – micro siemens per centimeter

Table 4A. Individual Discharge Monitoring for Tailwater, Tile drain, and Stormwater Discharges

Parameter	Analytical Method[1]	Maximum PQL	Units	Min Monitoring Frequency
Discharge Flow or Volume	Field Measure	---	CFS	(a) (d)
Approximate Duration of Flow	Calculation	---	hours/month	
Temperature (water)	Field Measure	0.1	^{o} Celsius	
pH	Field Measure	0.1	pH units	

Electrical Conductivity	Field Measure	100	µS/cm	
Turbidity	SM 2130B, EPA 180.1	1	NTUs	
Nitrate + Nitrite (as N)	EPA 300.1, EPA 353.2	0.1	mg/L	
Ammonia	SM 4500 NH3, EPA 350.3	0.1	mg/L	
Chlorpyrifos[2]	EPA 8141A, EPA 614	0.02	ug/L	(b) (c) (d)
Diazinon[2]				
Ceriodaphnia Toxicity (96-hr acute)	EPA-821-R-02-012	NA	% Survival	
Hyalella Toxicity in Water (96-hr acute)	EPA-821-R-02-012	NA	% Survival	

[1] In-field water testing instruments/equipment as a substitute for laboratory analysis if the method is approved by EPA, meets RL/PQL specifications in the MRP, and appropriate sampling methodology and quality assurance checks can be applied to ensure that QAPP standards are met to ensure accuracy of the test.
[2]If chlorpyrifos or diazinon is used at the farm/ranch, otherwise does not apply. The Executive Officer may require monitoring of other pesticides based on results of downstream receiving water monitoring.
(a) Two times per year during primary irrigation season for farms/ranches less than or equal to 500 acres, and four times per year during primary irrigation season for farms/ranches greater than 500 acres. Executive Officer may reduce sampling frequency based on water quality improvements.
(b) Once per year during primary irrigation season for farms/ranches less than or equal to 500 acres, and two times per year during primary irrigation season for farms/ranches greater than 500 acres.
(c) Sample must be collected within one week of chemical application, if chemical is applied on farm/ranch;
(d) Once per year during wet season (October – March) for farms/ranches less than or equal to 500 acres, and two times per year during wet season for farms/ranches greater than 500 acres, within 18 hours of major storm events;
CFS – Cubic feet per second; NTU – Nephelometric turbidity unit; PQL – Practical Quantitation Limit;
NA – Not applicable

Table 4B. Individual Discharge Monitoring for Tailwater Ponds and other Surface Containment Features

Parameter	Analytical Method[1]	Maximum PQL	Units	Minimum Monitoring Frequency
Volume of Pond	Field Measure	1	Gallons	(a) (d)
Nitrate + Nitrite (as N)	EPA 300.1, EPA 353.2	50	mg/L	

[1] In-field water testing instruments/equipment as a substitute for laboratory analysis if the method is approved by EPA, meets RL/PQL specifications in the MRP, and appropriate sampling methodology and quality assurance checks can be applied to ensure that QAPP standards are met to ensure accuracy of the test.
(a) Four times per year during primary irrigation season; Executive Officer may reduce monitoring frequency based on water quality improvements.
(d) Two times per year during wet season (October – March, within 18 hours of major storm events)

Table 5. Tier 3 - Time Schedule for Key Monitoring and Reporting Requirements (MRPs)

REQUIREMENT	TIME SCHEDULE[1]
Submit Sampling And Analysis Plan and Quality Assurance Project Plan (SAAP/QAPP) for Surface Receiving Water Quality Monitoring (*individually or*	By March 1, 2018, or as directed by the Executive Officer; satisfied if an approved SAAP/QAPP has been submitted pursuant

through cooperative monitoring program)	to Order No. R3-2012-0011 and associated MRPs
Initiate surface receiving water quality monitoring (*individually or through cooperative monitoring program*)	Per an approved SAAP and QAPP
Submit surface receiving water quality monitoring data (*individually or through cooperative monitoring program*)	Each January 1, April 1, July 1, and October 1
Submit surface receiving water quality Annual Monitoring Report (*individually or through cooperative monitoring program*)	By July 1 2017; annually thereafter by July 1
Initiate monitoring of groundwater wells	First sample from March-June 2017, second sample from September-December 2017
Submit individual surface water discharge SAAP and QAPP	By March 1, 2018 or as directed by the Executive Officer; waived if an approved SAAP and QAPP has been submitted and being implemented pursuant to Order No. R3-2012-0011.
Initiate individual surface water discharge monitoring	As described in an approved SAAP and QAPP
Submit individual surface water discharge monitoring data	March 1, 2018, and every March 1 annually thereafter
Submit electronic Annual Compliance Form	March 1, 2018 and every March 1 annually thereafter
Submit groundwater monitoring results	Within 60 days of the sample collection
Submit Water Quality Buffer Plan or alternative	Within 18 months of enrolling new Tier 3 farm/ranch in Order
Submit Status Report on Water Quality Buffer Plan or alternative	March 1, 2019
Tier 3 Dischargers with farms/ranches growing high risk crops:	
Report total nitrogen applied on the Total Nitrogen Applied form	March 1, 2018 and every March 1 annually thereafter
Submit INMP Effectiveness Report	March 1, 2019

[1] Dates are relative to adoption of this Order, unless otherwise specified.

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

PROPOSED GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

ORDER NO. R3-2021-0040

April XX, 2021

ORDER

Table of Contents

Attachments

Attachment A – Additional Findings and Regulatory Considerations
Attachment B – Monitoring and Reporting Program (MRP)
Attachment C – Acronyms, Abbreviations, and Definitions

THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL COAST REGION FINDS:

Part 1, Section A. Findings

Background and Purpose

1. As described in the Water Quality Control Plan for the Central Coastal Basin (Basin Plan), the central coast region of California represents approximately 7.2 million acres of land. There are approximately 540,000 acres of irrigated land and approximately 3,000 agricultural operations that may be generating wastewater that falls into the category of discharges of waste from irrigated lands.

2. The central coast region has more than 17,000 miles of surface waters (linear streams/rivers) and approximately 4,000 square miles of groundwater basins that are, or may be, affected by discharges of waste from irrigated lands. Of the nine hydrologic regions in the state, the central coast region is the most groundwater dependent region with approximately 86% of its water supply being derived from groundwater.

3. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Water Boards) are the principal state agencies with primary responsibility for the coordination and control of water quality for the health, safety and welfare of the people of the state pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, codified in Water Code Division 7). The legislature, in the Porter-Cologne Act, directed the state, through the Water Boards, to exercise its full power and jurisdiction to protect the quality of the waters in the state from degradation and to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible, and considering precipitation, topography, population, recreation, agriculture, industry, and economic development (Water Code section 13000).

4. Since the issuance of the first Agricultural Order in 2004 and subsequent Agricultural Orders in 2012 and 2017, the California Regional Water Quality Control Board, Central Coast Region (Central Coast Water Board) has compiled additional and substantial empirical data demonstrating that water quality conditions in agricultural areas of the region continue to be severely impaired or polluted by waste discharges from irrigated agricultural operations and activities that impair beneficial uses. The main impacts from irrigated agriculture in the central coast region are nitrate discharges to groundwater and associated drinking water impacts, nutrient discharges to surface water, pesticide discharges

and associated toxicity, sediment discharges, and degradation of riparian and wetland areas and the associated impairment or loss of beneficial uses.

5. The objectives of this Order are:

   a. Protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan for commercial irrigated agricultural areas in the central coast region by:
      i. Minimizing nitrate discharges to groundwater,
      ii. Minimizing nutrient discharges to surface water,
      iii. Minimizing toxicity in surface water from pesticide[1] discharges,
      iv. Protecting riparian and wetland habitat, and
      v. Minimizing sediment discharges to surface water.
   b. Effectively track and quantify achievement of 5.a.i through 5.a.v over a specific, defined time schedule.
   c. Comply with the State's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy), the State Antidegradation Policy, relevant court decisions such as those pertaining to Coastkeeper *et al* lawsuits, the precedential language in the Eastern San Joaquin Watershed Agricultural Order, and other relevant statutes and water quality plans and policies, including total maximum daily loads in the central coast region.

6. This Order regulates discharges of waste from irrigated lands by requiring individuals subject to this Order to comply with the terms and conditions set forth herein to ensure that such discharges do not cause or contribute to the exceedance of any regional, state, or federal numeric or narrative water quality objectives or impair any beneficial uses in waters of the state and of the United States.

7. Water Code section 13260(a) requires that any person discharging waste or proposing to discharge waste that could affect the quality of the waters of the state, other than into a community sewer system, must file with the appropriate Regional Board a report of waste discharge (ROWD) containing such information and data as may be required by the Central Coast Water Board, unless the Central Coast Water Board waives such requirement.

8. Water Code section 13263(a) requires the Central Coast Water Board to prescribe waste discharge requirements (WDRs), or waive WDRs, for the discharge. The requirements must implement the Basin Plan and must take into

[1] A pesticide is any substance intended to control, destroy, repel, or otherwise mitigate a pest. The term pesticide is inclusive of all pest and disease management products, including insecticides, herbicides, fungicides, nematicides, rodenticides, algicides, etc.

consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Water Code section 13241.

9. Water Code section 13263(b) states that, in prescribing requirements, the Central Coast Water Board need not authorize the utilization of the full waste assimilation capacities of the receiving waters.

10. This Order does not create a vested right to discharge; all discharges are a privilege, not a right, as described in Water Code section 13263(g).

11. Water Code section 13263(i) authorizes the Central Coast Water Board to prescribe general WDRs for a category of discharges if the Central Coast Water Board finds or determines that all the criteria listed below apply to the discharges in that category. Discharges associated with irrigated agricultural operations that will be regulated under this Order are consistent with these criteria and therefore a general order is appropriate.

    a. The discharges are produced by the same or similar operations.
    b. The discharges involve the same or similar type of waste.
    c. The discharges require the same or similar treatment standards.
    d. The discharges are more appropriately regulated under general WDRs than individual WDRs.

12. Water Code section 13243 authorizes the Central Coast Water Board, in WDRs, to specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.

13. Water Code section 13267(a) authorizes the Central Coast Water Board to, in establishing or reviewing waste discharge requirements, or in connection with any action to any plan or requirement authorized by the Porter-Cologne Act, investigate the quality of any waters of the state within the region. The monitoring and reporting requirements as set forth in Attachment B are established under Water Code section 13267(b).

14. Water Code section 13267(c) authorizes the Central Coast Water Board or its authorized representatives to, in conducting an investigation of the quality of waters of the state within the region, inspect the facilities of the Discharger upon consent, issuance of a warrant, or in an emergency affecting public health or safety, to ascertain compliance with this Order and to ascertain whether the purpose of the Porter-Cologne Act are being met. Inspections under Water Code section 13267(c) include sampling and monitoring.

15. Water Code section 13304 authorizes the Central Coast Water Board to, upon making the requisite findings, issue a cleanup and abatement order (CAO) that

requires Dischargers to provide emergency and long-term alternative water supplies or replacement water service, including wellhead treatment, to each affected public water supplier or private well owners. A CAO is a separate action from this Order; this Order does not require Dischargers to provide alternative water supplies or replacement water.

Public Participation Process

16. In August 2017, Central Coast Water Board staff held a series of listening sessions throughout the central coast region to solicit stakeholder input on potential improvements to the previous agricultural order. The Central Coast Water Board discussed the input received from stakeholders during the September 2017 board meeting.

17. In February 2018, the Central Coast Water Board published an initial study to begin soliciting input related to environmental review for the California Environmental Quality Act (CEQA), in preparation for developing a draft Environmental Impact Report (EIR). A 73-day public comment period was held for the initial study. In March 2018, Central Coast Water Board staff held a series of public CEQA scoping meetings throughout the region. Input received during the public comment period and public scoping meetings has been considered in the development of the draft EIR.

18. In March and May 2018, Central Coast Water Board meetings included informational items dedicated to a review of water quality conditions associated with agricultural activities and discharges. The March 2018 informational item focused on surface water quality conditions and agricultural discharges and the May 2018 informational item focused on groundwater quality conditions and nitrate impacts to groundwater. Both informational items incorporated presentations from several outside speakers.

19. In September 2018, the Central Coast Water Board's public meeting was dedicated to a workshop for agricultural order stakeholders. Panels of agricultural, environmental, and environmental justice representatives gave presentations to the board in response to a series of questions staff proposed:

    a. What can growers and the regional board do to demonstrate quantifiable progress to minimize nitrate discharge to groundwater to achieve water quality objectives?
    b. What can growers and the regional board do to demonstrate quantifiable progress to minimize nutrient discharge to surface waters to achieve water quality objectives?
    c. What can growers and the regional board do to demonstrate quantifiable progress to minimize toxicity in surface waters from pesticide discharges to achieve water quality objectives?

d. What can growers and the regional board do to ensure that riparian and wetland habitat is protected due to agricultural activities and discharges?
e. What can growers and the regional board do to demonstrate quantifiable progress to minimize sediment discharge to achieve water quality objectives?
f. How can the regional board use discharge permit requirements to ensure current and future affordable, safe, and clean water for drinking and environmental uses?

20. In November 2018, the Central Coast Water Board published a set of five conceptual options tables that serve as the Central Coast Water Board’s framework to address the questions posed in the September 2018 meeting. The Central Coast Water Board reviewed and discussed the options tables during its public meeting in November, and a 64-day written public comment period was subsequently held to solicit detailed stakeholder input. Central Coast Water Board staff held a series of outreach meetings throughout the region during the comment period.

21. In March 2019, after the 64-day public comment period, the Central Coast Water Board published updated versions of the five conceptual options tables. During the public meetings in March and May 2019, the Central Coast Water Board discussed the updated tables and received additional stakeholder comment.

22. In September 2019, during its public meeting, the Central Coast Water Board held a workshop focused on co-managing food safety and environmental protection, the role of riparian vegetation in water quality and beneficial use protection, and Discharger experiences with food safety challenges.

23. On February 21, 2020, the Central Coast Water Board published the draft Order and draft EIR and began a 45-day public comment period. The comment period was extended twice and closed on June 22, 2020.

24. In June 2020, Central Coast Water Board staff conducted three outreach meetings, which included presentations of the draft Order and draft EIR, and a question and answer session for attendees. These outreach meetings were conducted virtually via the Zoom platform, due to the COVID-19 pandemic.

25. Beginning on September 10, 2020 and continuing to January 8, 2021, the Central Coast Water Board held 10 days of Board meetings to receive oral comments from the public and to discuss the draft Order. During these meetings, three of which were devoted entirely to receiving public comment and Board engagement with stakeholders, the Board deliberated on the draft Order using a consensus-based approach through which they directed staff on the development of a revised Order.

26. On January 26, 2021, the Central Coast Water Board circulated a revised draft Order for a 30-day public comment period that closed on February 25, 2021. Central Coast Water Board staff subsequently considered the public comments and developed a proposed Order for Board consideration during an April 14-16, 2021, public hearing.

27. The Central Coast Water Board, in a public hearing held on April 14-16, 2021, has heard and considered all comments pertaining to the discharge and proposed Order.

28. After considering all comments pertaining to this General Permit during a public hearing on April 14-16, 2021, this Order was found consistent with the findings in this Part 1 and Attachment A.

29. Any person aggrieved by this action of the Central Coast Water Board may petition the State Water Board to review the action in accordance with California Water Code section 13320 and title 23 California Code of Regulations sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of adoption falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

    State Water Resources Control Board
    Office of Chief Counsel
    P.O. Box 100, 1001 I Street
    Sacramento, CA 95812-0100

    Or by email at **waterqualitypetitions@waterboards.ca.gov**

    For instructions on how to file a petition for review, see **http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml**.

Scope of Order

Irrigated Lands and Agricultural Discharges Regulated Under this Order

30. This Order regulates (1) discharges of waste from commercial irrigated lands, including, but not limited to, land planted to row, vineyard, field and tree crops where water is applied for producing commercial crops; (2) discharges of waste from commercial nurseries, nursery stock production, and greenhouse operations with soil floors that do not have point source-type discharges and are not currently operating under individual WDRs; and (3) discharges of waste from

lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops.

31. Discharges from irrigated lands regulated by this Order include discharges to surface water and groundwater, through mechanisms such as irrigation return flows, percolation, tailwater, tile drain water, stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, and runoff resulting from frost control or operational spills. These discharges can contain wastes that could affect the quality of waters of the state and impair beneficial uses.

32. This Order also regulates agricultural activities such as the removal or degradation of riparian vegetation resulting in the loss or degradation of instream beneficial uses.

Dischargers Regulated Under this Order

33. This Order regulates both landowners and operators of commercial irrigated lands on or from which there are discharges of waste or activities that could affect the quality of any surface water or groundwater or result in the impairment of beneficial uses (Dischargers). Dischargers are responsible for complying with the conditions of this Order. Both the landowner and the operator of the irrigated agricultural land are Dischargers under this Order. The Central Coast Water Board will hold both the landowner and the operator liable for noncompliance with this Order, regardless of whether the landowner or the operator is the party to enroll under this Order.

34. For the purposes of this Order, irrigated lands producing commercial crops are those operations that have one or more of the following characteristics:

   a. The landowner or operator has obtained a pesticide use permit from a local County Agricultural Commissioner;
   b. The crop is sold, including but not limited to 1) an industry cooperative, 2) a harvest crew/company, or 3) a direct marketing location, such as certified Farmers Markets;
   c. The federal Department of Treasury Internal Revenue Service for 1040 Schedule F Profit or Loss from Farming is used to file federal taxes.

35. The electronic Notice of Intent (eNOI) serves as a report of waste discharge (ROWD) for the purposes of this Order.

36. The Central Coast Water Board recognizes that certain limited resource growers[2] (as defined by the U.S. Department of Agriculture) may have difficulty achieving

[2] The term “Limited Resource Farmer or Rancher” means a participant:

compliance with this Order. The Central Coast Water Board will prioritize assistance for these growers, including but not limited to technical assistance, grant opportunities, and necessary flexibility to achieve compliance with this Order (e.g., adjusted monitoring, reporting, or time schedules).

Agricultural Dischargers Not Covered Under this Order and Who Must Apply for Individual Waste Discharge Requirements

37. This Order does not cover point source-type discharges from commercial nurseries, nursery stock production, greenhouses, or other operations. This Order does not cover discharges of waste from fully contained greenhouse operations (i.e., those that have no groundwater discharge due to impermeable floors but may have other discharges associated with the operation). These operations must either eliminate all such discharges of waste or submit a ROWD to apply for individual WDRs as set forth in Water Code section 13260.

Enforcement for Noncompliance

38. The State Water Board's Water Quality Enforcement Policy (Enforcement Policy) describes progressive enforcement action for violations of WDRs when appropriate. However, the Enforcement Policy recommends formal enforcement as a first response to more significant violations. Progressive enforcement is an escalating series of actions that allows for the efficient and effective use of enforcement resources to 1) assist cooperative Dischargers in achieving compliance; 2) compel compliance for repeat violations and recalcitrant violators; and 3) provide a disincentive for noncompliance. Progressive enforcement actions may begin with informal enforcement actions such as a verbal, written, or electronic communication between the Central Coast Water Board and a Discharger. The purpose of an informal enforcement action is to quickly bring the violation to the Discharger's attention and to give the Discharger an opportunity to return to compliance as soon as possible. The highest level of informal enforcement is a Notice of Violation.

39. The Enforcement Policy recommends formal enforcement actions for the highest priority violations, chronic violations, and/or threatened violations. Violations of this Order that will be considered a priority include, but are not limited to:

    a. Failure to obtain required regulatory coverage;

- With direct or indirect gross farm sales not more than the current indexed value in each of the previous two years, and
- Who has a total household income at or below the national poverty level for a family of four, or less than 50 percent of county median household income in each of the previous two years.

A Self-Determination Tool is available to the public and may be completed on-line or printed and completed hardcopy at the **USDA website**:
https://lrftool.sc.egov.usda.gov/DeterminationTool.aspx?fyYear=2020

b. Failure to achieve numeric limits;
c. Falsifying information or intentionally withholding information required by applicable laws, regulations, or an enforcement order;
d. Failure to monitor or provide complete and accurate information as required;
e. Failure to pay annual fees, penalties, or liabilities; and
f. Failure to submit required reports on time.

40. Water Code section 13350 provides that any person who violates WDRs may be 1) subject to administrative civil liability imposed by the Central Coast Water Board or State Water Board in an amount of up to $5,000 per day of violation, or up to $10 per gallon of waste discharged; or 2) subject to civil liability imposed by a court in an amount of up to $15,000 per day of violation, or up to $20 per gallon of waste discharged. The actual calculation and determination of administrative civil penalties must be consistent with the Enforcement Policy and the Porter-Cologne Act.

Order Effectiveness Evaluation

41. Water Code section 13263(e) states that for WDRs, "Upon application by any affected person, or on its own motion, the regional board may review and revise requirements. All requirements shall be reviewed periodically." It is the expressed intent of the Central Coast Water Board that its staff and, as appropriate, third-party groups or programs provide annual updates to the board during public meetings regarding the implementation of this Order. The purpose of the updates is to evaluate and report out on individual discharger and third-party group compliance; identify successes, challenges, and emerging science and management practices; consider potential Order modifications as may be appropriate at five-year intervals; and generally inform the Board and public regarding the Order's effectiveness towards achieving the stated objectives.

Additional Findings and Regulatory Considerations

42. Attachment A to this Order, incorporated herein, includes additional findings that further describe the Water Board's legal and regulatory authority; compliance with CEQA requirements; applicable plans and policies adopted by the State Water Board and the Central Coast Water Board that contain regulatory conditions that apply to the discharge of waste from irrigated lands; and the rationale for this Order, including descriptions of the environmental and agricultural resources in the central coast region and impacts to water quality and beneficial uses from agricultural discharges.

43. The Central Coast Water Board encourages Dischargers to participate in third-party groups or programs (e.g., certification program, watershed group, water quality coalition, monitoring coalition, or other third-party effort) to facilitate and document compliance with this Order. Third-party programs can be used to

implement outreach and education, monitoring and reporting, management practice and/or water quality improvement projects. Regionally scaled third-party programs addressing multiple Order requirements are preferred to provide economies of scale to reduce Discharger costs, maximize effectiveness, and streamline Water Board oversight; however, watershed- or basin-scale third-party programs of limited scope may be appropriate under certain circumstances and should be coordinated to the extent practicable for consistency and effectiveness. Commodity group certification programs may also be effective in facilitating compliance with this Order. Dischargers participating in an Executive Officer approved third-party program may be subject to permit fee reductions or alternative compliance pathways that substantively comply with this Order.

44. The Central Coast Water Board acknowledges that it will take time to develop meaningful and effective third-party programs that facilitate compliance with this Order. The Order considers this by allowing an initial grace period for the phasing in of various requirements. The phasing in of various requirements is also intended to allow Water Board staff time to develop online reporting tools and templates and to conduct outreach and education to help Dischargers and service providers come up to speed on the new requirements.

45. Third-party programs are discussed in **Part 2, Section A**. The Central Coast Water Board will provide more detailed third-party expectation documents and/or third-party program requests for proposals (RFPs) to inform and solicit third-party program proposals for Executive Officer consideration.

46. The Executive Officer may make non-substantive changes to the Order to correct typographical errors or to maintain consistency within the Order or between the Order and its Attachments, e.g., to conform changes made during the Order development process that were inadvertently not carried through the entire Order. [The Board will provide public notice of the non-substantive changes.]

IT IS HEREBY ORDERED that Order No. R3-2017-0002 is terminated as of the effective date of this Order except for the purposes of enforcement, and that pursuant to Water Code sections 13260, 13263, and 13267, Dischargers enrolled in this Order, their agents, successors, and assigns, must comply with the following terms and conditions to meet the provisions contained in Water Code Division 7 and regulations, plans, and policies adopted thereunder.

Part 2, Section A. Enrollment, Fees, Termination, General Provisions, and Third-Party Programs

1. This Order is effective upon adoption by the Central Coast Water Board.

2. Except where stated otherwise, all requirements of this Order apply to all Dischargers.

Enrollment

3. Enrollment in this Order requires the submittal of the electronic Notice of Intent (eNOI) pursuant to Water Code section 13260. Submittal of all other technical reports pursuant to this Order is required pursuant to Water Code section 13267. Failure to submit technical reports or the attachments in accordance with the time schedules established by this Order or Monitoring and Reporting Program (MRP), or failure to submit a complete technical report (i.e., of sufficient technical quality to be acceptable to the Executive Officer), may subject the Discharger to enforcement action pursuant to Water Code sections 13261, 13268, or 13350. Dischargers must submit technical reports in the format specified by the Executive Officer.

4. Dischargers who are not currently enrolled in the existing agricultural order must submit to the Central Coast Water Board a complete eNOI prior to discharging. Upon submittal of a complete and accurate eNOI, the Discharger is enrolled under this Order, unless otherwise informed by the Executive Officer.

5. Dischargers who were enrolled in Order R3-2017-0002 as of the effective date of this Order are automatically enrolled in this Order.

6. In the case where an operator may be operating for a period of less than 12 months, the landowner must submit the eNOI. In all other cases, either the landowner or the operator must submit the eNOI. Both the landowner and the operator are Dischargers and considered a responsible party for compliance with the requirements of this Order.

7. **Prior to any discharge or commencement of activities that may cause a discharge**, including land preparation prior to crop production, any Discharger proposing to control or own a new operation or ranch that has the potential to

discharge waste that could directly or indirectly reach waters of the state and/or affect the quality of any surface water and/or groundwater must submit an eNOI.

8. **Within 60 days** of any change in operation or ranch information, the Discharger must update the eNOI.

9. **Within 60 days** of any change in control or ownership of an operation, ranch, or land presently owned or controlled by the Discharger, the Discharger must notify the succeeding owner and operator of the existence of this Order.

10. **Within 60 days** of acquiring control or ownership of an existing operation or ranch, the succeeding Discharger must submit an eNOI.

11. Dischargers must submit all the information required in the eNOI form, including but not limited to the following information for the operation and individual ranch:

    a. Assessor parcel numbers (APNs) covered by enrollment,
    b. Landowner(s),
    c. Operator(s),
    d. Contact information,
    e. Third-party program membership,
    f. Location of operation, including specific ranch(es),
    g. Map with discharge locations and groundwater wells identified,
    h. Type and number of groundwater wells located on ranch parcels,
    i. Total and irrigated acreage,
    j. Crop types grown,
    k. Irrigation system type,
    l. Discharge type,
    m. Chemical use,
    n. Slope,
    o. Impermeable surfaces,
    p. Presence and location of any waterbodies on or adjacent to the ranch.
    q. Status of drinking water notification to well users

12. Dischargers or groups of Dischargers seeking regulatory requirements tailored to their specific operation, ranch, geographic area, or commodity may submit an ROWD to obtain an individual order or MRP, or request the development of a general order for a specific type of discharge (e.g., commodity-specific general order). This Order remains applicable to those Dischargers until the Central Coast Water Board adopts such an individual order, MRP, or general order, and, if applicable, the Dischargers are enrolled in the general order.

13. Dischargers seeking enrollment in this Order must submit a statement of understanding of the conditions of this Order and MRP signed by the Discharger (landowner or operator) with the eNOI. If the operator signs and submits the

electronic NOI, the operator must provide a copy of the complete NOI form to the landowner(s).

14. Coverage under this Order is not transferable to any person except after the succeeding Discharger's submittal to the Central Coast Water Board of an updated eNOI and approval by the Executive Officer.

Fees

15. Dischargers must pay a fee to the State Water Resources Control Board in compliance with the fee schedule contained in Title 23 California Code of Regulations.

16. Dischargers must pay any relevant third-party program fees (e.g., Surface Water Third-Party Monitoring Program (aka Cooperative Monitoring Program or CMP) necessary to comply with monitoring and reporting conditions of this Order or they must comply with monitoring and reporting requirements individually.

17. For Dischargers who choose to participate in a third-party program, failure to pay third-party program fees voids a selection or notification of the option to participate in the third-party program and hence requires Dischargers to immediately comply with individual groundwater protection and/or surface water protection requirements.

Termination

18. **Immediately**, if a Discharger wishes to terminate coverage under this Order for the operation or an individual ranch, the Discharger must submit a complete Notice of Termination (NOT), in a format specified by the Executive Officer. Termination from coverage is the date the termination request is approved, unless specified otherwise. All discharges must cease before the date of termination, and any discharges on or after the date of termination are violations of this Order, unless covered by other WDRs or waivers of WDRs. All required monitoring and reporting are due **within 60 days of the termination or March 1 following the termination date**, whichever is sooner, unless otherwise directed by the Executive Officer.

General Provisions

19. The unauthorized discharge of any waste not specifically regulated by this Order, is prohibited.

20. The discharge of waste at a location or in a manner different from that described in the eNOI is prohibited.

21. Dischargers must comply with the Monitoring and Reporting Program (MRP), incorporated herein as Attachment B.

22. All forms, reports, documents, and laboratory data must be submitted to the Central Coast Water Board electronically through the State Water Board's database systems (e.g., GeoTracker, CEDEN,[3] etc.).

23. Dischargers are defined in this Order as both the landowner and the operator of irrigated agricultural land on or from which there are discharges of waste from irrigated agricultural activities that could affect the quality of any surface water or groundwater. The Central Coast Water Board will hold both the landowner and the operator liable for noncompliance with this Order.

24. The Executive Officer may propose, and the Central Coast Water Board may adopt, individual WDRs for any Discharger at any time.

25. The Central Coast Water Board or the Executive Officer may, at any time, terminate applicability of this Order with respect to an individual Discharger upon written notice to the Discharger.

26. Noncompliance with requirements in this Order is grounds for enforcement action and/or termination of coverage for waste discharges under this Order, subjecting the Discharger to enforcement under the Water Code for further discharges of waste to surface water or groundwater.

27. The fact that it would have been necessary to halt or reduce the permitted discharge activity to maintain compliance with this Order is not a defense for the Discharger's violations of this Order.

28. Provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order will not be affected.

29. Upon the Central Coast Water Board's or Executive Officer's request and within a reasonable timeframe, Dischargers must submit any information required to determine compliance with this Order or to determine whether there is cause for modifying or terminating this Order.

30. Under authority of Water Code section 13267(c), the Discharger must allow the Central Coast Water Board, or an authorized representative, upon consent or other documents as may be required by law, to do the following:

    a. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this Order,

[3] CEDEN is the California Environmental Data Exchange Network.

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order,
c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order, and
d. Collect samples from and monitor waters of the state within or bordering property subject to this Order, at reasonable times for the purposes of assuring compliance with this Order or as otherwise authorized by the Water Code. The sampling and monitoring may include and is not limited to domestic and irrigation wells, surface receiving waters, and edge of field discharges to surface waters.

31. This Order may be reopened to address changes in statutes, regulations, plans, policies, or case law that govern water quality requirements for the discharges regulated herein.

Third-Party Programs

32. Dischargers may comply with portions of this Order by participating in third-party groups or programs (e.g., certification program, watershed group, water quality coalition, monitoring coalition, or other third-party effort) approved by the Executive Officer. In this case, the third-party will assist individual Dischargers in achieving compliance with this Order, including implementing water quality improvement projects and required monitoring and reporting as described in the MRP. Compliance with the requirements of this Order is still required for all members of the third-party program; however, the third-party may propose modified monitoring and reporting for approval by the Executive Officer. Third-party program proposals will be evaluated on a case-by-case basis relative to their ability to document compliance with this Order as part of a request for proposal process and as further informed by a forthcoming third-party expectations document.

33. This Order includes specific provisions and an alternative compliance pathway for third-party programs that will also be subject to a third-party request for proposal process and Executive Officer review and approval. Dischargers participating in a third-party administered alternative compliance pathway program, and that remain in good standing as defined in this Order and/or Executive Officer approved third-party work plan, are subject to the third-party program requirements in lieu of individual requirements as specified. The third-party alternative compliance pathway program's assessment and evaluation for groundwater protection and the regional groundwater quality trend monitoring program described in **Part 2, Section C.1** must be closely aligned and coordinated such that they are effectively measuring the objectives the programs are trying to achieve.

34. Third-party program proposals must include and identify specific membership eligibility requirements, for approval by the Executive Officer, to evaluate whether third-party program members are in good standing. Members that are not in good standing with the membership eligibility requirements lose their membership and must immediately comply with individual groundwater protection and/or surface water protection requirements. At a minimum, third-party program proposals must include membership eligibility requirements and follow-up consequences that are triggered, including revocation of membership eligibility, to address the following scenarios where members are no longer in good standing:

    a. Non-payment of fees
    b. Non-submittal of information
    c. Non-participation in education/outreach or site visits
    d. Failure to implement / adapt management practices

35. Consistent with the Water Board's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy), the ineffectiveness of a third-party program through which a Discharger participates in nonpoint source control efforts cannot be used as a justification for lack of individual discharger compliance. Dischargers continue to be responsible for complying with this Order individually.

36. Dischargers who elect to join a third-party program to facilitate compliance with this Order must retain their membership with the third-party in good standing. If the Discharger does not meet the requirements of membership in the third-party program, then the Discharger is responsible for complying with all requirements in this Order individually unless the approved third-party administered alternative compliance pathway or approved third-party work plan allows for specific deviations from the individual requirements.

37. Dischargers who elect to join an approved third-party program must notify the approved third-party program administrator of their election to participate in the third-party program within 60 days of: 1) approval of the third-party program, and/or 2) the Discharger's enrollment in this Order, whichever is later.

38. The third-party program administrator must notify the Central Coast Water Board of Dischargers electing to participate within 90 days of the third-party program approval, and then provide member participation updates on a quarterly basis thereafter. At a minimum, participating Discharger information provided to the Central Coast Water Board must include operation enrollment information (e.g., AW numbers and operation names) and ranch enrollment information (e.g., GeoTracker AGL numbers and ranch names) in a format specified by the Executive Officer.

39. Third-party programs must meet the following minimum criteria:

a. Effectiveness of scale and scope – The program must be of sufficient scale and scope relative to its intended purpose to maximize Discharger participation, implementation effectiveness and Order compliance. Although regionally scaled programs are preferred, watershed- or basin-scale programs will be considered as needed to address localized water quality issues.
b. Clearly stated goals and objectives – The program must have meaningful and clearly stated goals, objectives, and associated performance metrics relevant to the Order requirements that are the focus of the program.
c. Management and administration – The program must have a well-defined and robust governance and administrative structure with clearly defined roles and responsibilities.
d. Capacity and expertise – The program must demonstrate sufficient technical, managerial, and financial capacity to successfully achieve its goals and objectives.
e. Physical presence – The program should have a physical presence in the central coast region, including staff and a headquarters, that can assist its members on a continual and as-needed basis. If the third-party program administrator does not have or plan to have a physical presence in the region, they must demonstrate they can effectively establish, maintain, and engage with core membership without a headquarters in the central coast region.
f. Transparency and accountability – The program must provide regular assessments of its performance relative to its stated goals and objective based on meaningful performance metrics. This includes reporting of water quality data and farm-level data as needed to document compliance with this Order.
g. Membership and fee accounting – The program must track and provide ongoing accounting of its Discharger membership and fees to document Discharger compliance.
h. Data management – The program must upload data as required by this Order to the Water Boards' various data management systems (e.g., CEDEN, GeoTracker, etc.).
i. Member requirements – The program must have clearly stated and enforced Discharger membership eligibility requirements and report out on them as needed to document compliance.
j. Coordination – The program must consider and coordinate with other third-party programs/groups or local entities as may be appropriate to create consistency; leverage the efforts, infrastructure and expertise of others; and streamline the program to maximize effectiveness (e.g., coordination with Groundwater Sustainability Agencies [GSAs], flood control management agencies, watershed restoration and management entities, etc.).
k. Continuing education – The program must include continuing education opportunities as appropriate either directly through the program or through

coordination with other third-party programs/groups or local entities to ensure its members obtain technical skills and assistance necessary to achieve compliance with the limits established in this Order. In the instance of third-party monitoring programs, membership outreach and education should be implemented to inform members about the monitoring results relative to meeting specific water quality objectives, numeric targets, numeric interim quantifiable milestones, or numeric limits.

l. Specific project plan documents – The program must have a detailed work plan including a Quality Assurance Project Plan (QAPP) and Sampling and Analysis Plan (SAP) as may be appropriate based on the program goals and objectives and associated Order requirements.

40. The Central Coast Water Board's review of third-party program proposals will consider the criteria outlined above relative to overall program effectiveness, with an emphasis on approving programs that can effectively assist their members in complying with the requirements of this Order.

Part 2, Section B. Planning, Education, Management Practices, and CEQA

Farm Water Quality Management Plan (Farm Plan)

1. Dischargers must develop, implement, and update as necessary a Farm Water Quality Management Plan (Farm Plan) for each ranch. A current copy of the Farm Plan must be maintained by the Discharger and must be submitted to the Central Coast Water Board upon request. At a minimum, the Farm Plan must include the discrete sections listed below. Additional details regarding each section are included in subsequent sections of this Order. Certain elements included in the Farm Plan must be reported on; however, in general, the Farm Plan is a planning and recordkeeping tool used by Dischargers to manage various aspects of their agricultural operation.

   a. Irrigation and Nutrient Management Plan (INMP)
   b. Pesticide Management Plan (PMP)
   c. Sediment and Erosion Management Plan (SEMP)
   d. Water Quality Education
   e. CEQA Mitigation Measure Implementation

2. The INMP, PMP, and SEMP sections of the Farm Plan must include information on management practice implementation and assessment. Elements of the INMP are reported on in the Total Nitrogen Applied report or INMP Summary report. Elements of all the sections listed above are reported on in the Annual Compliance Form (ACF). Additional information on the monitoring and reporting requirements related to each of these sections is included in the MRP.

3. Where required by the Executive Officer based on groundwater quality or surface water quality conditions or exceedances of the numeric targets, numeric interim quantifiable milestones, or numeric limits established in this Order, the Farm Plan must incorporate ranch-level groundwater or surface water discharge monitoring information described in the MRP. The ranch-level groundwater and surface water discharge monitoring must be designed and implemented to inform improved management practices to protect groundwater and surface water quality.

4. Dischargers must maintain all records related to compliance with this Order for a minimum of ten years. Records include, but are not limited to, monitoring information, calculations, management practice implementation and assessment, education records, and all required reporting and information used to submit complete and accurate reports. Third parties that have been approved by the Executive Officer to assist Dischargers with complying with this Order, for example in the form of water quality monitoring, must also maintain all records for a minimum of ten years. Records must be submitted to the Central Coast Water Board upon request or as required by this Order or an approved work plan.

Continuing Education

5. Dischargers must attend outreach and education events annually to obtain technical skills and assistance necessary to achieve compliance with the numeric targets, numeric interim quantifiable milestones, and numeric limits established by this Order. Outreach and education events should focus on meeting water quality objectives and protecting beneficial uses by identifying water quality problems, implementing pollution prevention strategies, and implementing management practices and assessment designed to protect water quality and beneficial uses and resolve water quality problems to achieve compliance with this Order. Records of participation in continuing education must be maintained in the Farm Plan and submitted to the Central Coast Water Board upon request.

6. Dischargers who exceed the fertilizer nitrogen application targets or limits, nitrogen discharge targets or limits, numeric interim quantifiable milestones, or surface receiving water limits must complete additional relevant water quality education sufficient to fully inform the implementation of additional or improved management practices and assessment to avoid future exceedances.

7. A copy of this Order and MRP must be kept at the ranch for reference by operating personnel. Key operating and site management personnel must be familiar with the content of both documents.

Management Practice Implementation and Assessment

8. Dischargers must implement management practices and assessment, as necessary, to improve and protect water quality, protect beneficial uses, achieve compliance with applicable water quality objectives, achieve the numeric targets, numeric interim quantifiable milestones, and numeric limits established in this Order. Management practices implementation and assessment must be documented in the appropriate section of the Farm Plan (e.g., irrigation and nutrient management practices and assessment must be documented in the INMP section of the Farm Plan). Dischargers must report on management practice implementation and assessment in the ACF, as described in the MRP.

CEQA Mitigation Measure Implementation, Monitoring, and Reporting

9. Impacts and mitigation measures identified in CEQA Mitigation Monitoring and Reporting Program are set forth in the Final Environmental Impact Report (FEIR) at Appendix D, which is incorporated by reference. Mitigation measures identified in the FEIR for this Order and required to be implemented as described in Appendix D, will substantially reduce environmental effects of the project. The mitigation measures included in this Order have eliminated or substantially lessened all significant effects on the environment, where feasible. Where noted, some of the mitigation measures are within the responsibility and jurisdiction of other public agencies. Such mitigation measures can and should be adopted, as applicable, by those other agencies.

10. Dischargers must report on mitigation measure implementation electronically in the Annual Compliance Form (ACF), as described in the MRP. Draft mitigation monitoring and reporting is available for review in the FEIR.

Part 2, Section C.1. Groundwater Protection

1. Dischargers may not be subject to all provisions of **Part 2, Section C.1** if they are members in good standing with the third-party alternative compliance pathway program included within **Part 2, Section C.2**.

Phasing

2. Ranches are assigned the Groundwater Phase Area of the groundwater basin where the ranch is located based on the relative level of water quality and beneficial use impairment and risk to water quality. All ranches are assigned a Groundwater Phase Area of 1, 2, or 3. Groundwater Phase 1 areas represent greater water quality impairment and higher risk to water quality relative to Groundwater Phase 2 and 3 areas.

3. The requirements and implementation schedules for groundwater protection are based on the groundwater phase areas, listed in **Table C.1-1** and shown on the maps in **Figure C.1-1**.

4. In the event that a ranch spans multiple Groundwater Phase areas, the ranch will be assigned the earlier phase. For example, a ranch that spans both Groundwater Phase 1 and Groundwater Phase 2 areas will be assigned to Groundwater Phase 1.

5. The Groundwater Phase Area assigned to each ranch will be displayed on the ranch eNOI in GeoTracker.

Irrigation and Nutrient Management Plan

6. Dischargers must develop and implement an Irrigation and Nutrient Management Plan (INMP) that addresses both groundwater and surface water. This section applies to the groundwater related INMP requirements and the surface water related INMP requirements are contained within **Part 2, Section C.3** of this Order. The INMP is a section of the Farm Plan and must be maintained in the Farm Plan and submitted to the Central Coast Water Board upon request. Summary information from the INMP must be submitted in the INMP Summary report. At a minimum, the elements of the INMP related to groundwater protection must include:

    a. Monitoring and recordkeeping necessary to submit complete and accurate reports, including the ACF, Total Nitrogen Applied (TNA) report, and INMP Summary report.
    b. Planning and management practice implementation and assessment that results in compliance with the fertilizer nitrogen application limits in **Table C.1-2** and the nitrogen discharge targets and limits in **Table C.1-3**.
    c. Descriptions of all irrigation, nutrient, and salinity management practices implemented and assessed on the ranch.
    d. When INMP certification is required, e.g., as a follow-up action or as a consequence for not meeting the quantifiable milestones and time schedules below, the INMP certification shall include the following:

       The person signing this Irrigation and Nitrogen Management Plan (INMP) certifies, under penalty of law, that the INMP was prepared under his/her direction and supervision, that the information and data reported is to the best of his/her knowledge and belief, true, accurate, and complete, and that he/she is aware that there are penalties for knowingly submitting false information. The qualified professional signing the INMP may rely on the information and data provided by the Discharger and is not required to independently verify the information and data.

The qualified professional signing the INMP below further certifies that he/she used sound irrigation and nitrogen management planning practices to develop irrigation and nitrogen application recommendations and that the recommendations are informed by applicable training to minimize nitrogen loss to surface water and groundwater. The qualified professional signing the INMP is not responsible for any damages, loss, or liability arising from subsequent implementation of the INMP by the Discharger in a manner that is inconsistent with the INMP's recommendations for nitrogen application. This certification does not create any liability or claims for environmental violations.

Qualified professional certification:
"I, ____________________, certify this INMP in accordance with the statement above."

___________________________ (Signature)

The discharger additionally agrees as follows:

"I, ____________________, Discharger, have provided information and data to the certifier above that is, to the best of my knowledge and belief, true, accurate, and complete, that I understand that the certifier may rely on the information and data provided by me and is not required to independently verify the information and data, and that I further understand that the certifier is not responsible for any damages, loss, or liability arising from subsequent implementation of the INMP by me in a manner that is inconsistent with the INMP's recommendations for nitrogen application. I further understand that the certification does not create any liability for claims for environmental violations."

Quantifiable Milestones and Time Schedules

7. As shown in **Table C.1-2**, the fertilizer nitrogen application limits go into effect during the second year of the this Order (December 31, 2023).

8. As shown in **Table C.1-3**, the nitrogen discharge targets go in to effect during the second year of this Order (December 31, 2023) and nitrogen discharge limits go in to effect during the fifth year of this Order (December 31, 2027).

Fertilizer Nitrogen Application Limits

9. Dischargers must not apply fertilizer nitrogen (**A_{FER}**) at rates greater than the limits in **Table C.1-2.** Compliance with fertilizer nitrogen application limits is assessed for each specific crop reported in the TNA report or INMP Summary report.

Nitrogen Discharge Targets and Limits

10. This Order requires Dischargers to submit information on nitrogen applied (**A**) and nitrogen removed (**R**). This Order also establishes nitrogen discharge targets and limits based on the calculation of nitrogen applied minus nitrogen removed (**A-R**) using the formulas below. Nitrogen must not be discharged at rates greater than the targets and limits in **Table C.1-3**. Compliance with nitrogen discharge targets and limits is assessed annually for the entire ranch in the INMP Summary report through one of the **three compliance pathways** shown below. Compliance with all pathways is not required.

    Compliance Pathway 1:

    $$A_{FER} + (C \times A_{COMP}) + (O \times A_{ORG}) + A_{IRR} - R = \text{Nitrogen Discharge}$$

    OR

    Compliance Pathway 2:

    $$A_{FER} + (C \times A_{COMP}) + (O \times A_{ORG}) = R$$

    OR

    Compliance Pathway 3:

    $$A_{FER} + (C \times A_{COMP}) + (O \times A_{ORG}) - R = \text{Nitrogen Discharge}$$

    In all formulas, $R = R_{HARV} + R_{SEQ} + R_{SCAVENGE} + R_{TREAT} + R_{OTHER}$

    a. **A_{FER}** is the amount of fertilizer nitrogen applied in pounds per acre.
    b. **C** is the compost discount factor used to represent the amount of compost nitrogen mineralized during the year that the compost was applied.
    c. **A_{COMP}** is the total amount of compost nitrogen applied in pounds per acre.
    d. **O** is the organic fertilizer discount factor used to represent the amount of nitrogen mineralized during the first 12 weeks in the year it was applied.
    e. **A_{ORG}** is the total amount of organic fertilizer or amendment nitrogen applied in pounds per acre.

f. **A_{IRR}** is the amount of nitrogen applied in the irrigation water estimated from the volume required for crop evapotranspiration (ET) in pounds per acre.
g. **R** is the amount of nitrogen removed from the field through harvest, sequestration, or other removal methods, in pounds per acre.
h. **R_{HARV}** is the amount of nitrogen removed from the field through harvest or other removal of crop material.
i. **R_{SEQ}** is the amount of nitrogen removed from the field through sequestration in woody materials of permanent or semi-permanent crops.
j. **$R_{SCAVENGE}$** is the amount of nitrogen removed from the field through nitrogen scavenging cover crops and/or nitrogen scavenging high carbon amendments during the wet/rainy season.
k. **R_{TREAT}** is the amount of nitrogen removed from the ranch through a quantifiable treatment method (e.g., bioreactor).
l. **R_{OTHER}** is the amount of nitrogen removed from the ranch through other methods not previously quantified.

11. The Central Coast Water Board encourages the use of irrigation water nitrogen as a method of reducing the amount of fertilizer nitrogen applied to crops. The use of irrigation water nitrogen is typically referred to as “pump and fertilize” and is incentivized through compliance pathway 2 and 3 in **Table C.1-3**. The amount of irrigation water nitrogen is not used in the compliance calculation in these compliance pathways. The amount of irrigation water nitrogen must be reported regardless of the compliance pathway.

12. The Central Coast Water Board encourages the use of compost to improve soil health, nutrient and carbon sequestration, and water holding capacity consistent with the state’s Healthy Soils Initiative. All compost nitrogen (**A_{COMP}**) applied to the ranch must be reported in the TNA report or INMP Summary report; however, the use of compost is incentivized through the option for Dischargers to use a compost “discount” factor (**C**). Dischargers may use the compost discount factor provided by the Central Coast Water Board in the MRP or may determine their own discount factor. The discounted compost nitrogen must, at a minimum, represent the amount of compost mineralized during the year the compost was applied to the ranch. If the Discharger uses their own compost discount factor, they must maintain records of the method used to determine the compost discount factor in the Farm Plan, and these records must be submitted to the Central Coast Water Board upon request.

13. The Central Coast Water Board encourages the use of organic fertilizers and amendments to improve soil health, nutrient and carbon sequestration, and water holding capacity consistent with the state’s Healthy Soils Initiative. All organic fertilizer and amendment nitrogen (**A_{ORG}**) applied to the ranch must be reported in the TNA report or INMP Summary report; however, the use of organic fertilizers and amendments is incentivized through the option for Dischargers to

use an organic fertilizer “discount” factor (**O**). Dischargers may use the organic fertilizer discount factor associated with the products C:N ratio, provided by the Central Coast Water Board in the MRP. The discounted organic fertilizer nitrogen must, at a minimum, represent the amount of organic fertilizer mineralized during the first 12 weeks the organic fertilizer was applied to the ranch. The Discharger must maintain records of the organic products used and their associated C:N ratios in the Farm Plan, and these records must be submitted to the Central Coast Water Board upon request. The following products are not eligible to receive an organic fertilizer discount: a) products with no organic compounds (long chain carbon) molecules, such as conventional fertilizer, slow release fertilizers, b) products that do not depend on microbial mineralization to release nitrogen to mineral form to make it available for crop uptake, c) products without C:N ratio information available, and d) organic liquid fertilizers that are in the liquid and/or emulsified form.

14. The amount of **crop material** removed through harvest or other methods (**R_{HARV}**) must be calculated using the formula described below. Dischargers must either use the crop-specific conversion coefficient values found in the MRP or develop their own conversion coefficient values following the approved method in the MRP. If Dischargers develop their own conversion coefficient, they must maintain information on the method used in the Farm Plan, and these records must be submitted to the Central Coast Water Board upon request.

    R_{HARV} = Conversion Coefficient x Material Removed

    a. The **Conversion Coefficient** is a crop-specific coefficient used to convert from units of material removed per acre to units of nitrogen removed per acre.
    b. **Material Removed** is the amount of nitrogen-containing material removed from the field, in units of pounds per acre.

15. The amount of nitrogen removed through **sequestration** in woody material of permanent or semi-permanent crops (**R_{SEQ}**) must be estimated by the Discharger. Dischargers must maintain records detailing how they estimated the amount of nitrogen sequestered in their permanent crops. These records must be maintained in the Farm Plan and submitted to the Central Coast Water Board upon request.

16. The Central Coast Water Board encourages Dischargers to implement best management practices that reduce nitrogen leaching in the wet/rainy season. Dischargers may claim a nitrogen scavenging credit (**$R_{SCAVENGE}$**) provided by the Central Coast Water Board in the MRP, one time per year for each ranch acre where nitrogen scavenging cover crops or nitrogen scavenging high carbon amendments are utilized during the wet/rainy season. The total acres receiving

the nitrogen scavenging credit may not exceed the ranch acres. Dischargers electing to claim the nitrogen scavenging credit must ensure that their cover crop and/or high carbon amendment best management practice meets the definitions of a nitrogen scavenging cover crop and/or nitrogen scavenging high carbon amendment, as noted in the MRP and Definitions. Substantiating records for this credit must be maintained in the Farm Plan and submitted to the Central Coast Water Board upon request.

17. The Central Coast Water Board encourages Dischargers to develop and implement innovative methods for removing nitrogen from the environment to improve water quality. Dischargers may use treatment methods (e.g., bioreactors) to remove nitrogen from groundwater or surface water and may count this towards their nitrogen removal (**R**) value if they are able to quantify the amount of nitrogen removed from ranch discharge to groundwater or surface water. This quantified removal through treatment or other innovative methods must be reported as $\mathbf{R_{TREAT}}$. Dischargers electing to account for this nitrogen removal must monitor the volume and concentration of water entering and exiting their treatment system and calculate the amount of nitrogen removed. These records must be maintained in the Farm Plan and submitted to the Central Coast Water Board upon request.

18. If Dischargers remove additional nitrogen through means other than removing crop material ($\mathbf{R_{HARV}}$), sequestration ($\mathbf{R_{SEQ}}$), scavenging credit ($\mathbf{R_{SCAVENGE}}$), or treatment methods ($\mathbf{R_{TREAT}}$), they must quantify and report this additional removal as $\mathbf{R_{OTHER}}$. Dischargers must maintain records detailing how they calculated $\mathbf{R_{OTHER}}$. These records must be maintained in the Farm Plan and submitted to the Central Coast Water Board upon request.

19. The discharge of nitrogen in excess of the nitrogen discharge **targets** in **Table C.1-3** may result in additional requirements, including obtaining additional education, INMP certification by a qualified professional, implementing additional or improved management practices, and increased monitoring and/or reporting.

20. The discharge of nitrogen in excess of the nitrogen discharge **limits** in **Table C.1-3** may result in additional requirements, including obtaining additional education, INMP certification by a qualified professional, implementing additional or improved management practices, increased monitoring and reporting, and/or progressive enforcement actions.

21. Dischargers who apply more fertilizer nitrogen ($\mathbf{A_{FER}}$) than the fertilizer nitrogen application limits in **Table C.1-2** to any specific crop **and** who are able to demonstrate compliance with the **final** nitrogen discharge limits, as shown in **Table C.1-3**, are exempt from the fertilizer nitrogen application limit.

22. Dischargers who can quantifiably demonstrate that their ranches pose no threat to surface water quality or groundwater quality may submit a technical report to the Executive Officer for review. If approved, the Discharger is not required to conduct the nitrogen application (**A**) or removal (**R**) monitoring and reporting or to submit the INMP Summary report, regardless of what Groundwater Phase area the ranch is in. The technical report must demonstrate that nitrogen applied at the ranch does not percolate below the root zone in an amount that could degrade groundwater and does not migrate to surface water through discharges, including drainage, runoff, or sediment erosion. Dischargers must provide the Executive Officer with annual updates to confirm that the exemption is still applicable. Failure to provide sufficient annual updates confirming that the exemption is still applicable will result in an immediate reinstatement of the requirement to submit the INMP Summary report for applicable Dischargers. Dischargers electing to use this approach are still eligible to participate in the third-party alternative compliance pathway for groundwater protection.

23. Dischargers who can quantifiably demonstrate that their ranch is achieving the **final** nitrogen discharge limits , as shown in **Table C.1-3,** are not required to submit the nitrogen removal (**R**) reporting in the INMP Summary report, regardless of what Groundwater Phase area the ranch is in. Example situations where this may apply include participation in an approved third-party program that certifies that the Discharger is meeting the final discharge limit and will continue to do so for the duration of the Discharger’s participation in the approved third-party program, or by submitting a technical report, subject to Executive Officer review, that quantifies the amount of nitrogen discharge based on the volume and nitrogen concentration of all discharges from the ranch. In these situations, confirmation of membership in the approved third-party program or Executive Officer approval of a submitted technical report constitute compliance with the nitrogen removed (**R**) reporting requirement in the INMP Summary report. This exemption only applies to removal (**R**) in the INMP Summary report; all other requirements, including the TNA report, still apply as described in this Order. Dischargers must provide the Executive Officer with annual updates to confirm that the exemption is still applicable. Failure to provide sufficient annual updates confirming that the exemption is still applicable will result in an immediate reinstatement of the requirement to submit the nitrogen removal (R) reporting information in the INMP Summary report for applicable Dischargers. Dischargers electing to use this approach are still eligible to participate in the third-party alternative compliance pathway for groundwater protection.

24. Dischargers, groups of dischargers or commodity groups who can quantify the amount of nitrogen discharged from their ranch or for specific crops or via specific management practices by directly monitoring it at the points of discharge can propose an alternative monitoring methodology to comply with the nitrogen

discharge targets and limits, in lieu of using the A-R compliance formulas. Example situations where this may apply includes greenhouse, nursery, container production or intensive crop production where irrigation and drain water is captured and allows for direct monitoring of discharges. For these types of situations, it may be easier to monitor nitrogen discharge than to calculate the amount of nitrogen removed at harvest for each one of the many different crops and plants being grown. Dischargers must submit a request to the Executive Officer with a technical report of the methodology proposed to quantify nitrogen discharges. The methodology must include enough information to quantify the amount of nitrogen discharged and confirm compliance with the nitrogen discharge targets and limits, as shown in **Table C.1-3 or Table C.2-2** (for Dischargers participating in the Third-Party Alternative Compliance Pathway Program for Groundwater Protection described in **Part 2, Section C.2)**. Acceptable methodologies must include direct measurements of the volume and nitrogen concentration of the water discharged from each ranch per acre and year. Executive Officer approval of the method(s) must be granted before the discharger begins reporting nitrogen discharge based on the proposed methodology. Dischargers who obtain Executive Officer approval to directly monitor their nitrogen discharge from their ranches will not be required to submit nitrogen removal (R) reporting in the INMP Summary report. Dischargers electing to use this approach are still eligible to participate in the third-party alternative compliance pathway program for groundwater protection.

25. The initial 2027 nitrogen discharge limits, as shown in **Table C.1-3** will be re-evaluated based on Discharger reported nitrogen applied and removed data, new science, and management practice implementation and assessment before becoming effective.

Monitoring and Reporting

26. Dischargers must report on management practice implementation and assessment electronically in the **ACF**, as described in the MRP.

27. Dischargers must record and report total nitrogen applied to all crops grown on the ranch, electronically in the TNA report form, as described in the MRP.

28. Dischargers must track and record the following elements of the INMP Summary report that are not included in the TNA report: total nitrogen removed from the ranch and information on irrigation water application and discharge volumes. Dischargers must submit this information electronically in the INMP Summary report form as described in the MRP.

29. The INMP Summary report contains the same nitrogen application information as the TNA report, plus additional information related to nitrogen removed and irrigation management. **Therefore, the INMP Summary report satisfies the**

TNA report requirement and an additional TNA report is not required to be submitted when the INMP Summary report is submitted to the Central Coast Water Board.

30. Dischargers must conduct **irrigation well monitoring and reporting prior to the start of groundwater quality trend monitoring and reporting**, either individually or as part of a third-party effort, as described in the MRP.

31. Dischargers must conduct **on-farm domestic well monitoring and reporting**, either individually or as part of a third-party effort, as described in the MRP.

32. Dischargers must conduct **groundwater quality trend monitoring and reporting**, either individually or as part of a third-party effort, as described in the MRP. This requirement applies to all Dischargers enrolled in this Order, regardless of how many wells are currently present on their ranch.

    a. Dischargers who elect to perform groundwater quality trend monitoring and reporting as part of a **third-party** effort must form or join a third-party. The third-party must submit a work plan for Executive Officer review by the dates and covering the areas specified in the MRP unless it is associated with the Third-Party Alternative Compliance Pathway for Groundwater Protection described in **Part 2, Section C.2**. The work plan must be approved by the Executive Officer prior to implementation. Once approved by the Executive Officer, the work plan must be implemented.
    b. Dischargers who elect to perform groundwater quality trend monitoring and reporting individually must submit a work plan for Executive Officer review, by the date specified in the MRP, based on their ranch location. The work plan must be approved by the Executive Office prior to implementation. The work plan must describe how the ranch-level groundwater quality trend monitoring program will evaluate groundwater quality trends over time and assess the impacts of agricultural discharges on groundwater quality. Once approved by the Executive Officer, the work plan must be implemented. Dischargers without a well on their property may comply with individual ranch-level groundwater quality trend monitoring and reporting requirements by implementing one of the options specified in the MRP.

33. When required by the Executive Officer based on groundwater quality data or significant and repeated exceedance of the nitrogen discharge targets or limits, Dischargers must complete **ranch-level groundwater discharge monitoring and reporting**, either individually or as part of a third-party effort as described in the MRP. Water Board staff will coordinate with Dischargers prior to the Executive Officer invoking this requirement to determine if non-compliance is the result of unforeseen or uncontrollable circumstances and to provide the Discharger with 90-day advanced notice of the forthcoming requirement. When ranch-level groundwater discharge monitoring and reporting is required, a work

plan, including a SAP and QAPP, must be submitted for Executive Officer review prior to implementation. Once approved by the Executive Officer, the work plan must be implemented. Ranch-level groundwater discharge monitoring may be discontinued with the approval of the Executive Officer when the Discharger comes into compliance with the nitrogen discharge targets or limits, or the discharge has otherwise ceased.

Part 2, Section C.2. Third-Party Alternative Compliance Pathway for Groundwater Protection

1. Dischargers that are members in good standing in the third-party alternative compliance pathway program are subject to the provisions of this **Part 2, Section C.2**, unless otherwise stated. For purposes of this section, such Dischargers are referred to as "participating Dischargers."

   Participating dischargers:

   a. Are not subject to fertilizer nitrogen application limits in **Table C.1-2**, which are enforceable by the Central Coast Water Board.
   b. Are not subject to nitrogen discharge limits in **Table C.1-3**, which are enforceable by the Central Coast Water Board.
   c. Are subject to targets, which if exceeded result in consequences outlined in this **Part 2, Section C.2**.
   d. Are not subject to ranch-level groundwater discharge monitoring and reporting.
   e. Are generally provided more time to achieve fertilizer nitrogen application targets and nitrogen discharge targets, relative to non-participating dischargers.

2. Prior to the initiation of the work plan process outlined below and in the MRP for this third-party alternative compliance pathway program, entities wishing to implement the third-party alternative compliance pathway program described in this **Part 2, Section C.2** must submit a third-party alternative compliance pathway program proposal consistent with the third-party program requirements outlined in **Part 2, Section A** of this Order, as well as the request for proposal process and associated third-party program expectations document forthcoming after Order adoption. For purposes of this section, the entity approved to implement the third-party alternative compliance pathway is referred to as the approved third-party alternative compliance pathway program administrator.

3. Participating Dischargers must develop and implement an Irrigation and Nutrient Management Plan (INMP) that addresses groundwater. The INMP is a section of the Farm Plan and must be maintained in the Farm Plan and submitted to the Central Coast Water Board upon request. Summary information from the INMP must be submitted in the INMP Summary report. At a minimum, the elements of

the INMP related to groundwater and surface water protection for participating Dischargers in a third-party program must include:

a. Monitoring and recordkeeping necessary to submit complete and accurate reports, including the Annual Compliance form (ACF), Total Nitrogen Applied (TNA) report, and INMP Summary report.
b. Planning and management practice implementation and assessment that results in compliance with the fertilizer nitrogen application targets in **Table C.2-1,** the nitrogen discharge targets in **Table C.2-2**, and groundwater protection area targets to be determined and approved by the Executive Officer.
c. Descriptions of all irrigation, nutrient, and salinity management practices implemented and assessed on the ranch.

Quantifiable Milestones and Time Schedules

4. As shown in **Table C.2-1**, the fertilizer nitrogen application targets go in to effect during the third year of the this Order (December 31, 2024) for participating Dischargers in the third-party alternative compliance pathway.

5. As shown in **Table C.2-2**, the nitrogen discharge targets go in to effect during the third year of this Order (December 31, 2024) for participating Dischargers in the third-party alternative compliance pathway.

Fertilizer Nitrogen Application Targets

6. Participating Dischargers must not apply fertilizer nitrogen ($\mathbf{A_{FER}}$) at rates greater than the **targets** in **Table C.2-1.** Compliance with fertilizer nitrogen application targets is assessed annually for each specific crop reported in the TNA report or INMP Summary report.

7. Participating Dischargers that apply fertilizer nitrogen ($\mathbf{A_{FER}}$) at rates greater than the **targets** in **Table C.2-1** one year after the compliance date are subject to follow-up by the approved third-party program administrator, which could include additional education and/or implementation of additional or improved management practices.

8. Participating Dischargers that apply fertilizer nitrogen ($\mathbf{A_{FER}}$) at rates greater than the **targets** in **Table C.2-1** for a two-year running average after the compliance date, are no longer eligible to participate in the third-party alternative compliance pathway program and must comply with the individual groundwater protection requirements in **Part 2, Section C.1**. Water Board staff will coordinate with participating Dischargers prior to the Executive Officer invoking this requirement to determine if non-compliance is the result of unforeseen or uncontrollable

circumstances and to provide the Discharger with 90-day advanced notice of the forthcoming individual groundwater protection requirements.

Nitrogen Discharge Targets

9. Participating Dischargers must not discharge nitrogen at rates greater than the **targets** in **Table C.2-2**. Compliance with nitrogen discharge targets is assessed annually for the entire ranch using INMP Summary report information. Participating Dischargers must comply with at least one of the nitrogen discharge compliance pathways described in **Part 2, Section C.1** by the compliance date.

10. The final year 2028 nitrogen discharge **targets**, as shown in **Table C.2-2** will be re-evaluated based on discharger reported nitrogen applied and removed data, new science, management practice effectiveness assessment and evaluation, and groundwater protection area collective numeric interim and final targets before becoming effective.

11. Participating Dischargers that discharge nitrogen in excess of the nitrogen discharge **targets** in **Table C.2-2** one year after the compliance date are subject to follow-up by the approved third-party alternative compliance pathway program administrator, which could include additional education and/or implementation of additional or improved management practices.

12. Participating Dischargers that discharge nitrogen in excess of the nitrogen discharge **targets** in **Table C.2-2** for a two-year running average, must obtain annual INMP certification by a qualified professional until nitrogen discharge targets are achieved for a two-year running average. The INMP certification must include the certification language outlined in **Part 2, Section C.1**.

13. Participating Dischargers that discharge nitrogen in excess of the final nitrogen discharge target in **Table C.2-2** for a three-year running average after the compliance date, are no longer eligible to participate in the third-party alternative compliance pathway program and must comply with individual groundwater protection requirements in **Part 2, Section C.1**. Water Board staff will coordinate with participating Dischargers prior to the Executive Officer invoking this requirement to determine if non-compliance is the result of unforeseen or uncontrollable circumstances and to provide the Discharger with 90-day advanced notice of the forthcoming individual groundwater protection requirements.

Groundwater Protection Areas, Formulas, Values, and Targets

14. The approved third-party alternative compliance pathway program administrator, on behalf of its participating Dischargers, must develop and submit incremental 35%, 70%, and 100% work plans for Executive Officer approval, as described in

the MRP. The 35% and 70% work plans will be subject to Executive Officer approval following a 30-day written public period and a public meeting to receive public comments and board input.

15. The incremental draft and final work plans must include the following:

    a. Clearly defined objectives and scientific justification for all proposed groundwater protection (GWP) areas, formulas, values, and collective numeric interim and final targets.

    b. Scientific justification in support of the proposed GWP areas with respect to, but not limited to, geology, hydrogeology, groundwater basin and subbasin areas, recharge areas, land uses, cropping patterns, and potential membership coverage by acreage and number of members. The proposed GWP areas, formula, values, and collective interim and final targets must be tied together and scaled in a way that will allow for the effective evaluation of water quality and beneficial use protection and compliance with GWP interim and final targets on both a collective and individual basis.

    c. A program to assess and evaluate the performance and effectiveness of the third-party alternative compliance pathway program's collective numeric interim and final targets in achieving tangible groundwater quality improvements over time at the individual GWP area scale. The assessment and evaluation program must be scaled – spatially and temporally – in coordination with the regional groundwater quality trend monitoring program described in **Part 2, Section C.1** of the third-party program over time.

    d. Criteria and associated follow-up actions or consequences that the third-party alternative compliance pathway program administrator will implement if participating Dischargers do not meet collective numeric interim and final targets, and third-party program membership eligibility requirements including membership probation and revocation to address recalcitrant participating Dischargers.

16. The final work plans must be approved by the Executive Officer prior to implementation. Once approved by the Executive Officer, the work plans must be implemented.

17. Compliance with the collective numeric interim and final targets for a GWP area shall be determined by aggregating data from participating Dischargers within a GWP area to determine if the combined nitrogen discharge is achieving collective compliance with the GWP Area numeric interim and final targets.

18. Although compliance with GWP collective numeric interim and final targets is assessed using the combined nitrogen discharge of participating Dischargers in a GWP area, GWP collective numeric interim and final targets must be designed such that there is a clear and quantifiable means of assessing individual ranch level contribution to the success or failure of complying with the GWP area collective numeric interim and final targets.

19. Participating Dischargers in a GWP area that exceed the GWP collective numeric interim and final targets by 20% or more, as evaluated individually and on an annual basis, are subject to follow-up by the approved third-party alternative compliance pathway program administrator, which could include additional education or implementation of additional or improved management practices.

20. All participating Dischargers in a GWP area that exceeds the collective numeric interim and final GWP targets by 20% or more for a 3-year running average after the compliance date, are no longer eligible to participate in the third-party alternative compliance pathway program and must comply with the individual groundwater protection requirements in **Part 2, Section C.1**.

Monitoring and Reporting

21. Participating Dischargers must submit ACF, TNA, and INMP Summary information according to requirements outlined in **Part 2, Section C.1**, and as described in the MRP.

22. Participating Dischargers must submit ACF, TNA, and INMP Summary information accordingto the groundwater phase assigned to each ranch. Groundwater phases are outlined in **Part 2, Section C.1**.

23. Participating Dischargers must submit groundwater monitoring and reporting information according to requirements outlined in **Part 2, Section C.1** and as described in the MRP, either individually or as part of a third-party program.

Part 2, Section C.3. Surface Water Protection

Priority Areas (Individual)

1. Ranches are assigned the Surface Water Priority area of the HUC-8 watershed where the ranch is located based on the relative level of water quality, beneficial use impairment and risk to water quality. All ranches are assigned a Surface Water Priority of 1, 2, 3, or 4. Surface Water Priority Area 1 areas represent greater water quality impairment and higher risk to water quality relative to Surface Water Priority Areas 2, 3, and 4.

2. The follow-up surface receiving water implementation requirements for surface water protection are based on the surface water priority areas, listed in **Table C.3-1** and shown on the map in **Figure C.3-1**.

3. In the event that a ranch spans multiple Surface Water Priority areas, the ranch will either be assigned the earlier priority or will be assigned the priority of the watershed or drainage unit that the ranch drains or discharges to, if specific discharge information is provided to the Central Coast Water Board.

4. The Surface Water Priority assigned to each ranch will be displayed in the ranch eNOI in GeoTracker.

Priority Areas (Third-Party Program)

5. Ranches that are enrolled as part of an approved third-party follow-up surface receiving water implementation program are assigned the third-party program Surface Water Priority of high priority, medium priority, or low priority where the ranch is located, as shown in **Table C.3-1.3P** and the map shown in **Figure C-3.1. 3P**.

6. In the event that a ranch spans multiple third-party program Surface Water Priority areas, the ranch will either be assigned the earlier priority or will be assigned the priority of the watershed or drainage unit that the ranch drains or discharges to, if specific discharge information is provided to the Central Coast Water Board.

7. The third-party program Surface Water Priority assigned to each ranch will be displayed in the ranch eNOI in GeoTracker.

Irrigation and Nutrient Management

8. Dischargers must develop and implement an Irrigation and Nutrient Management Plan (INMP) that addresses both groundwater and surface water. This section applies to the surface water related INMP requirements and the groundwater related INMP requirements are contained within **Part 2, Section C.1** of this Order. The INMP is a section of the Farm Plan, must be maintained in the Farm Plan (see **Part 2, Section B** and Farm Plan paragraph 14 below), and submitted to the Central Coast Water Board upon request. Summary information from the INMP must be submitted in the ACF, as described in the MRP.

Pesticide Management

9. Dischargers must develop and implement a Pesticide Management Plan (PMP). The PMP is a section of the Farm Plan, must be maintained in the Farm Plan (see **Part 2, Section B** and Farm Plan paragraph 14 below), and submitted to

the Central Coast Water Board upon request. Summary information from the PMP must be submitted in the ACF, as described in the MRP.

Sediment and Erosion Management

10. Dischargers must develop and implement a Sediment and Erosion Management Plan (SEMP). The SEMP is a section of the Farm Plan, must be maintained in the Farm Plan (see **Part 2, Section B** and Farm Plan paragraph 14 below), and submitted to the Central Coast Water Board upon request. Summary information from the SEMP must be submitted in the ACF, as described in the MRP.

Impermeable Surfaces

11. Ranches with either 50 to 100 percent of fields covered by impermeable surfaces (defined in Attachment C of this Order), or with greater than or equal to 22,500 square feet (0.5 acre) of impermeable surfaces must manage stormwater discharge duration, rate, and volume as described below.

    a. Stormwater discharge intensity from fields with impermeable surfaces must not exceed the stormwater discharge intensity from equivalent permeable field area for any storm event up to and including the 10-year storm event. The *Santa Barbara Urban Hydrograph Method* [4] and the *Rational Method* [5] are two methods for determining the stormwater discharge intensity match, however other similar methods to determine stormwater discharge intensity may be used.

    b. Stormwater discharge volume from fields with impermeable surfaces must not exceed the stormwater discharge volume from equivalent permeable field area for any storm event up to and including the 95th percentile, 24-hour storm event. The *Curve Number Method* [6] is a method for determining the stormwater discharge volume match, however other similar methods to determined stormwater discharge volume may be used.

    c. Description and time schedules of management practices, treatment, and/or control measures implemented to meet design storm requirements and mitigate for increased stormwater runoff from impermeable surfaces must be kept in the Farm Plan. Methods for assessing the effectiveness of each management practice, treatment, and/or control measure include calculation of peak and runoff volumes, visual inspection, photo documentation, and local precipitation event data, however other storm event measurement

[4] The Santa Barbara Urban Hydrograph Method is based on the curve number approach and is useful for sheet flow over a plane surface, called overland flow.
[5] The Rational Method is used to determine peak discharge from runoff in a given area.
[6] The Curve Number Method was developed by the Soil Conservation Service to estimate runoff from rainfall on agricultural fields and provides runoff depth that can be used to calculate runoff volume.

types and recordkeeping that determine the effectiveness of management practices may be used.

Farm Plan

12. At a minimum, the elements of the Farm Plan related to surface water protection must include:

    a. Monitoring and recordkeeping necessary to submit complete and accurate reports, including the ACF.

    b. Planning and management practice implementation and assessment that results in compliance with the surface water limits in **Table C.3-2** (TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity that apply to a ranch based on the ranch location.

    c. Descriptions of all management practices implemented on the ranch, as follows:

        i. All irrigation, nutrient, and salinity management practices (i.e., INMP).
        ii. All pesticide management practices (i.e., PMP), including pesticide application characteristics (e.g., timing, formulations, wind, and rainfall monitoring, etc.) and any integrated pest management (IPM) practices implemented (e.g., scouting, beneficial insects, etc.).
        iii. All sediment, erosion, irrigation, stormwater, road, agricultural drainage pump, and impermeable surface management practices (i.e., SEMP).

Quantifiable Milestones and Time Schedules

13. Dischargers in an area **with an established TMDL** (**Figure C.3-2** for Nutrient TMDL areas, **Figure C.3-3** for Pesticide and Toxicity TMDL areas, and **Figure C.3-4** for Sediment TMDL areas) for a pollutant must not cause or contribute to an exceedance of the pollutant's surface receiving water limit in **Table C.3-2** for nutrients, **Table C.3-4** for pesticides and toxicity, and **Table C.3-6** for sediment in accordance with the compliance dates specified in the applicable table.

14. Dischargers in an area **without an established TMDL** for a pollutant must not cause or contribute to an exceedance of the pollutant's surface receiving water limit in **Table C.3-3** for nutrients, **Table C-3.5** for pesticides and toxicity, and **Table C.3-7** for turbidity in accordance with the compliance dates specified in the applicable table.

15. The surface receiving water limits in **Table C.3-3** for nutrients, **Table C-3.5** for pesticides and toxicity, and **Table C.3-7** for turbidity, apply to all Dischargers unless a specific surface receiving water limit based on a TMDL in **Table C.3-2** for nutrients, **Table C.3-4** for pesticides and toxicity, and **Table C.3-6** for sediment applies to a Discharger.

16. Dischargers in areas where the water quality for a pollutant is better (i.e., of higher quality) than the applicable limit in **Table C.3-2** (TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity must not cause or contribute to an increase of that pollutant in receiving waters, except as consistent with the antidegradation findings of this Order.

17. The discharge of pollutants from a ranch that cause or contribute to an exceedance of the applicable limits after the compliance date in **Table C.3-2** (TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity may result in additional requirements, including obtaining additional education, implementing additional or improved management practices, follow-up monitoring and reporting, ranch-level surface discharge monitoring and reporting, and progressive enforcement actions.

Monitoring and Reporting

18. Dischargers must complete **surface receiving water monitoring and reporting** as described in the MRP, either individually or through a third-party monitoring program approved by the Executive Officer. Dischargers, either individually or through a third-party monitoring program, must submit a work plan, including a SAP and QAPP as described the MRP, for Executive Officer review prior to implementation. Once approved by the Executive Officer, the work plan must be implemented. The work plan must include applicable monitoring for the pollutants in **Table C.3-2** (TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity and must describe the actions that will be taken to achieve the limits in the tables.

19. Dischargers must develop a **follow-up surface receiving water implementation work plan**, either individually or through a third-party program. The work plans per the MRP requirements are subject to Executive Officer approval following a 30-day period to receive written public comments. The work plan due date is based on the Surface Water Priority of the ranch.

a. Individual Dischargers that are not part of a third-party program approved to develop and implement follow-up surface receiving water implementation work plan(s) must submit an individual work plan by the dates specified below, based on the ranch's Surface Water Priority Area defined in **Table C.3-1** of the Order:
   i. March 1, 2023 for Surface Water Priority 1 areas
   ii. March 1, 2024 for Surface Water Priority 2 areas
   iii. March 1, 2025 for Surface Water Priority 3 areas
   iv. March 1, 2026 for Surface Water Priority 4 areas

b. Third-party program(s) approved to develop and implement follow-up surface receiving water implementation work plan(s) on behalf of participating Dischargers must submit work plan(s) by the dates specified below, based on the third-party program surface water priority area. Third-party program surface water priority areas are defined in **Table C.3-1.3P** of the Order:
   i. March 1, 2024 for High Priority areas
   ii. March 1, 2026 for Medium Priority areas
   iii. March 1, 2028 for Low Priority and All Other areas

c. The work plan must include numeric interim quantifiable milestones and follow-up actions, such as outreach, education, and management practice implementation and assessment, and, where applicable for pollutant source identification and abatement, additional surface receiving water monitoring locations. The work plan must include a SAP and QAPP. The work plan must describe the implementation measures that will be taken to reduce the discharge of relevant pollutants and achieve the applicable surface water numeric limits by the compliance dates in **Table C.3-2** (TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity. The work plan must be submitted for Executive Officer review prior to implementation. Once approved, the work plan must be implemented.

d. Prior to the applicable compliance dates in **Table C.3-2** (TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity, Dischargers who elect to participate in a third-party program to develop and implement their work plan will not be subject to ranch-level surface discharge monitoring and reporting.

e. Work plans must take into consideration the level of water quality impairment identified through surface receiving water monitoring. Work plans for areas with persistent exceedances of the surface water limits in **Table C.3-2**

(TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity must identify follow-up actions to restore degraded areas and meet surface receiving water limits (e.g., numeric interim quantifiable milestones, outreach, education, management practice implementation and assessment) and additional surface receiving water monitoring locations for pollutant source identification and abatement. Work plans for areas that are already achieving the surface water limits in **Table C.3-2** (TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity must identify actions to be taken to protect the high-quality areas (e.g., numeric interim quantifiable milestones, outreach and education).

f. Dischargers who elect to develop their work plan individually and whose ranches are located in areas where surface receiving water monitoring shows an exceedance of an applicable surface water limit in **Table C.3-2** (TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity after the applicable compliance deadline may be subject to ranch-level surface discharge monitoring and reporting.

20. When required by the Executive Officer, based on surface receiving water quality data or significant and repeated exceedance of the surface water quality limits in **Table C.3-2** (TMDL areas) and **Table C.3-3** (non-TMDL areas) for nutrients, **Table C.3-4** (TMDL areas) and **Table C-3.5** (non-TMDL areas) for pesticides and toxicity, and **Table C.3-6** (TMDL areas) for sediment and **Table C.3-7** (non-TMDL areas) for turbidity, Dischargers must complete **ranch-level surface discharge monitoring and reporting** as described in the MRP. Dischargers can complete this requirement either individually or as part of a third-party program effort. Water Board staff will coordinate with Dischargers prior to the Executive Officer invoking this requirement to determine if non-compliance is the result of unforeseen or uncontrollable circumstances and to provide the Discharger with 90-day advanced notice of the forthcoming requirement. When ranch-level surface discharge monitoring and reporting is required, a work plan, including a SAP and QAPP, must be submitted for Executive Officer review prior to implementation. Once approved by the Executive Officer, the work plan must be implemented. Ranch-level surface discharge monitoring may be discontinued with the approval of the Executive Officer when the Discharger comes into compliance with the surface receiving water limits, or the discharge has otherwise ceased.

21. Dischargers must report on nutrient, pesticide, and sediment and erosion control management practice implementation and assessment electronically in the ACF, as described in the MRP.

22. Dischargers whose ranches have impermeable surfaces must report on stormwater management practice implementation and assessment electronically in the ACF, as described in the MRP.

23. Dischargers with waterbodies within or bordering their ranch must measure and report the current riparian area (average width and length, in feet) in the ACF, as described in the MRP.

Part 2, Section D. Additional Requirements and Prohibitions

Waste Discharge Control and Prohibitions

1. Except in compliance with this Order, Dischargers must not cause or contribute to exceedances of applicable water quality objectives, as defined in Attachment A, must protect all beneficial uses for inland surface waters, enclosed bays, and estuaries, and for groundwater, as outlined in sections 3.3.2 and 3.3.4 of the Basin Plan, and must prevent nuisance as defined in Water Code section 13050.

2. Dischargers must achieve applicable Total Maximum Daily Load (TMDL) Load Allocations (LAs) by achieving the surface water receiving limits established in this Order. Dischargers must incorporate planning elements from applicable TMDLs into the appropriate section of their Farm Plan and, as appropriate, into their follow-up surface receiving water implementation work plan(s).

3. Dischargers that anticipate exceeding a limit or condition of the Order after the final compliance date has passed may request a time schedule order pursuant to Water Code section 13300 for the Central Coast Water Board's consideration. A time schedule order must be requested 18 months in advance of a Discharger or a group of Dischargers anticipating that they will not be able to achieve the receiving water limit by the compliance date. At a minimum, the request for a time schedule order must include information outlined in Attachment A (Additional Findings). Dischargers may either individually request a time schedule order or may jointly request a time schedule order with other Dischargers subject to the same groundwater or surface receiving water limit.

4. The discharge of rubbish, refuse, trash, irrigation tubing or tape, or other solid wastes into surface waters is prohibited. The placement of such materials where they discharge or have the potential to discharge to surface waters is prohibited.

5. The discharge of chemicals such as fertilizers, fumigants, pesticides, herbicides, or rodenticides down a groundwater well casing is prohibited.

6. The discharge of chemicals, including those used to control wildlife (such as bait traps or poison), directly into surface waters or groundwater is prohibited. The placement of chemicals in a location where they may be discharged to surface waters or groundwater is prohibited.

7. Dischargers who apply fertilizers, fumigants, pesticides, herbicides, rodenticides, or other chemicals through an irrigation system must have functional and properly maintained backflow prevention devices installed at the well or pump to prevent pollution of groundwater and surface water that comply with any applicable DPR requirements or local ordinances. Backflow prevention devices used to protect water quality must be those approved by the United States Environmental Protection Agency (USEPA), DPR, California Department of Public Health (CDPH), or the local public health or water agency.

8. Dischargers must properly destroy all abandoned groundwater wells, exploration holes or test holes, as defined by Department of Water Resources (DWR) Bulletin 74-81 and revised in 1988, in such a manner that they will not produce water or act as a conduit for mixing or otherwise transfer groundwater or waste pollutants between permeable zones or aquifers. Well destruction must be performed in compliance with any applicable DWR requirements or local ordinances (including local well destruction permitting requirements).

9. This Order does not authorize the discharge of pollutants from point sources to waters of the United States, including wetlands. Where required, Dischargers must obtain authorization for such discharges by obtaining a Clean Water Act (CWA) section 402 National Pollutant Discharge Elimination System (NPDES) permit or a CWA section 404 dredge and fill permit.

10. Dischargers who utilize containment structures (such as retention ponds or reservoirs) to achieve treatment or control of the discharge of waste must manage, construct, and maintain such containment structures to avoid discharges of waste to groundwater and surface water that cause or contribute to exceedances of water quality objectives or impairment of beneficial uses. Dischargers may choose the method of compliance appropriate for the individual ranch, which may include, but is not limited to:

    a. Implementing chemical treatment (such as enzymes);
    b. Implementing biological treatment (such as wood chips);
    c. Recycling or reusing contained water to minimize infiltration or discharge of waste;
    d. Minimizing the volume of water in the containment structure to minimize percolation of waste; and/or
    e. Minimizing percolation of waste via a synthetic, concrete, clay, or low permeability soil liner.

11. Dischargers must implement proper handling, storage, disposal, and management of fertilizers, fumigants, pesticides, herbicides, rodenticides, and other chemicals to prevent or control the discharge of waste to waters of the state that causes or contributes to exceedances of water quality standards. All chemical storage areas must have appropriate secondary containment structures to protect water quality and prevent discharge through spillage, mixing, or seepage.

12. Dischargers must implement water quality protective management practices (such as source control or treatment) to prevent erosion, reduce stormwater runoff quantity and velocity, and hold fine particles in place.

13. Dischargers must minimize the presence of bare soil vulnerable to erosion and soil runoff to surface waters and implement erosion control, sediment, and stormwater management practices in non-cropped areas, such as unpaved roads and other heavy use areas.

14. Dischargers who utilize agricultural drainage pumps must implement management practices to dissipate flow and prevent channel and/or streambank erosion resulting in increased sediment transport and turbidity within surface water.

15. Dischargers must comply with any applicable stormwater permits.

16. Dischargers must implement best practicable treatment and control (BPTC) measures for the construction and maintenance of farm roads to minimize erosion and sediment discharges that contribute to nonpoint source pollution.

17. Dischargers must ensure that all farm roads are, to the extent possible, hydrologically disconnected from waters of the state by installing disconnecting drainage features, increasing the frequency of (inside) ditch drain relief as needed, constructing out-sloped roads, constructing energy dissipating structures, avoiding concentrating flows in unstable areas, and performing inspection and maintenance as needed to optimize access road performance.

18. Dischargers must ensure that farm road surfacing, especially within a segment leading to waters of the state, minimizes sediment delivery to waters of the state and maximizes road integrity.

19. Dischargers must ensure that farm roads are out-sloped whenever possible to promote even drainage of the farm road surface, prevent the concentration of stormwater flow within an inboard or inside ditch, and to prevent disruption of the natural sheet flow pattern off a hill slope to waters of the state.

20. Farm road stormwater drainage structures must not discharge onto unstable slopes, earthen fills, or directly into waters of the state. Drainage structures must discharge onto stable areas with straw bales, slash, vegetation, and/or rock riprap.

21. If used, chemical toilets or holding tanks must be maintained in a manner appropriate for the frequency and conditions of usage, sited in stable locations, and located outside of areas bordering surface waterbodies.

22. Dischargers who produce and apply compost in-house must comply with the following requirements:

    a. Materials and activities on-site must not cause, threaten to cause, or contribute to conditions of pollution, contamination, or nuisance;
    b. Activities must be set back at least 100 feet from the nearest surface waterbody and/or the nearest water supply well;
    c. Dischargers must implement practices to minimize or eliminate the discharge of waste that may adversely impact the quality or beneficial uses of waters of the state;
    d. Dischargers must manage the application of water to compost (including from precipitation events) to reduce the generation of wastewater;
    e. Working surfaces must be designed to prevent, to the greatest extent possible, ponding, infiltration, inundation, and erosion, notwithstanding precipitation events, equipment movement, and other aspects of the facility operations;
    f. Dischargers must maintain the following records in the Farm Plan. These records must be submitted to the Central Coast Water Board upon request.
        i. Total operational footprint of compost activities (in acres), including ancillary activities;
        ii. Compost operation records to provide background information on the composting operation history and a description of methods and operation used, including the following: feedstock types, volumes, sources, and suppliers. Description of the method of composting (e.g., windrow, static, forced air, mechanical). Description of how residuals are removed from the feedstocks and managed and/or disposed of.
        iii. Description of water supply.
        iv. Map detailing the location and size (in acres) of the working surface used for the storage of incoming feedstocks, additives, and amendments (receiving area); active and curing composting; final product; drainage patterns; location of any groundwater monitoring wells and water supply wells within and/or near the property boundary; location and distance (in feet) to nearby water supply wells (e.g., municipal supply, domestic supply, agricultural wells) from the nearest property boundary of the operation; identification of all surface waterbodies, including streams, ditches, canals, and other drainage

courses; and distances from the nearest property boundary of the operation to these surface waterbody areas.

v. Records of appropriate monitoring (dependent on method of composting) for composting to develop final product (temperature, turning, air flow, etc.).

vi. Records of final product use, including locations and volumes.

23. Disturbance (e.g., removal, degradation, or destruction) of existing, naturally occurring, and established native riparian vegetative cover (e.g., trees, shrubs, and grasses), unless authorized (e.g., Clean Water Act [CWA] section 404 permit and CWA section 401 certification, WDRs, waivers of WDRs, a California Department of Fish and Wildlife [CDFW] Lake and Streambed Alteration Agreement, or municipal ordinance), is prohibited. Dischargers must avoid disturbance in riparian areas to minimize waste discharges and protect water quality and beneficial uses.

24. In the case where disturbance of riparian areas is authorized, Dischargers must implement appropriate and practicable measures to avoid, minimize, and mitigate erosion and discharges of waste.

Additional Requirements

25. Upon the Central Coast Water Board's request, Dischargers must submit information regarding compliance with any DPR adopted or approved surface water or groundwater protection requirements to the Central Coast Water Board.

26. Upon the Central Coast Water Board's request, Dischargers must submit proof of an approved Lake and Streambed Alteration Agreement or other authorization or release from the CDFW to the Central Coast Water Board for any work conducted within the bed, bank, and channel, including riparian areas, of parcels enrolled in this order, that has the potential to result in erosion and discharges of waste to waters of the State.

27. Upon the Central Coast Water Board's request, Dischargers must submit proof of a Clean Water Act section 404 dredge and fill permit from the United States Army Corps of Engineers (USACE) for any work that has the potential to discharge wastes considered "fill" material, such as sediment, to waters of the United States to the Central Coast Water Board.

28. Dischargers must comply with DWR Bulletin 74-81 and supplement 74-90, Water Code sections 13700 through 13755, and any local permitting requirements associated with installation of new wells.

29. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in

the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C. sections 1531 to 1544). If a "take" will result from any act authorized under this Order, the Dischargers must obtain authorization for an incidental take prior to taking action. Dischargers are responsible for meeting all applicable requirements of the California and federal Endangered Species Acts for the discharge authorized by this Order.

30. Dischargers or a representative authorized by the Discharger must sign technical reports submitted to the Central Coast Water Board to comply with this Order. Any person signing or submitting a document must provide the following certification, whether written or implied:

    "In compliance with Water Code section 13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision, following a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

CERTIFICATION

I, Matthew T. Keeling, Executive Officer, do hereby certify that this General Order with all its attachments is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Central Coast Region on April XX, 2021.

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Matthew T. Keeling, Executive Officer

Tables and Figures

Tables and Figures related to Part 2, Section C.1. Groundwater Protection

Table C.1-1. Groundwater Phase Areas

Groundwater Basin[1]	Groundwater Phase
Gilroy-Hollister Valley - Llagas Area	Phase 1, Phase 2
Salinas Valley - Forebay Aquifer	Phase 1, Phase 2
Salinas Valley - Upper Valley Aquifer	Phase 1, Phase 2
Santa Maria River Valley - Santa Maria	Phase 1, Phase 2
Santa Ynez River Valley	Phase 1, Phase 3
Corralitos - Pajaro Valley	Phase 2
Gilroy Hollister Valley - North San Benito	Phase 2
Salinas Valley - 180/400 Foot Aquifer	Phase 2
Salinas Valley - East Side Aquifer	Phase 2
San Luis Obispo Valley	Phase 2
All Other Basins and Areas Outside of Basins	Phase 3

[1]As defined in the 2019 California Department of Water Resources Bulletin 118.

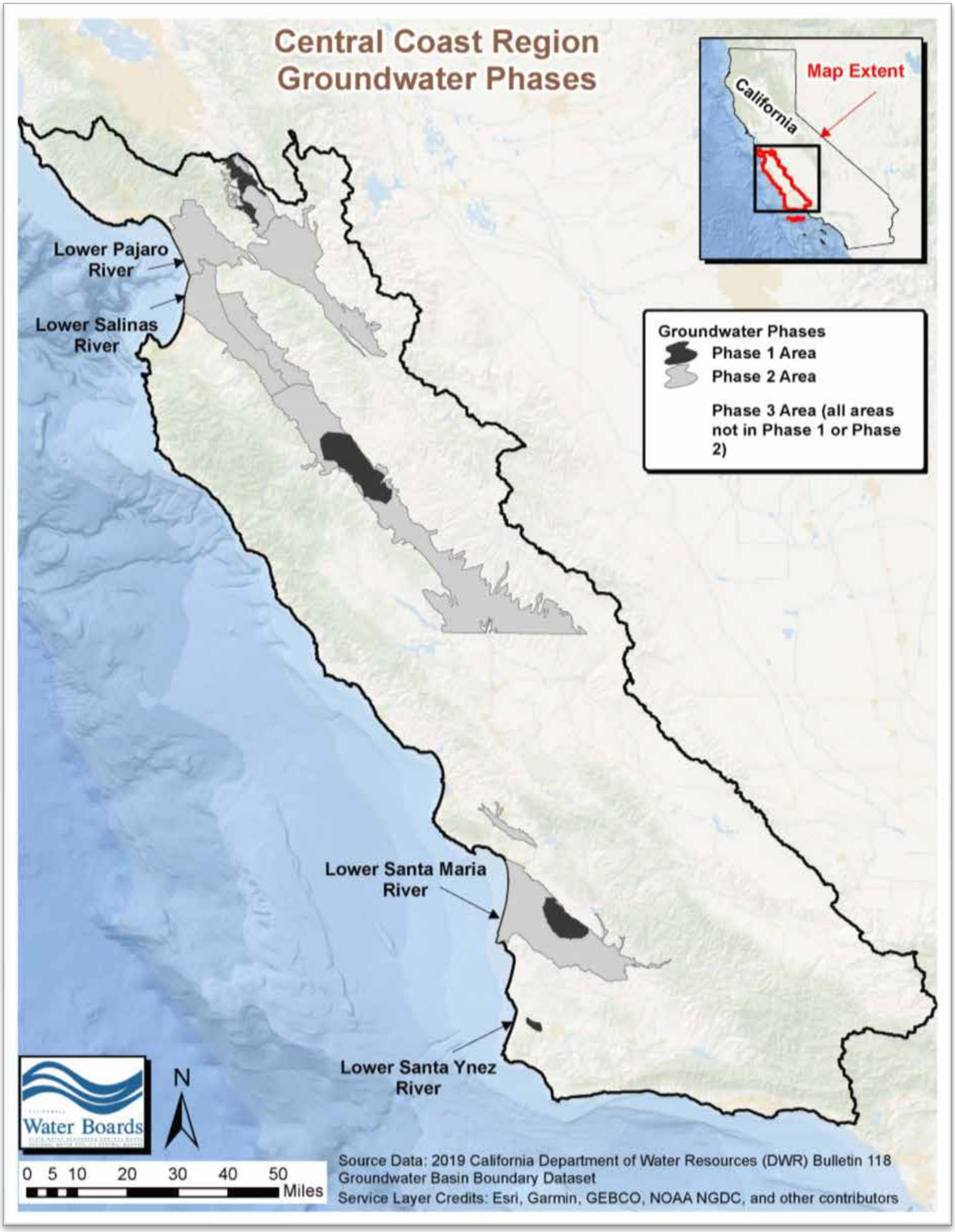


Figure C.1-1: Groundwater Phase Areas

Table C.1-2. Compliance Dates for Fertilizer Nitrogen Application Limits

Crop	90th Percentile A_{FER} =	Compliance Date	85th Percentile A_{FER} =	Compliance Date
Broccoli	295	12/31/2023	280	12/31/2025
Cauliflower	310		285	
Celery	360		330	
Lettuce	275		255	
Spinach	245		230	
Strawberry	320		295	
All Other Crops	500		480	

Note: For crops grown for less than one year (e.g., broccoli, lettuce, etc.), units are in pounds of nitrogen per acre per crop. In the situation where a Discharger grows a crop more than once during the year, e.g. grows a spring lettuce and a fall lettuce, the application limit applies to each of the crops separately: no more than 275 pounds of nitrogen per acre can be applied to the spring lettuce crop and no more than 275 pounds of nitrogen per acre can be applied to the fall lettuce crop. The two lettuce crops can be reported on separately or can be averaged together. For crops grown for more than one year (e.g., grapes, trees, etc.), units are in pounds of nitrogen per acre per year. The 90th and 85th percentile fertilizer nitrogen application limits were determined by using year 2014 to 2019 total nitrogen applied (TNA) reporting information.

Table C.1-3. Compliance Dates for Nitrogen Discharge Targets and Limits

	Compliance Date		
Compliance Pathway 1 $A_{FER} + (C \times A_{COMP}) + (O \times A_{ORG}) + A_{IRR} - R =$	Target	500	12/31/2023
	Target	400	12/31/2025
	Limit	300	12/31/2027
	Limit	200	12/31/2031
	Limit	150	12/31/2036
	Limit	100	12/31/2041
	Limit	50	12/31/2051
OR			
	Compliance Date		
Compliance Pathway 2 $A_{FER} + (C \times A_{COMP}) + (O \times A_{ORG}) = R$	Target	A = R	12/31/2023
	Target	A = R	12/31/2025
	Limit	A = R	12/31/2027
	Limit	A = R	12/31/2031
	Limit	A = R	12/31/2036
	Limit	A = R	12/31/2041
	Limit	A = R	12/31/2051
OR			
	Compliance Date		
Compliance Pathway 3 $A_{FER} + (C \times A_{COMP}) + (O \times A_{ORG}) - R =$	Target	300	12/31/2023
	Target	200	12/31/2025
	Limit	100	12/31/2027
	Limit	0	12/31/2031
	Limit	-50	12/31/2036
	Limit	-100	12/31/2041
	Limit	-150	12/31/2051

Note: All units are in pounds of nitrogen per acre per year and represent all crops grown and harvested on the entire ranch. The initial 2027 nitrogen discharge limits will be re-evaluated based on discharger reported nitrogen applied and removed data, new science, and management practice implementation and assessment before becoming effective.

$\mathbf{A_{FER}}$ is the amount of fertilizer nitrogen applied in pounds per acre.
C is the compost discount factor used to represent the amount of compost nitrogen mineralized during the year that the compost was applied.
$\mathbf{A_{COMP}}$ is the total amount of compost nitrogen applied in pounds per acre.
$\mathbf{A_{IRR}}$ is the amount of nitrogen applied in the irrigation water estimated from the volume required for crop evapotranspiration (ET) in pounds per acre.
O is the organic fertilizer discount factor used to represent the amount of nitrogen mineralized during the first 12 weeks in the year it was applied.
$\mathbf{A_{ORG}}$ is the total amount of organic fertilizer or amendment nitrogen applied in pounds per acre.
R is the amount of nitrogen removed from the field through harvest, sequestration, or other removal methods, in pounds per acre.

Note: Report due dates to confirm compliance with the fertilizer application limits and nitrogen discharge targets and limits are included in the MRP.

Tables and Figures related to Part 2, Section C.2. Third-Party Alternative Compliance Pathway for Groundwater Protection

Table C.2-1. Compliance Dates for Fertilizer Nitrogen Application Targets (Alternative Compliance Pathway)

Crop	90th Percentile A_{FER} =	Compliance Date	85th Percentile A_{FER} =	Compliance Date
Broccoli	295	12/31/2024	280	12/31/2026
Cauliflower	310		285	
Celery	360		330	
Lettuce	275		255	
Spinach	245		230	
Strawberry	320		295	
All Other Crops	500		480	

Note: For crops grown for less than one year (e.g., broccoli, lettuce, etc.), units are in pounds of nitrogen per acre per crop. In the situation where a Discharger grows a crop more than once during the year, e.g. grows a spring lettuce and a fall lettuce, the application limit applies to each of the crops separately: no more than 275 pounds of nitrogen per acre can be applied to the spring lettuce crop and no more than 275 pounds of nitrogen per acre can be applied to the fall lettuce crop. The two lettuce crops can be reported on separately or can be averaged together. For crops grown for more than one year (e.g., grapes, trees, etc.), units are in pounds of nitrogen per acre per year. The 90th and 85th percentile fertilizer nitrogen application targets were determined by using year 2014 to 2019 total nitrogen applied (TNA) reporting information.

Table C.2-2. Compliance Dates for Nitrogen Discharge Targets (Alternative Compliance Pathway)

Compliance Pathway	Target	Compliance Date
Compliance Pathway 1 $A_{FER} + (C \times A_{COMP}) + (O \times A_{ORG}) + A_{IRR} - R =$	500	12/31/2024
	400	12/31/2026
	300	12/31/2028
OR		
Compliance Pathway 2 $A_{FER} + (C \times A_{COMP}) + (O \times A_{ORG}) = R$	A = R	12/31/2024
	A = R	12/31/2026
	A = R	12/31/2028
OR		
Compliance Pathway 3 $A_{FER} + (C \times A_{COMP}) + (O \times A_{ORG}) - R =$	300	12/31/2024
	200	12/31/2026
	100	12/31/2028

Notes: All units are in pounds of nitrogen per acre per year and represent all crops grown and harvested on the entire ranch. All compliance pathway variables are defined above under **Table C.1-3**. The final 2028 nitrogen discharge targets will be re-evaluated based on discharger reported nitrogen applied and removed data, new science, management practice implementation and assessment, and third-party GWP collective numeric interim and final targets before becoming effective.

Tables and Figures related to Part 2, Section C.3. Surface Water Protection

Table C.3-1. Surface Water Priority Areas

HUC-8 Number[1]	HUC-8 Name	Surface Water Priority
18060008	Santa Maria	Priority 1
18060005	Salinas	Priority 2
18060002	Pajaro	Priority 3
18060015	Monterey Bay	Priority 3
18060010	Santa Ynez	Priority 3
18050003	Coyote	Priority 4
18050006	San Francisco Coastal South	Priority 4
18060004	Estrella	Priority 4
18060006	Central Coastal	Priority 4
18060003	Carrizo Plain	Priority 4
18060007	Cuyama	Priority 4
18060009	San Antonio	Priority 4
18060013	Santa Barbara Coastal	Priority 4
18060014	Santa Barbara Channel Islands	Priority 4
18070101	Ventura	Priority 4

[1]As defined by the National Hydrography Dataset Plus Watershed Boundary Dataset

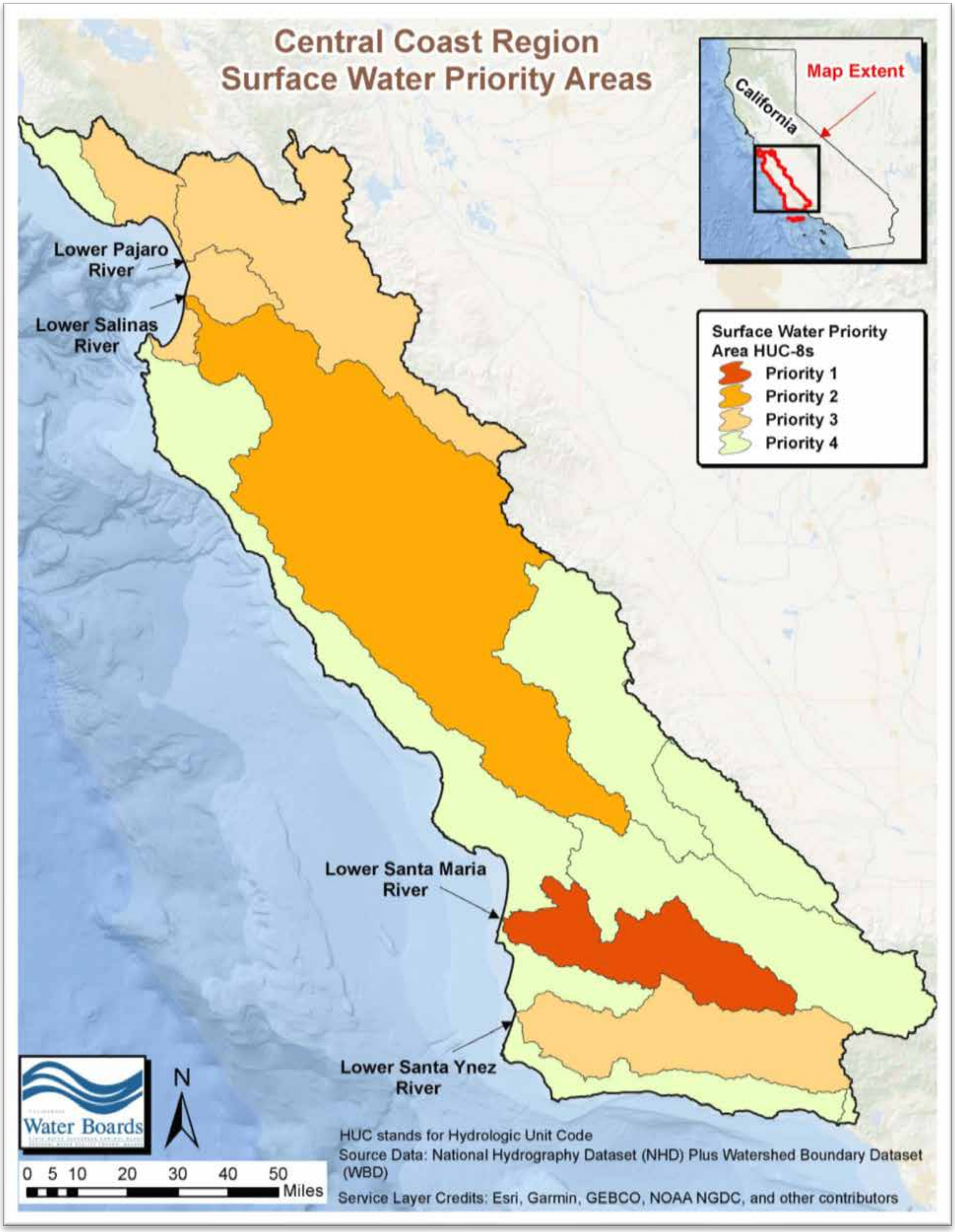


Figure C-3.1: Surface Water Priority Areas

Table C.3-1.3P. Surface Water Priority Areas (Third-Party Program)

High Priority	
305FUF	Furlong Creek at Frazier Lake Road
309ALG	Salinas Reclamation Canal at La Guardia
309CCD	Chualar Creek west of Highway 101
309CRR	Chualar Creek North Branch east of Highway 101
309ESP	Espinosa Slough upstream from Alisal Slough
309JON	Salinas Reclamation Canal at San Jon Road
309MER	Merrit Ditch upstream of Highway 183
309NAD	Natividad Creek upstream of Salinas Reclamation Canal
309OLD	Old Salinas River at Monterey Dunes Way
309QUI	Quail Creek at culvert on east side of Highway 101
309TEH	Tembladero Slough at Haro Street
312BCC	Bradley Canyon Creek at Culvert
312BCJ	Bradley Channel at Jones Street
312GVS	Green Valley at Simas
312MSD	Main Street Canal upstream of Ray Road at Highway 166
312OFC	Oso Flaco Creek at Oso Flaco Lake Road
312ORC	Orcutt Solomon Creek upstream of Santa Maria River
312ORI	Orcutt Solomon Creek at Highway 1
312SMA	Santa Maria River at Estuary
Medium Priority	
305BRS	Beach Road Ditch at Shell Road
305CAN	Carnadero Creek upstream of Pajaro River
305CHI	Pajaro River at Chittenden Gap
305FRA	Pajaro River Millers Canal at Frazier Lake Road
305LCS	Llagas Creek at Southside Avenue
305PJP	Pajaro River at Main Street
305SJA	San Juan Creek at Anzar Road
305TSR	Tequisquita Slough upstream of Pajaro River at Shore Road
305WCS	Watsonville Creek at Elkhorn Road / Hudson Landing
309ASB	Alisal Slough at White Barn
309BLA	Blanco Drain below Pump
309GAB	Gabilan Creek at Boronda Road
309MOR	Moro Cojo Slough at Highway 1
309RTA	Santa Rita Creek at Santa Rita Creek Park
310LBC	Los Berros Creek at Century Road
310PRE	Prefumo Creek at Calle Joaquin
310USG	Arroyo Grande Creek at old USGS Gauge
310WRP	Warden Creek at Wetlands Restoration Preserve
312OFN	Little Oso Flaco Creek
312SMI	Santa Maria at Highway 1
313SAE	San Antonio Creek at San Antonio Road east
314SYN	Santa Ynez River at 13th
315BEF	Bell Creek at Winchester Canyon Park
315FMV	Franklin Creek at Mountain View Lane
315GAN	Glenn Annie Creek
315LCC	Los Carneros Creek at Calle Real

Low Priority	
305COR	Salsipuedes Creek downstream of Corralitos Creek upstream of HWY 129
305WSA	Watsonville Slough at San Andreas Road
309GRN	Salinas River (Mid) at Elm Road in Greenfield
309SAC	Salinas River at Chualar
309SAG	Salinas River at Gonzales River Road Bridge
309SSP	Salinas River (Lower) at Spreckles Gauge
310CCC	Chorro Creek upstream of Chorro Flats
314SYF	Santa Ynez River at Flordale
314SYL	Santa Ynez River at River Park
315APF	Arroyo Paredon Creek at Foothill Bridge
All Other Areas	Low priority also includes all other areas not in high or medium priority areas

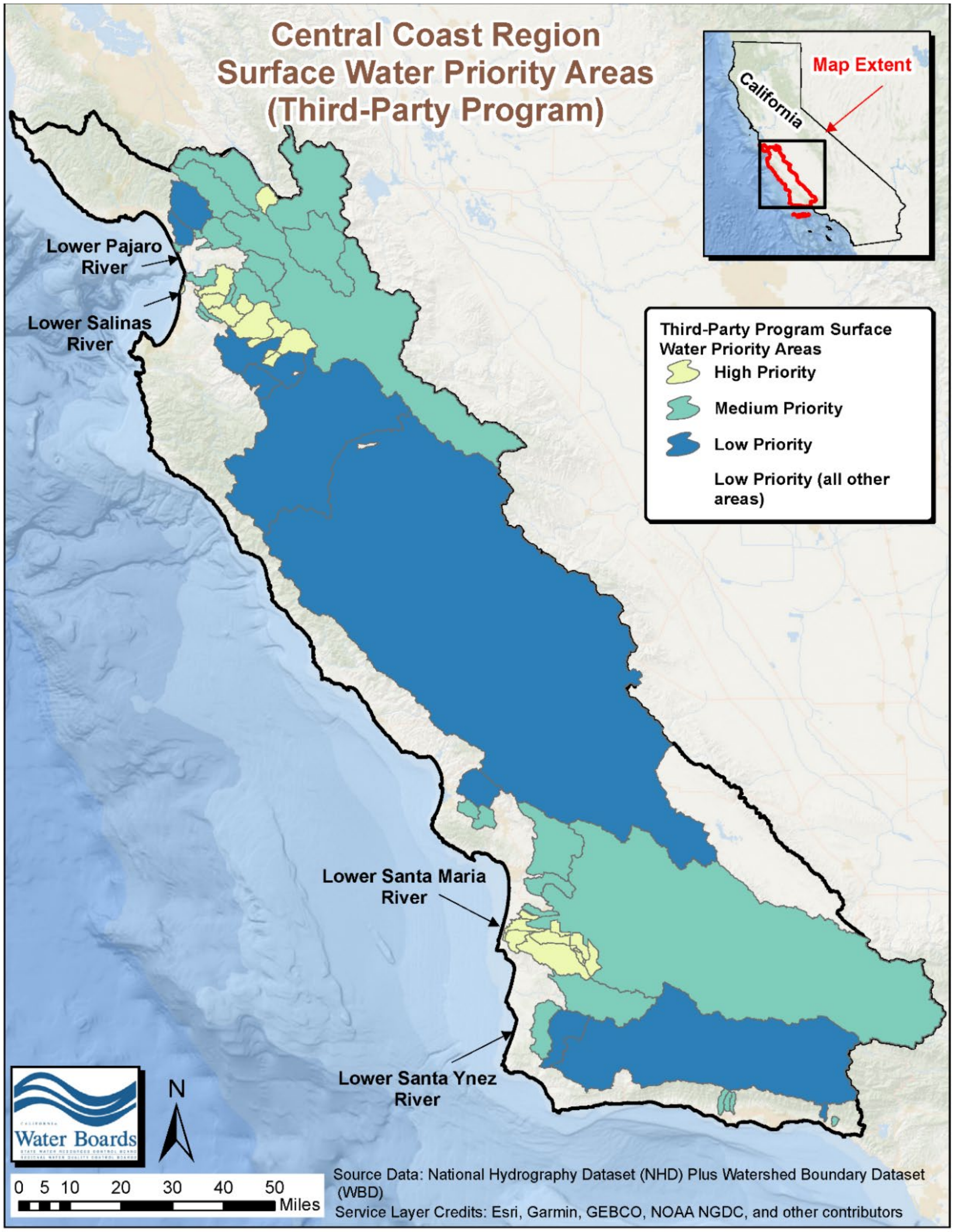


Figure C-3.1.3P: Surface Water Priority Areas (Third-Party Program)

Table C.3-2. Compliance Dates for Nutrient Limits (TMDL areas)

TMDL Project Name	Constituent	Matrix	Limit[1]	Units[2]	Compliance Date
Arroyo Paredon Nitrate TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032
Bell Creek Nitrate TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032
Franklin Creek Nutrients TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032
Franklin Creek Nutrients TMDL	Total Nitrogen, as N	Water Column	Wet Season: 8.0	mg/L	3/4/2034
Franklin Creek Nutrients TMDL	Total Phosphorous	Water Column	Wet Season: 0.3	mg/L	3/4/2034
Franklin Creek Nutrients TMDL	Total Nitrogen, as N	Water Column	Dry Season: 1.1	mg/L	3/4/2044
Franklin Creek Nutrients TMDL	Total Phosphorous	Water Column	Dry Season: 0.075	mg/L	3/4/2044
Glen Annie Canyon, Tecolotito Creek, & Carneros Creek Nitrate TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032
Los Berros Creek Nitrate TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032
Los Osos Creek, Warden Creek, and Warden Lake Wetland Nutrient TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032

TMDL Project Name	Constituent	Matrix	Limit[1]	Units[2]	Compliance Date
Lower Salinas River Watershed Nutrient TMDL	Ammonia (Un-Ionized), as N[3]	Water Column	0.025	mg/L	12/31/2032
Lower Salinas River Watershed Nutrient TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032
Lower Salinas River Watershed Nutrient TMDL	Total Nitrogen, as N[4]	Water Column	Wet Season: 8.0	mg/L	5/7/2034
Lower Salinas River Watershed Nutrient TMDL	Nitrate, as N	Water Column	Wet Season: 8.0	mg/L	5/7/2034
Lower Salinas River Watershed Nutrient TMDL	Orthophosphate, as P	Water Column	Wet Season: 0.3	mg/L	5/7/2034
Lower Salinas River Watershed Nutrient TMDL	Total Nitrogen, as N[4]	Water Column	Dry Season: 1.7	mg/L	5/7/2044
Lower Salinas River Watershed Nutrient TMDL	Nitrate, as N	Water Column	Dry Season: 1.4 – 6.4[1]	mg/L	5/7/2044
Lower Salinas River Watershed Nutrient TMDL	Orthophosphate, as P	Water Column	Dry Season: 0.07 – 0.13[1]	mg/L	5/7/2044

TMDL Project Name	Constituent	Matrix	Limit[1]	Units[2]	Compliance Date
Pajaro River Watershed Nutrient TMDL	Ammonia (Un-ionized), as N[3]	Water Column	0.025	mg/L	12/31/2032
Pajaro River Watershed Nutrient TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032
Pajaro River Watershed Nutrient TMDL	Total Nitrogen, as N	Water Column	Wet Season: 8.0	mg/L	12/31/2032
Pajaro River Watershed Nutrient TMDL	Nitrate, as N	Water Column	Wet Season: 8.0	mg/L	12/31/2032
Pajaro River Watershed Nutrient TMDL	Orthophosphate, as P	Water Column	Wet Season: 0.3	mg/L	12/31/2032
Pajaro River Watershed Nutrient TMDL	Total Nitrogen, as N[5]	Water Column	Dry Season: 1.1 – 2.1[1]	mg/L	7/12/2041
Pajaro River Watershed Nutrient TMDL	Nitrate, as N	Water Column	Dry Season: 1.8 – 3.9[1]	mg/L	7/12/2041
Pajaro River Watershed Nutrient TMDL	Orthophosphate, as P	Water Column	Dry Season: 0.04 – 0.14[1]	mg/L	7/12/2041
San Luis Obispo Creek Nitrate TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032

TMDL Project Name	Constituent	Matrix	Limit[1]	Units[2]	Compliance Date
Santa Maria River Watershed Nutrients TMDL	Ammonia (Un-Ionized), as N[3]	Water Column	0.025	mg/L	12/31/2032
Santa Maria River Watershed Nutrients TMDL	Nitrate, as N	Water Column	10.0	mg/L	12/31/2032
Santa Maria River Watershed Nutrients TMDL	Nitrate, as N	Water Column	Wet Season or Year-Round: 5.7 – 8.0[1]	mg/L	5/22/2034
Santa Maria River Watershed Nutrients TMDL	Orthophosphate, as P	Water Column	Wet Season or Year-Round: 0.08 – 0.3[1]	mg/L	5/22/2034
Santa Maria River Watershed Nutrients TMDL	Nitrate, as N	Water Column	Dry Season: 4.3	mg/L	5/22/2044
Santa Maria River Watershed Nutrients TMDL	Orthophosphate, as P	Water Column	Dry Season: 0.19	mg/L	5/22/2044

[1]The Lower Salinas River Watershed Nutrient TMDL, Pajaro River Watershed Nutrient TMDL, and Santa Maria River Watershed Nutrient TMDL include load allocations for specific waterbody reaches within the TMDL project area. The limits for those TMDLs are summarized in this table as ranges; however, the exact load allocation values for each reach apply as described in the TMDL and Basin Plan and will be assessed as numeric limits for the purposes of this Order.
[2]mg/L is milligrams per liter
[3]Calculated using total ammonia and onsite instream measurements (field measurements) of pH and water temperature.
[4]Total nitrogen TMDL load allocation applies to Moro Cojo Slough only.
[5]Total nitrogen TMDL load allocation applies to the following sloughs: Watsonville, Harkins, Gallighan, and Struve.

Table C.3-3. Compliance Dates for Nutrient Limits (Non-TMDL areas)

Constituent Group	Constituent	Matrix	Limit	Units[1]	Compliance Date
Nutrients	Nitrate, as Nitrogen	Water Column	10.0	mg/L	12/31/2032
Nutrients	Ammonia (un-ionized), as Nitrogen[2]	Water Column	0.025	mg/L	12/31/2032

[1]mg/L is milligrams per liter
[2]Calculated using total ammonia and onsite instream measurements (field measurements) of pH and water temperature.

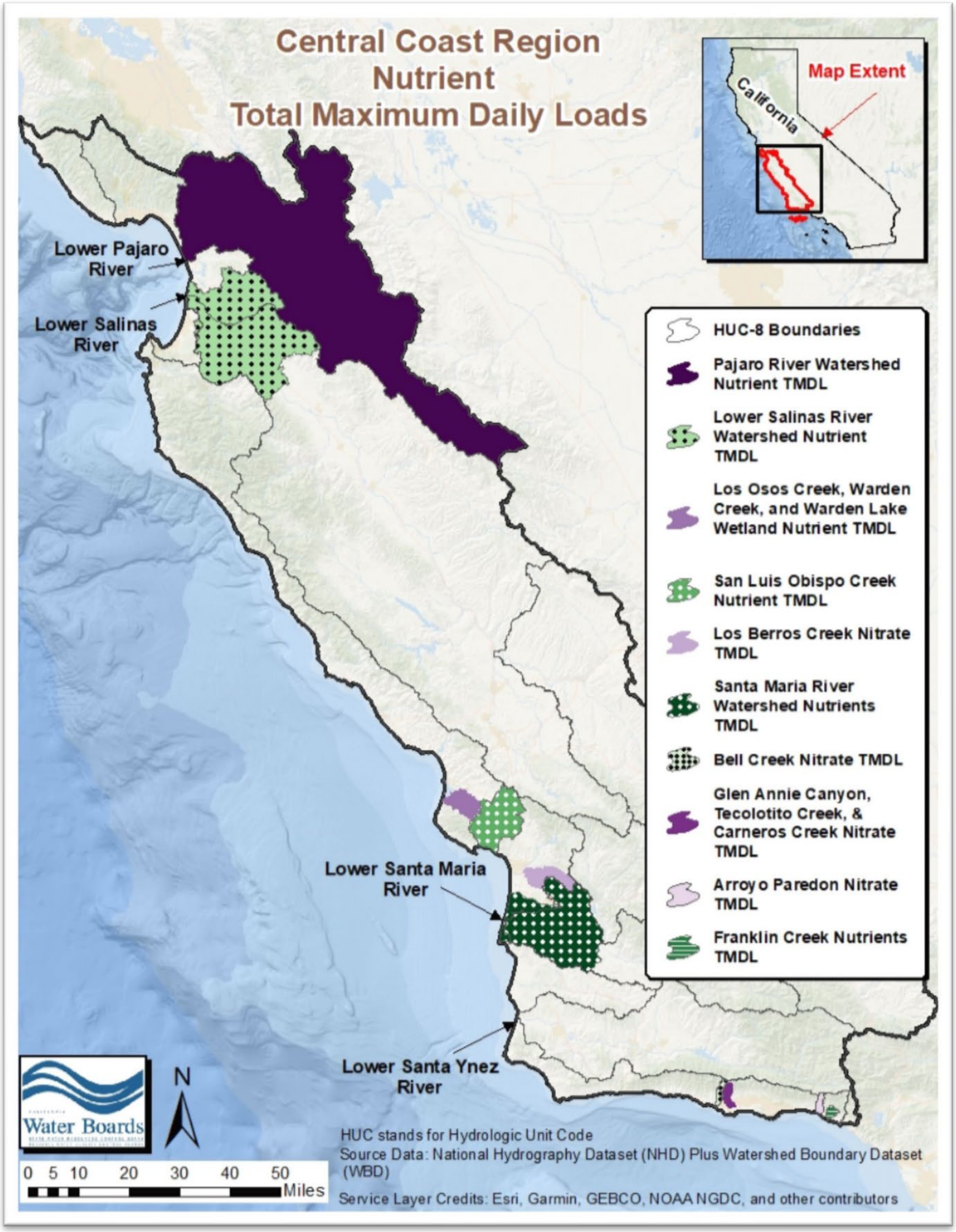


Figure C.3-2: Nutrient TMDL Areas

Table C.3-4. Compliance Dates for Pesticide and Toxicity Limits (TMDL areas)

TMDL Project Name	Constituent[1]	Matrix	Limit[2]	Units[3]	Compliance Date
Arroyo Paredon Diazinon TMDL	Additive Toxicity (Chlorpyrifos and Diazinon)	Water Column	Sum of Additive Toxicity, TU ≤ 1.0	TU	12/31/2032
Arroyo Paredon Diazinon TMDL	Diazinon	Water Column	CCC: 0.10 CMC: 0.16	µg/L	12/31/2032
Lower Salinas River Watershed Chlorpyrifos and Diazinon TMDL	Chlorpyrifos[4]	Water Column	CCC: 0.015 CMC: 0.025	µg/L	12/31/2032
Lower Salinas River Watershed Chlorpyrifos and Diazinon TMDL	Diazinon[4]	Water Column	CCC: 0.10 CMC: 0.16	µg/L	12/31/2032
Lower Salinas River Watershed Chlorpyrifos and Diazinon TMDL	Additive Toxicity (Chlorpyrifos and Diazinon)	Water Column	Sum of Additive Toxicity, TU ≤ 1.0	TU	12/31/2032

TMDL Project Name	Constituent[1]	Matrix	Limit[2]	Units[3]	Compliance Date
Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL	Additive Toxicity (Pyrethroids)	Sediment	Sum of Pyrethroid TU < 1.0	TU	12/31/2032
Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL	Aquatic Toxicity	Sediment	No significant toxic effect, 10-day, chronic exposure with *Hyalella azteca*	Survival endpoint	12/31/2032
Pajaro River Watershed Chlorpyrifos and Diazinon TMDL	Additive Toxicity (Chlorpyrifos and Diazinon)	Water Column	Sum of Additive Toxicity, TU ≤ 1.0	TU	12/31/2032
Pajaro River Watershed Chlorpyrifos and Diazinon TMDL	Chlorpyrifos	Water Column	CCC: 0.015 CMC: 0.025	µg/L	12/31/2032
Pajaro River Watershed Chlorpyrifos and Diazinon TMDL	Diazinon	Water Column	CCC: 0.10 CMC: 0.16	µg/L	12/31/2032

TMDL Project Name	Constituent[1]	Matrix	Limit[2]	Units[3]	Compliance Date
Pajaro River Watershed Chlorpyrifos and Diazinon TMDL	Aquatic Toxicity	Sediment	No significant toxic effect, 10-day, chronic exposure with *Hyalella azteca*	Survival and reproduction endpoints	12/31/2032
Pajaro River Watershed Chlorpyrifos and Diazinon TMDL	Aquatic Toxicity	Water Column	No significant toxic effect, 7-day, chronic exposure with *Ceriodaphnia dubia*	Survival and reproduction endpoints	12/31/2032
Santa Maria River Watershed Toxicity and Pesticide TMDL	Additive Toxicity (Chlorpyrifos and Diazinon)	Water Column	Sum of Additive Toxicity, TU ≤ 1.0	TU	12/31/2032
Santa Maria River Watershed Toxicity and Pesticide TMDL	Chlorpyrifos	Water Column	CCC: 0.015 CMC: 0.025	µg/L	12/31/2032
Santa Maria River Watershed Toxicity and Pesticide TMDL	Diazinon	Water Column	CCC: 0.10 CMC: 0.16	µg/L	12/31/2032

TMDL Project Name	Constituent[1]	Matrix	Limit[2]	Units[3]	Compliance Date
Santa Maria River Watershed Toxicity and Pesticide TMDL	Malathion	Water Column	CCC: 0.028 CMC: 0.17	µg/L	12/31/2032
Santa Maria River Watershed Toxicity and Pesticide TMDL	Additive Toxicity (Pyrethroids)	Sediment	Sum of Pyrethroid TU ≤ 1.0	TU	12/31/2032
Santa Maria River Watershed Toxicity and Pesticide TMDL	Aquatic Toxicity	Sediment	No significant toxic effect, 10-day, chronic exposure with *Hyalella azteca*	Survival endpoint	Not Defined[5]
Santa Maria River Watershed Toxicity and Pesticide TMDL	Aquatic Toxicity	Water Column	No significant toxic effect, 6-8 day, chronic exposure with *Ceriodaphnia dubia*	Survival and reproduction endpoints	Not Defined[5]
Santa Maria River Watershed Toxicity and Pesticide TMDL	4,4’-DDT (p,p-DDT)	Sediment	6.5	µg/kg o.c.	10/29/2044

TMDL Project Name	Constituent[1]	Matrix	Limit[2]	Units[3]	Compliance Date
Santa Maria River Watershed Toxicity and Pesticide TMDL	4,4'-DDE (p,p-DDE)	Sediment	5.5	µg/kg o.c.	10/29/2044
Santa Maria River Watershed Toxicity and Pesticide TMDL	4,4'-DDD (p,p-DDD)	Sediment	9.1	µg/kg o.c.	10/29/2044
Santa Maria River Watershed Toxicity and Pesticide TMDL	Total DDT (Sediment)	Sediment	10.0	µg/kg o.c.	10/29/2044
Santa Maria River Watershed Toxicity and Pesticide TMDL	Chlordane	Sediment	1.7	µg/kg o.c.	10/29/2044
Santa Maria River Watershed Toxicity and Pesticide TMDL	Dieldrin	Sediment	0.14	µg/kg o.c.	10/29/2044
Santa Maria River Watershed Toxicity and Pesticide TMDL	Endrin	Sediment	550.0	µg/kg o.c.	10/29/2044

TMDL Project Name	Constituent[1]	Matrix	Limit[2]	Units[3]	Compliance Date
Santa Maria River Watershed Toxicity and Pesticide TMDL	Toxaphene	Sediment	20.0	µg/kg o.c.	10/29/2044

[1]Toxic units and/or additive toxicity units are calculated using the relevant biological indicators, as described in the applicable TMDL, e.g. LC50, CCC, or CMC.
[2]CCC is Criterion Continuous Concentration or chronic (4-day (96-hour) average), not to be exceeded more than once in a three year period; CMC is Criterion Maximum Concentration or acute (1- hour average) not to be exceeded more than once in a three year period; the sum of additive toxicity is calculated by dividing each measured chemical concentration by that chemical's criterion (CCC or CMC) and summing those values as defined in the staff report for the respective TMDL project.
[3]µg/L is micrograms per liter; µg/kg is micrograms per kilogram; ng/g is nanograms per gram; o.c. means normalized for sediment organic carbon content; ppb is parts per million.
[4]Apply only when one of the two compounds (chlorpyrifos or diazinon) is present.
[5]A time schedule for aquatic toxicity was not identified in the Santa Maria River Watershed Toxicity and Pesticide TMDL; therefore, Dischargers in this area must comply with the aquatic toxicity compliance date defined in Table C.3-2.

Table C-3.5. Compliance Dates for Pesticide and Toxicity Limits (Non-TMDL areas)

Constituent Group	Constituent	Matrix	Limit[1]	Units[2]	Compliance Date
Pesticides	Acetamiprid	Water Column	2.10	μg/L	12/31/2032
Pesticides	Atrazine	Water Column	60.0	μg/L	12/31/2032
Pesticides	Bifenthrin	Sediment	0.52	μg/g o.c.	12/31/2032
Pesticides	Chlorpyrifos	Water Column	0.023	μg/L	12/31/2032
Pesticides	Chlorpyrifos	Sediment	1.77	μg/g o.c.	12/31/2032
Pesticides	Clothianidin	Water Column	0.05	μg/L	12/31/2032
Pesticides	Cyanazine	Water Column	27.0	μg/L	12/31/2032
Pesticides	Cyfluthrin	Sediment	1.08	μg/g o.c.	12/31/2032
Pesticides	Cypermethrin	Sediment	0.38	μg/g o.c.	12/31/2032
Pesticides	Danitol (fenpropathrin)	Sediment	1.10	μg/g o.c.	12/31/2032
Pesticides	Demeton-s-methyl sulfoxide (oxydemeton-methyl)	Water Column	46	μg/L	12/31/2032
Pesticides	Diazinon	Water Column	0.105	μg/L	12/31/2032
Pesticides	Dichlorvos	Water Column	0.0058	μg/L	12/31/2032
Pesticides	Dimethoate	Water Column	0.50	μg/L	12/31/2032
Pesticides	Dinotefuran	Water Column	23.5	μg/L	12/31/2032
Pesticides	Disulfoton (Disyton)	Water Column	0.01	μg/L	12/31/2032
Pesticides	Diuron	Water Column	80.0	μg/L	12/31/2032
Pesticides	Esfenvalerate	Sediment	1.54	μg/g o.c.	12/31/2032
Pesticides	Fenvalerate	Sediment	1.54	μg/g o.c.	12/31/2032
Pesticides	Glyphosate	Water Column	26,600	μg/L	12/31/2032
Pesticides	Imidacloprid	Water Column	0.01	μg/L	12/31/2032
Pesticides	Cyhalothrin, lambda	Sediment	0.45	μg/g o.c.	12/31/2032
Pesticides	Linuron	Water Column	0.09	μg/L	12/31/2032
Pesticides	Malathion	Water Column	0.049	μg/L	12/31/2032
Pesticides	Methamidophos	Water Column	4.50	μg/L	12/31/2032
Pesticides	Methidathion	Water Column	0.66	μg/L	12/31/2032

Constituent Group	Constituent	Matrix	Limit[1]	Units[2]	Compliance Date
Pesticides	Paraquat	Water Column	< 36.9	µg/L	12/31/2032
Pesticides	Parathion-methyl	Water Column	0.25	µg/L	12/31/2032
Pesticides	Permethrin	Sediment	10.83	µg/g o.c.	12/31/2032
Pesticides	Phorate	Water Column	0.21	µg/L	12/31/2032
Pesticides	Phosmet	Water Column	0.80	µg/L	12/31/2032
Pesticides	Simazine	Water Column	40.0	µg/L	12/31/2032
Pesticides	Thiacloprid	Water Column	0.97	µg/L	12/31/2032
Pesticides	Thiamethoxam	Water Column	0.74	µg/L	12/31/2032
Pesticides	Trifluralin	Water Column	2.40	µg/L	12/31/2032
Toxicity	Sediment Toxicity	Sediment	No significant effect based on chronic or acute toxicity to applicable test organism	Survival, growth, and reproduction endpoints[3]	12/31/2032
Toxicity	Water Column Toxicity	Water Column	No significant effect based on chronic or acute toxicity to applicable test organism	Survival, growth, and reproduction endpoints[3]	12/31/2032
Toxicity	Toxic Units	Sediment	Sum of additive toxicity ≤ 1	Toxic Unit (TU)[4]	12/31/2032
Toxicity	Toxic Units	Water Column	Sum of additive toxicity ≤ 1	Toxic Unit (TU)[4]	12/31/2032

[1]Attachment A to this Order describes the sources of the limits established in this table.
[2]µg/L is micrograms per liter; µg/kg is micrograms per kilogram; ng/g is nanograms per gram; o.c. means normalized for sediment organic carbon content; ppb is parts per million.
[3]Toxicity determinations will be pass/fail based on a comparison of the test organism's response (survival, growth, and reproduction) to the water sample compared to the control using the Test of Significant Toxicity (TST statistical approach), or a statistical t-test, based on the toxicity provisions in the State Water Board *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries in California* (in draft). If a sample is declared "fail" (i.e., toxic) for any endpoint, then the limit is not met. The most sensitive test species for each constituent must be used when evaluating toxicity.
[4]Toxic units (TU) and/or additive toxicity units are calculated using the relevant biological indicators, e.g. LC50, CCC, or CMC as follows: Calculate additive toxicity for organophosphate pesticides in non-TMDL watersheds as defined in the TMDL for Chlorpyrifos and Diazinon in the Lower Salinas River Watershed; and calculate TUs for pyrethroid pesticides in non-TMDL watersheds as defined in the TMDL for Sediment Toxicity and Pyrethroids in the Lower Salinas River Watershed.

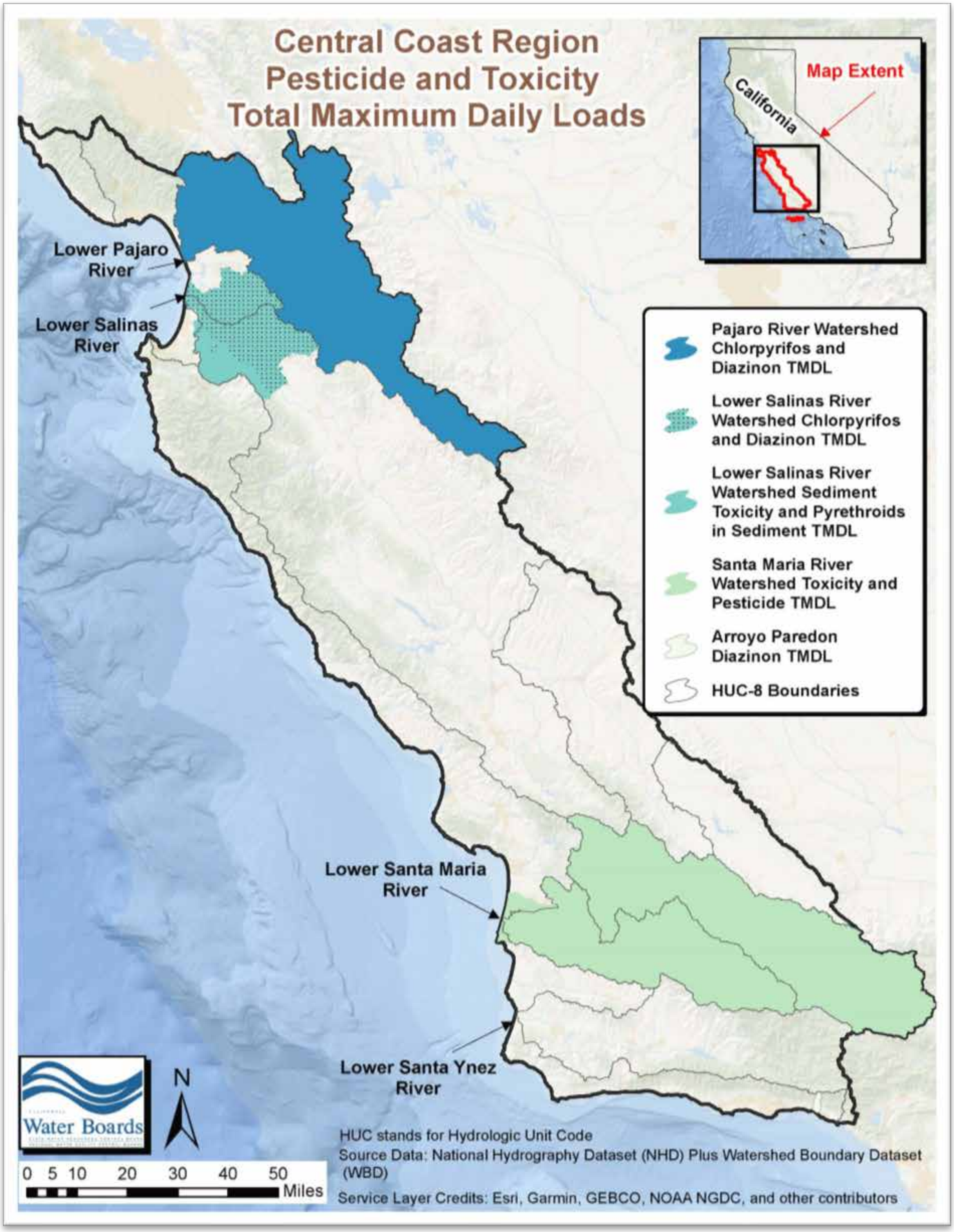


Figure C.3-3: Pesticide and Toxicity TMDL Areas

Table C.3-6. Compliance Dates for Sediment Limits (TMDL areas)

TMDL Project Name	Constituent	Limit[1]	Units	Compliance Date
Morro Bay Sediment TMDL	Sediment	285 – 6,662	Tons of sediment per year	12/3/2053
Pajaro River Watershed Sediment TMDL	Sediment	447 – 4,114	Tons of sediment per year	11/27/2051

[1]The Morro Bay Sediment TMDL and Pajaro River Watershed Sediment TMDL include load allocations for specific waterbody reaches within the TMDL project area. The limits for those TMDLs are summarized in this table as ranges; however, the exact load allocation values for each reach apply as described in the TMDL and Basin Plan and will be assessed as numeric limits for the purposes of this Order.

Table C.3-7. Compliance Dates for Turbidity Limits (Non-TMDL areas)

Constituent Group	Constituent	Beneficial Use	Limit	Units[1]	Compliance Date
Physical Parameters and General Chemistry	Turbidity	WARM	40.0	NTU	12/31/2032
Physical Parameters and General Chemistry	Turbidity	COLD	25.0	NTU	12/31/2032

[1]NTU is nephelometric turbidity units

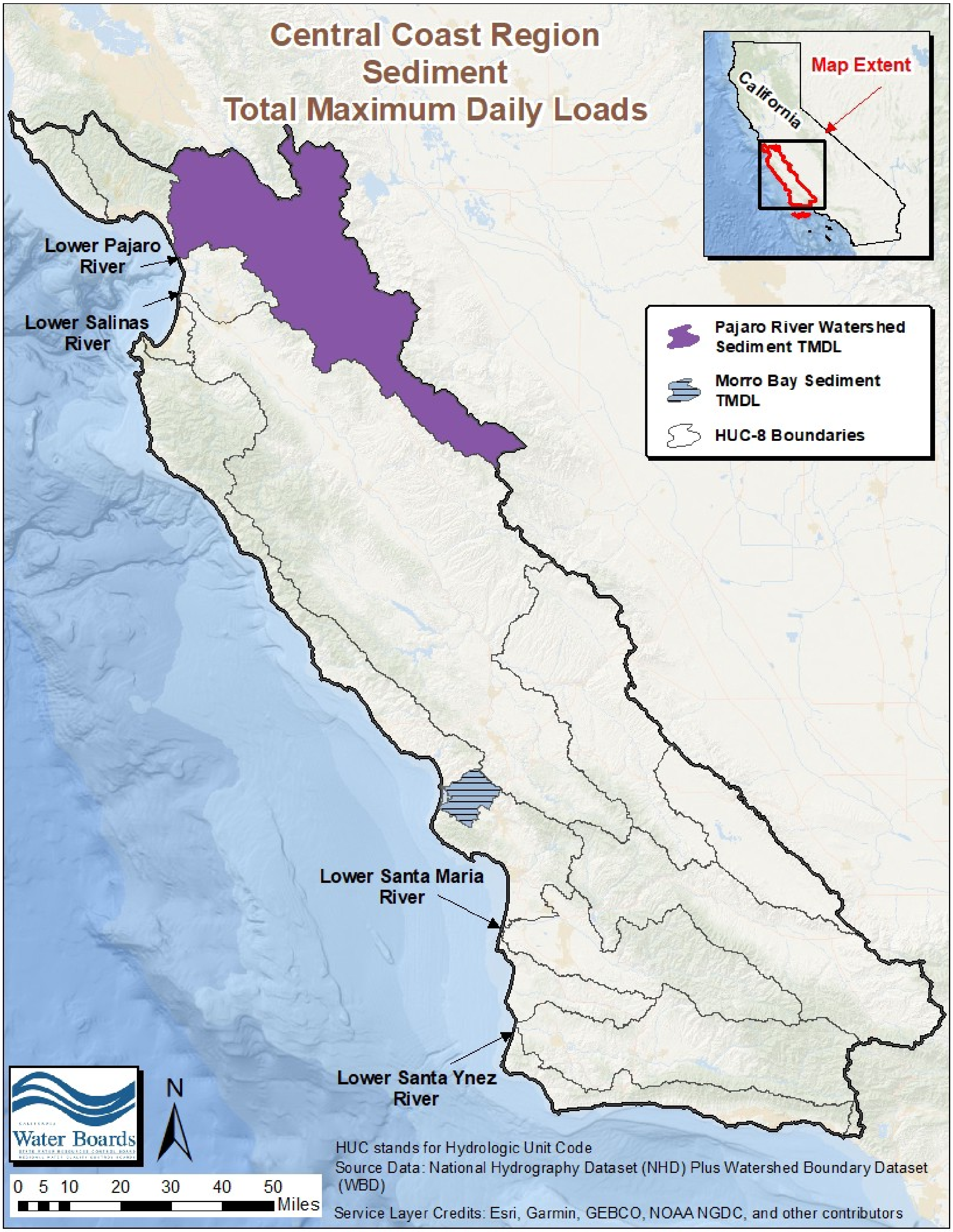


Figure C.3-4: Sediment TMDL Areas

Chapter 7
Appendix 7-D

Interconnected Surface Water Monitoring Network

APPENDIX 7D. INTERCONNECTED SURFACE WATER MONITORING NETWORK

The interconnected surface water (ISW) monitoring network in the Salinas Valley Groundwater Basin is based on the approach recommended by the Environmental Defense Fund (EDF, 2018), which uses groundwater elevations as surrogates for streamflow depletion rates. EDF notes that the change in hydraulic gradient between stream stage and surrounding groundwater elevations is representative of variance in interconnection between surface water and groundwater. Thus, monitoring the gradient also monitors interconnection. The gradient will be monitored by measured shallow groundwater elevations.

The ISW monitoring network focuses on adding wells near USGS stream gauges and MCWRA River Series measurement sites, as shown in Figure 1. Existing wells from the MCWRA's groundwater elevation monitoring programs will be used for the ISW monitoring network. Criteria for selecting an existing monitoring well include (1) a total well depth of approximately 200 feet or less, and (2) recent (post-2014) measured groundwater elevations that are shallow (generally about 30 feet below land surface). SVBGSA has identified 10 existing monitoring wells that fit these criteria, shown in Figure 1. Where possible, an individual monitoring well should be located between the ISW and any pumping centers, and at a distance away from the Salinas River and its tributaries so groundwater levels are not strongly driven by surface water flows (EDF, 2018). However, active pumping wells are distributed throughout the Salinas Valley, including in close proximity to ISW locations and existing monitoring wells. Distance from the Salinas River was considered when selecting existing monitoring wells, and review of historical groundwater level and streamflow measurements indicate that groundwater elevations in the selected wells are not strongly driven by surface water flows. Additionally, the lateral and vertical extent of the Salinas Valley Aquitard (SVA) was considered in the selection of existing wells to add to the ISW monitoring network, as the monitoring network only applies to surface water connected to principal aquifers. The SVA separates the shallow sediments from the principal aquifers in most of the 180/400-Foot Aquifer Subbasin and becomes intermittent towards the Monterey and Eastside Aquifer Subbasins. In the 180/400-Foot Aquifer Subbasin, connection is likely between the shallow sediments and the 180-Foot Aquifer where the potential existing monitoring wells are located, based in part on limited lithologic information available from the DWR's Online System for Well Completion Reports. These existing wells provide the best available tools for establishing an initial network for monitoring impacts on ISW from groundwater pumping. SVBGSA is in the process of establishing this monitoring network, and the network will be adjusted during GSP implementation as needed, particularly if any wells are determined to be ineffective or inaccessible for this purpose.

Table 1 provides a summary of the 10 selected wells, their corresponding USGS gauge or MCWRA River Series measurement site, and distance to the Salinas River or its tributaries. SVBGSA will request access from MCWRA to each well's groundwater elevation records and permission to add to the ISW monitoring network.

Table 1. Potential Existing Interconnected Surface Water Monitoring Wells

Well Name	Well Depth (ft)	Reference Point (ft)	Corresponding USGS Stream Gauge/ MCWRA River Series Measurement Site	Subbasin
16S/04E-08H02	295	75.2	USGS Gauge in Salinas River near Chualar	180/400-Foot
16S/05E-31P02	115	118.2	River Series Site at Gonzalez	180/400-Foot
17S/06E-33R02	120	194.6	USGS Gauge in Salinas River at Soledad USGS Gauge in Arroyo Seco below Reliz Creek near Soledad	Forebay
18S/06E-03P01	195	189.0	USGS Gauge in Salinas River at Soledad USGS Gauge in Arroyo Seco below Reliz Creek near Soledad	Forebay
18S/07E-32G02	150	252.0	River Series Site at Greenfield	Forebay
19S/07E-14H01	200	261.0	N/A (in Upper Valley near border with Forebay)	Upper Valley
20S/08E-07F01	189	292.4	River Series Site at King City	Upper Valley
21S/09E-16E01	100	358.0	River Series Site at San Lucas	Upper Valley
22S/10E-16P01	178	425.0	N/A (in between Bradley USGS Gauge and San Lucas River Series Site)	Upper Valley
23S/10E-14D01	142	462.7	USGS Gauge in Salinas River near Bradley	Upper Valley

*No well depth available, instead the depth of the bottom of screen interval is provided.

MONTGOMERY & ASSOCIATES

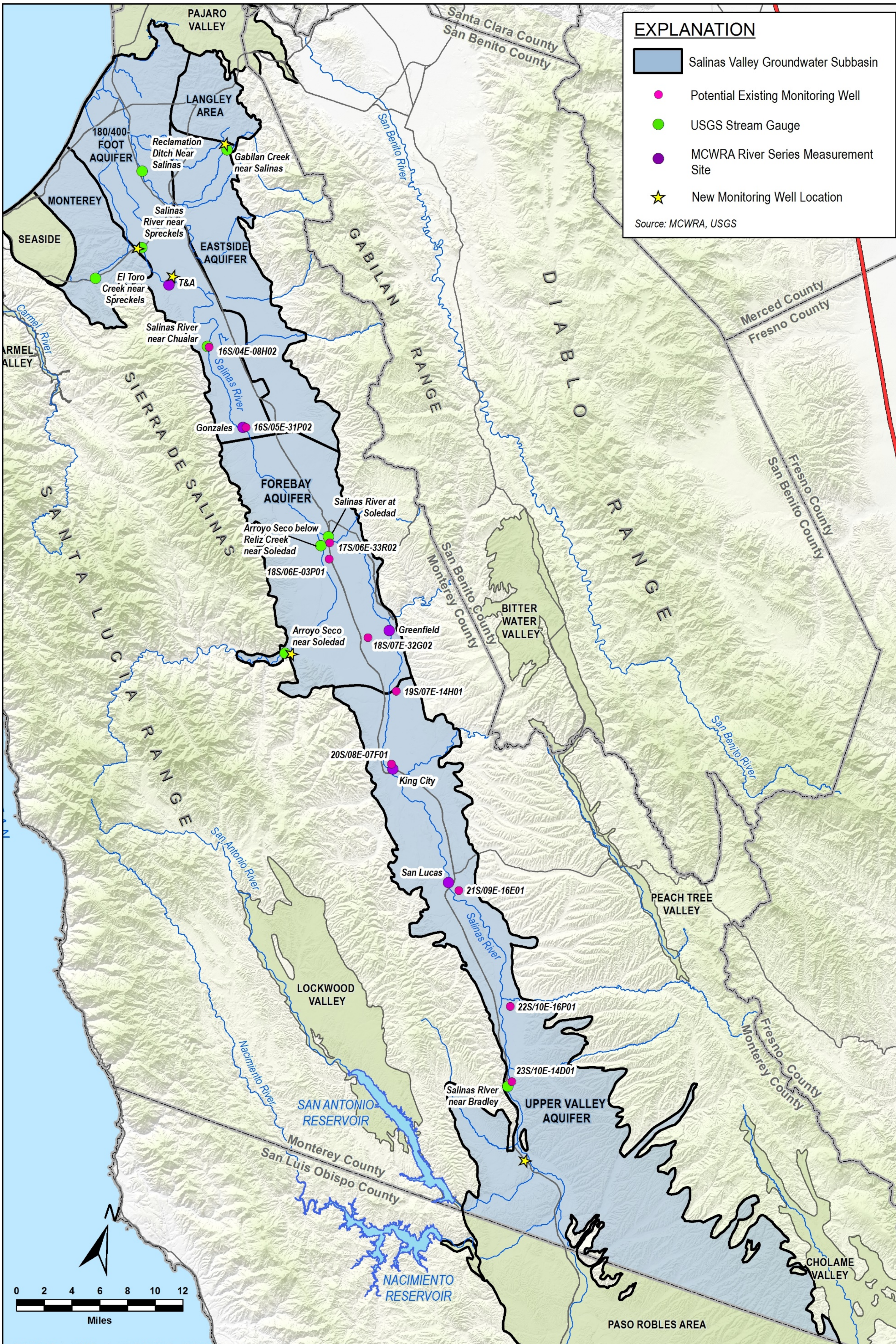


Figure 1. Locations of USGS Stream Gauges, MCWRA River Series Measurement Sites, Potential Existing Interconnected Surface Water Monitoring Wells, and Proposed New Interconnected Surface Water Monitoring Wells

Data gaps in the ISW monitoring network exist despite the identification of 10 existing monitoring wells. The SVBGSA will install new wells to fill these data gaps, as shown in Figure 1. As mentioned in the 180/400-Foot Aquifer Subbasin GSP, SVBGSA will drill and install up to two new wells for ISW monitoring in the Subbasin. SVBGSA will also drill one new shallow groundwater elevation monitoring well in each of the Eastside Aquifer, Forebay Aquifer, and Upper Valley Aquifer Subbasins:

- Eastside Aquifer Subbasin: Located along Gabilan Creek, which has a USGS gage located nearby in the Eastside Aquifer Subbasin.
- Forebay Aquifer Subbasin: Located along the upper Arroyo Seco, near the USGS gage on the Arroyo Seco. This area is a potential steelhead refugia.
- Upper Valley Aquifer Subbasin: Located along the Salinas River near the southern boundary of the basin, downstream of the San Antonio and Nacimiento Rivers.

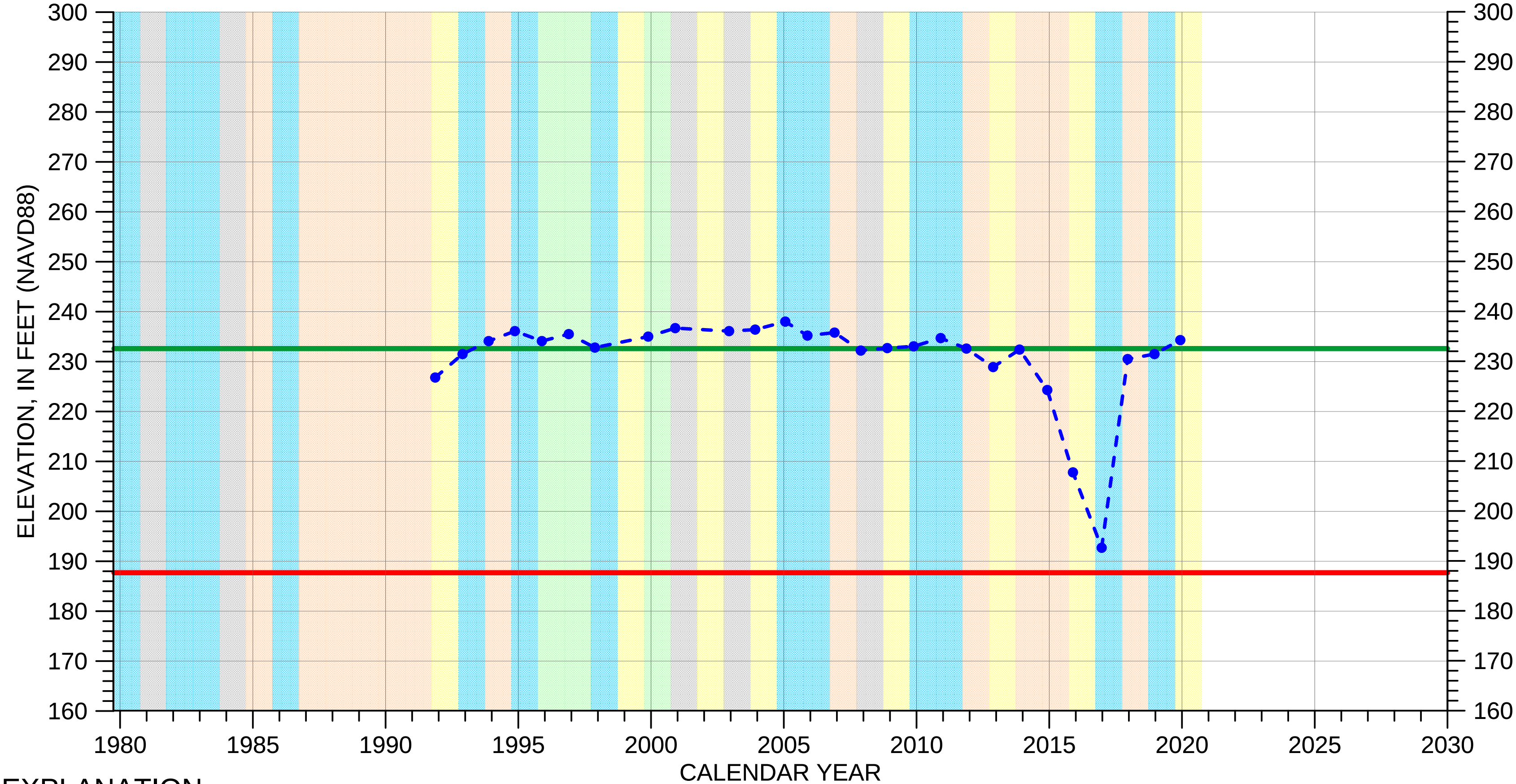
If feasible, the new ISW monitoring wells will be installed in conjunction with the new wells needed to fill the data gaps in the groundwater elevation monitoring networks in the 180/400-Foot Aquifer, Eastside Aquifer, Forebay Aquifer, and Upper Valley Aquifer Subbasins that are discussed in Chapter 7.

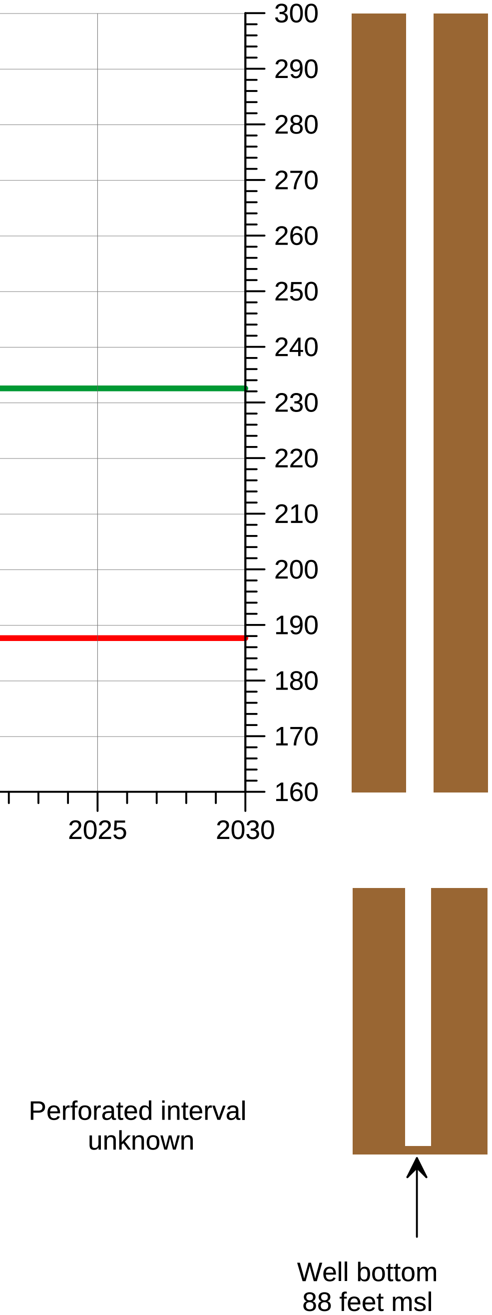
Chapter 8
Appendix 8-A

Hydrographs with Minimum Thresholds and Measurable Objectives

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 19S/07E-14N02

Upper Valley Aquifer Subbasin



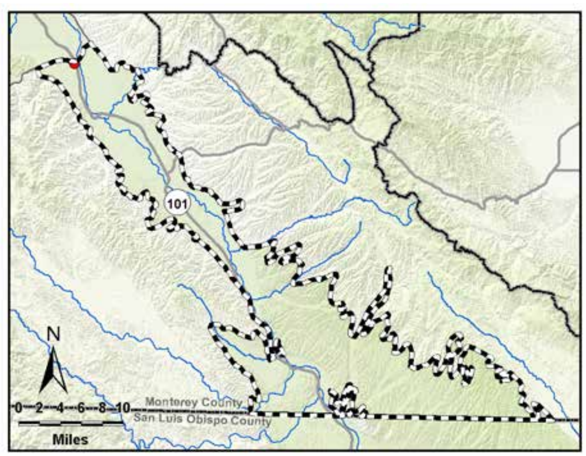


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (316 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



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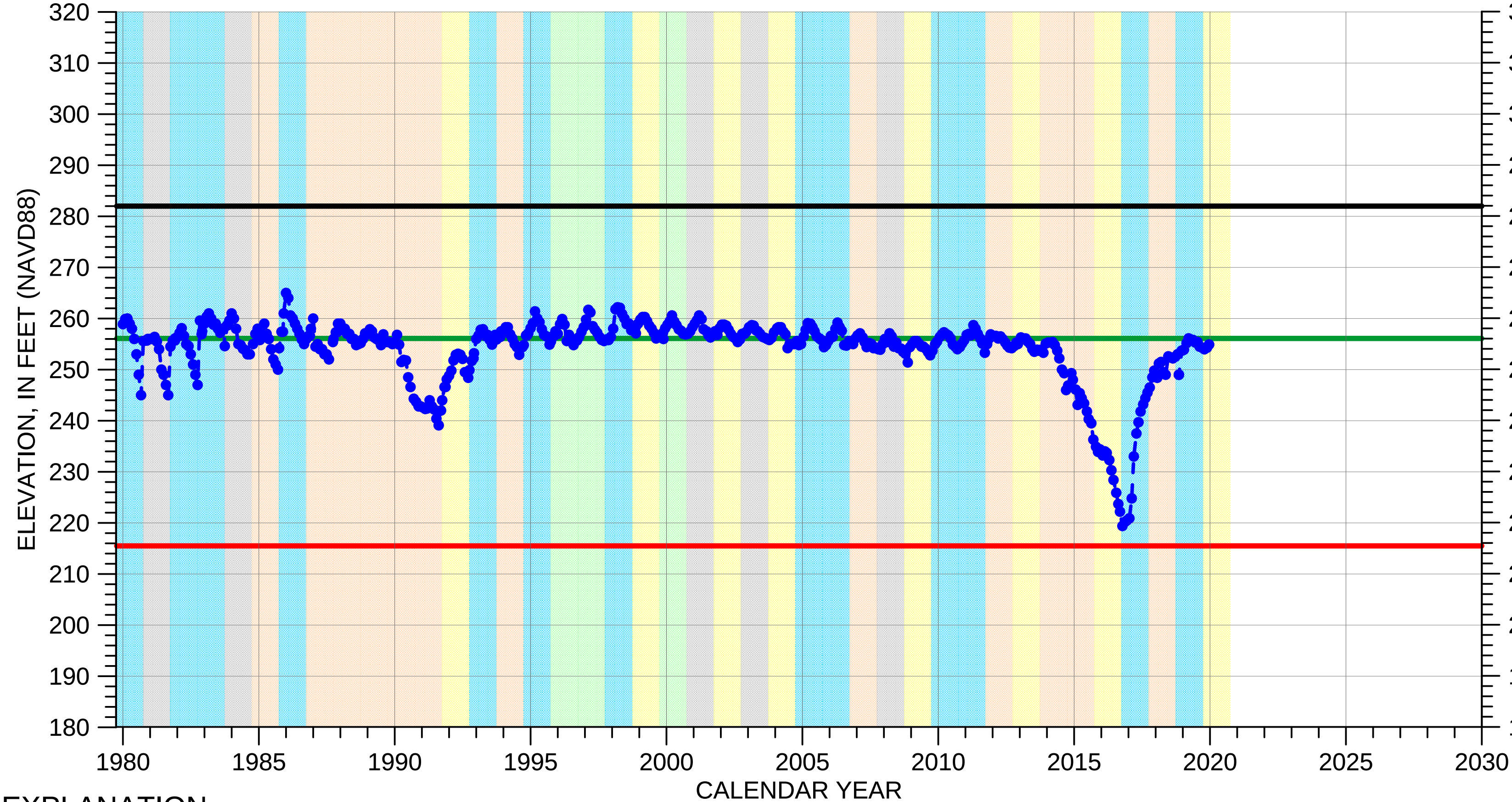
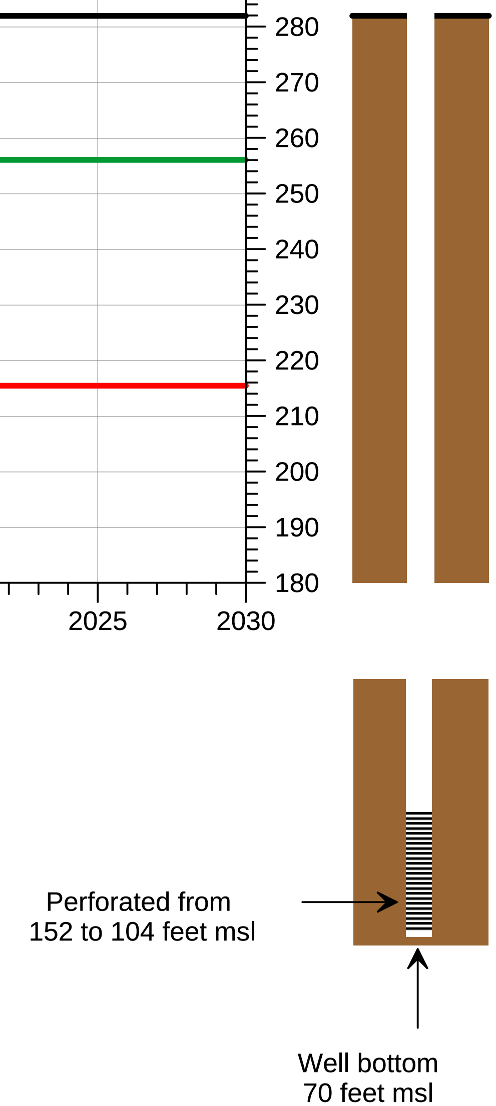
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 19S/08E-19K03

Upper Valley Aquifer Subbasin



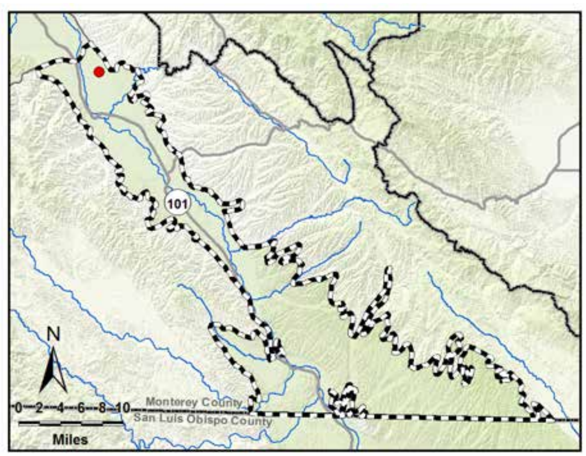


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



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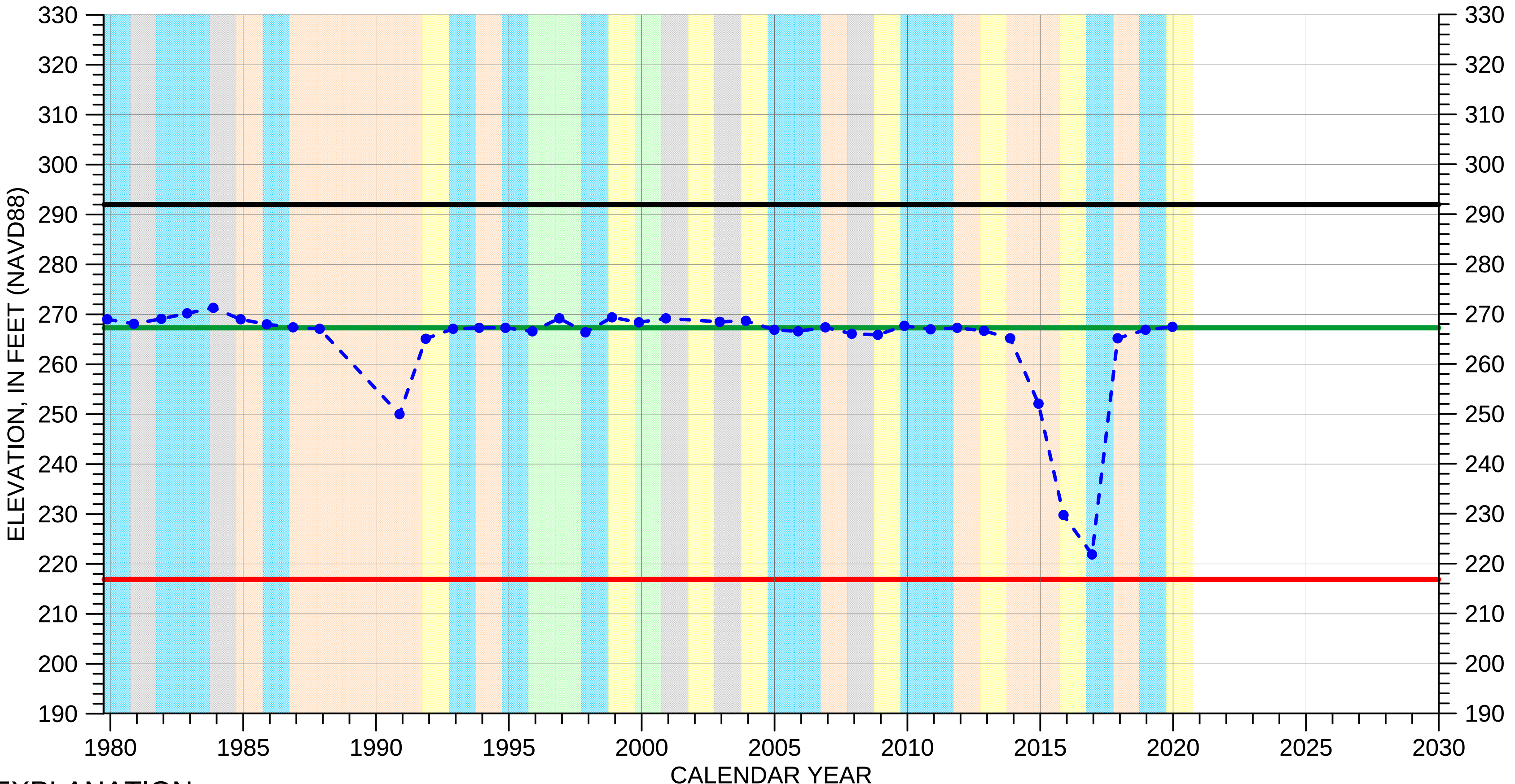
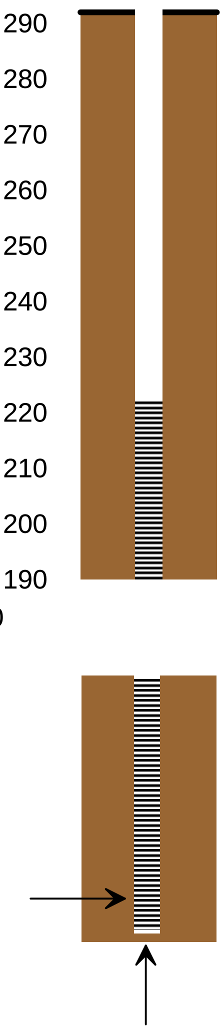
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 20S/08E-07F01

Upper Valley Aquifer Subbasin





Perforated from
222 to 107 feet msl

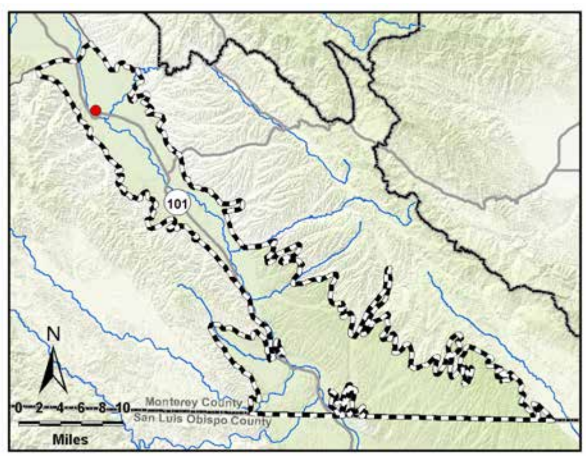
Well bottom
103 feet msl

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



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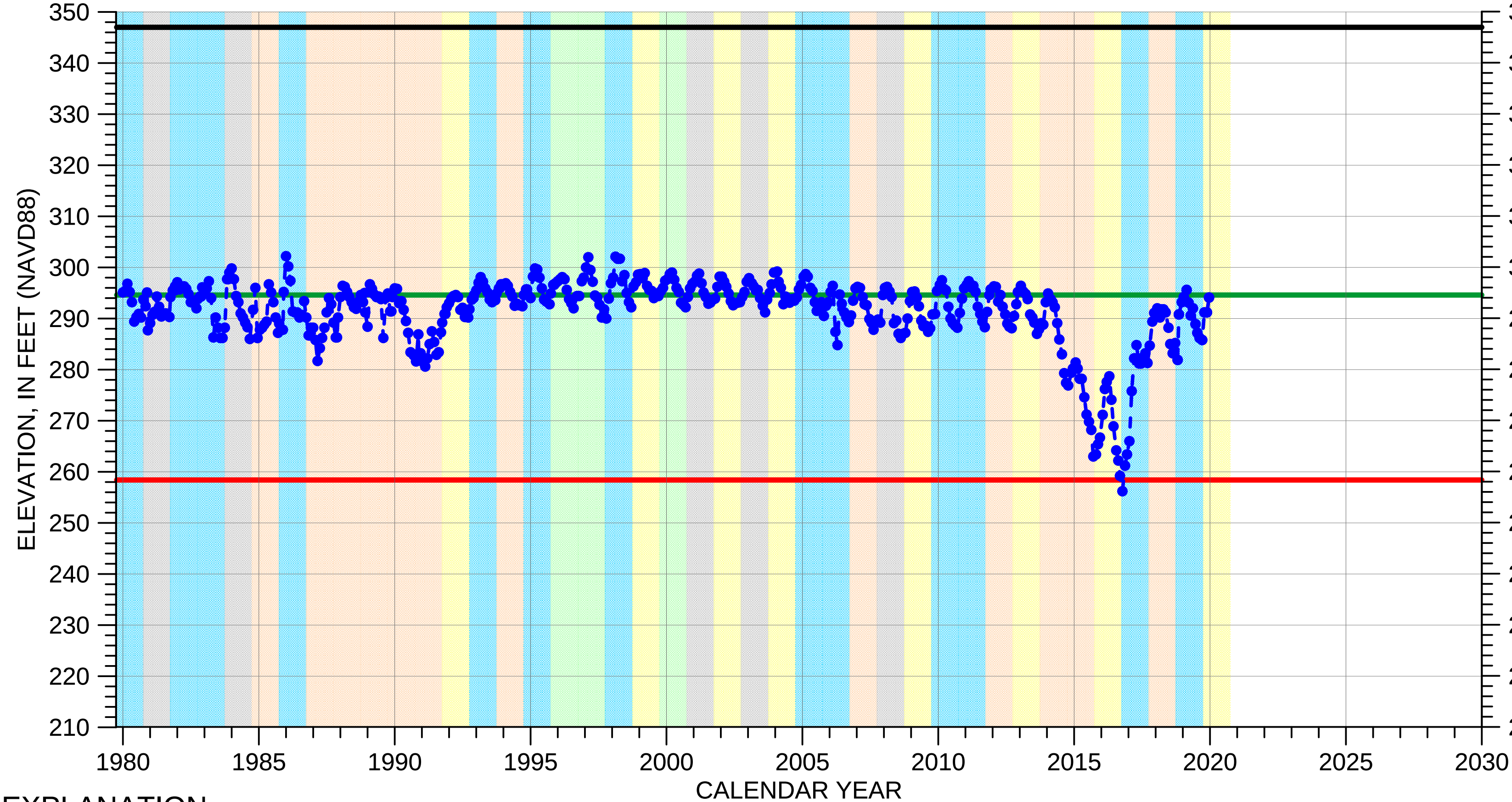
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 20S/08E-14K01

Upper Valley Aquifer Subbasin

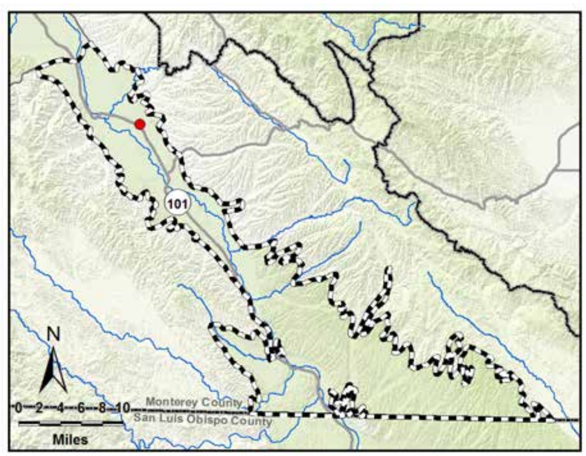


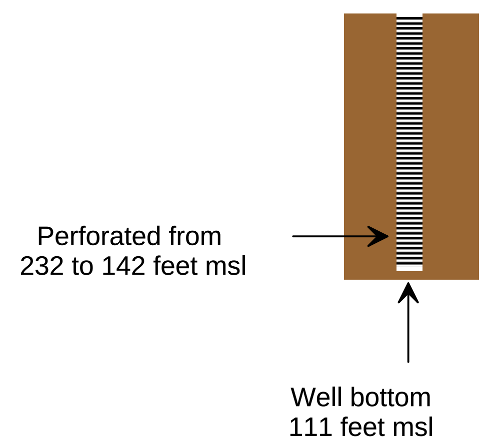
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET





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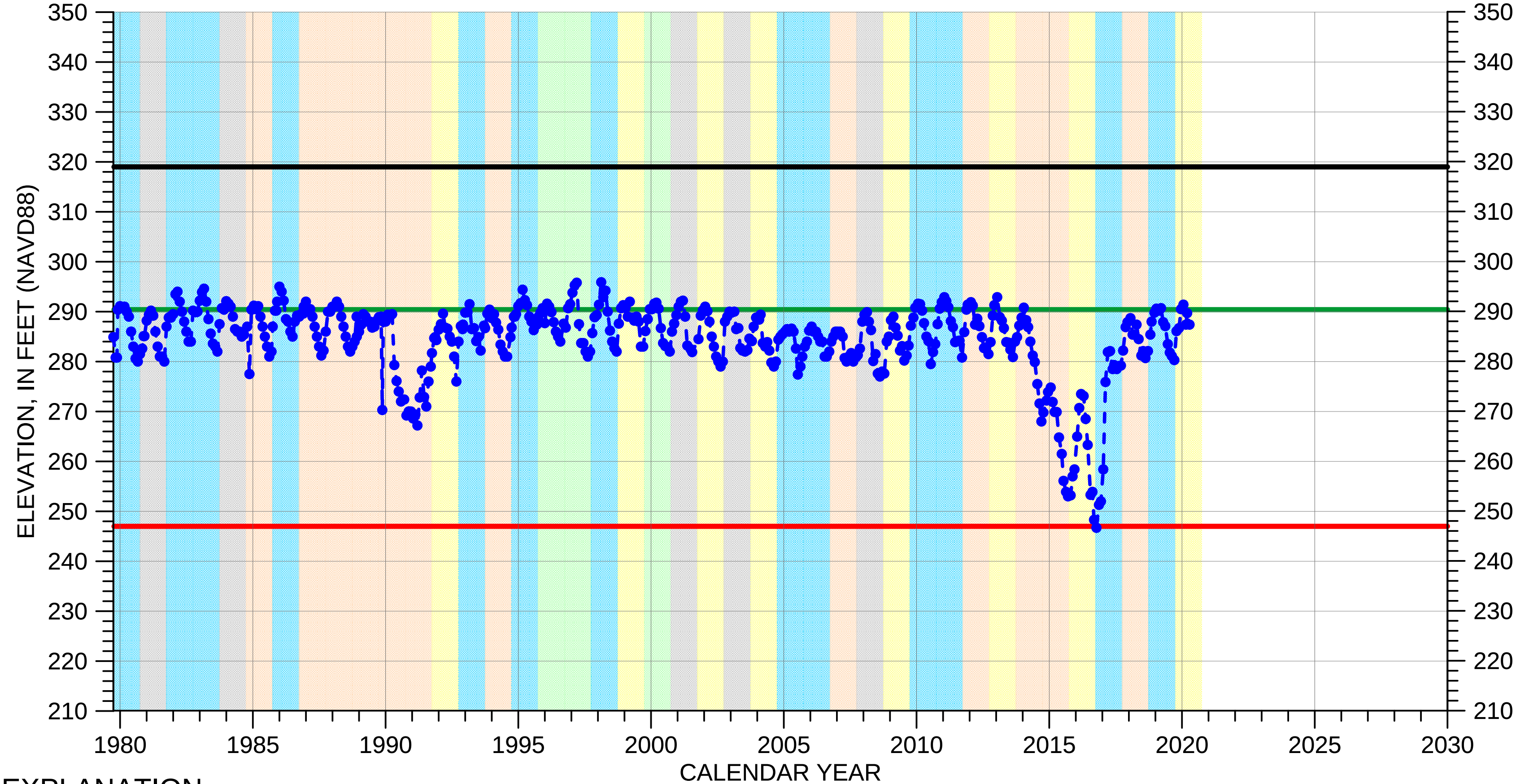
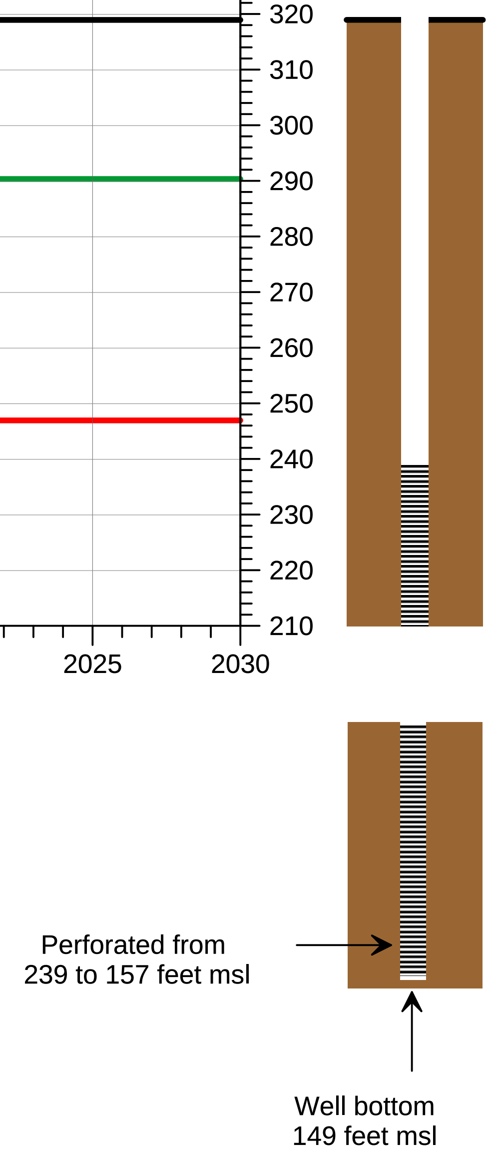
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 20S/08E-15H03

Upper Valley Aquifer Subbasin



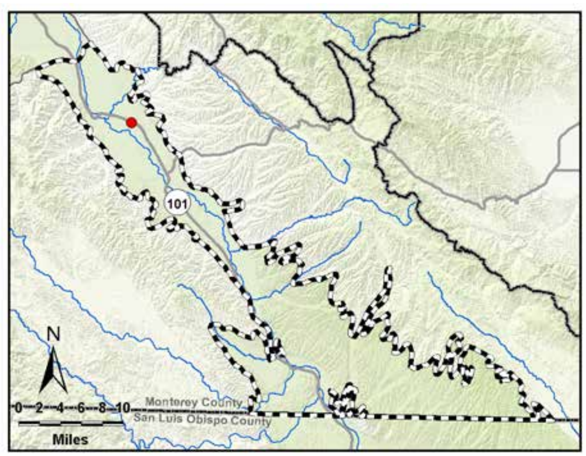


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



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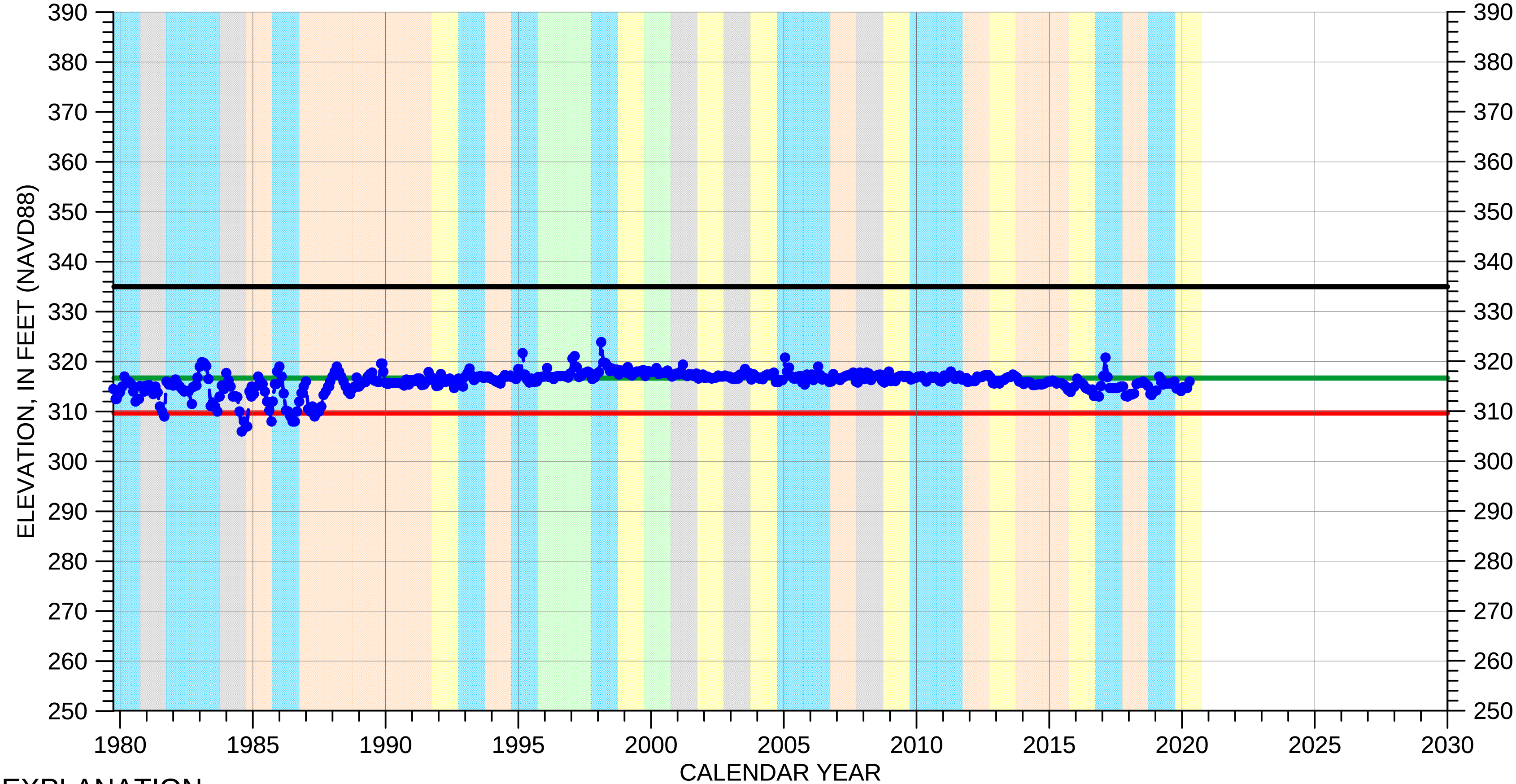
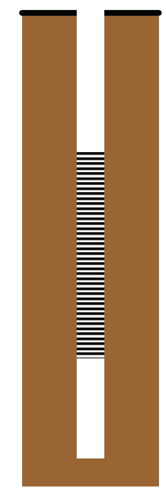
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 20S/08E-25Q01

Upper Valley Aquifer Subbasin



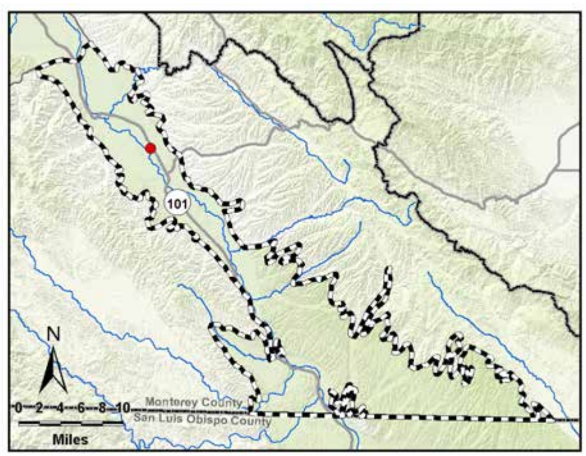


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



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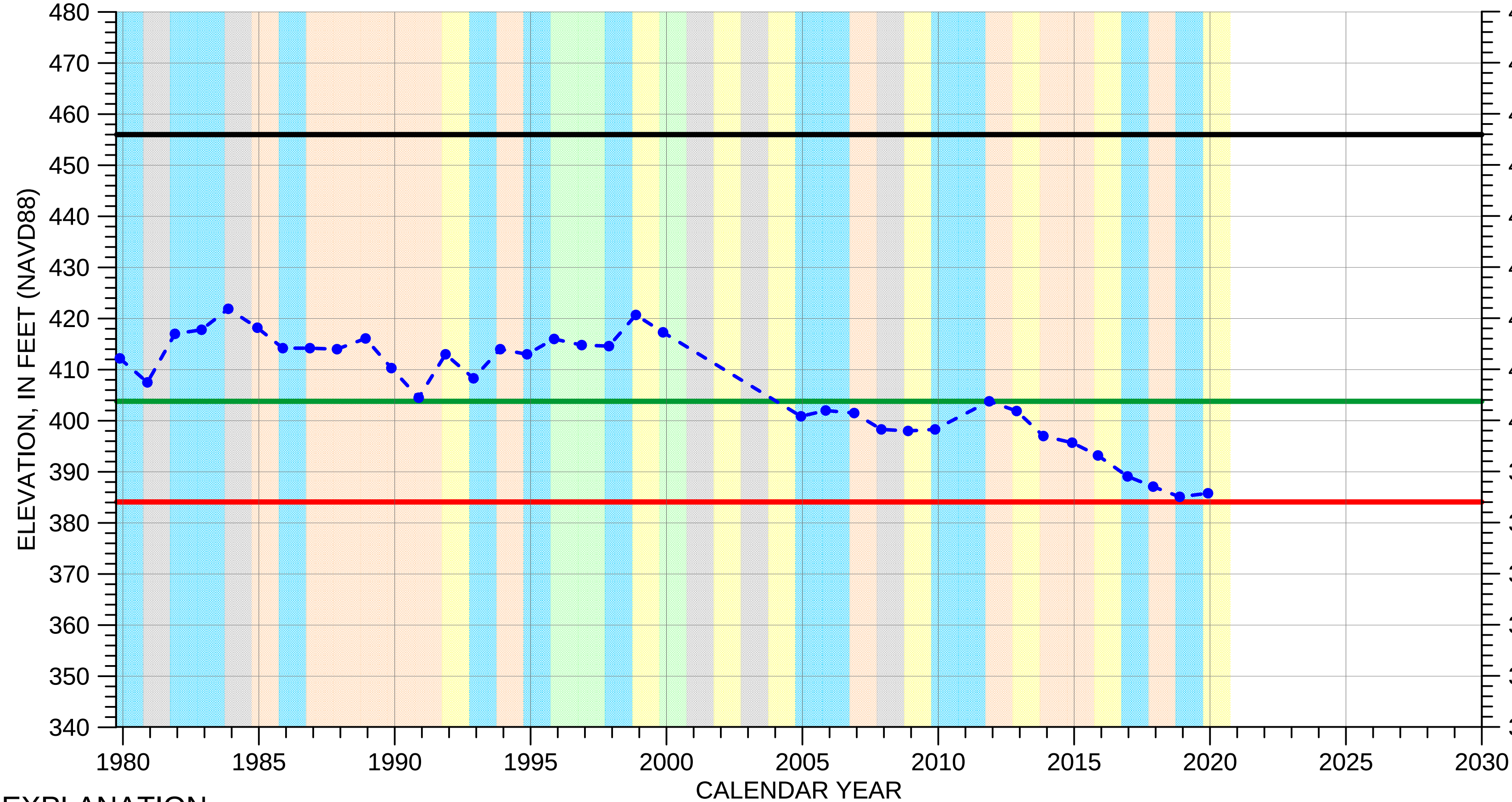
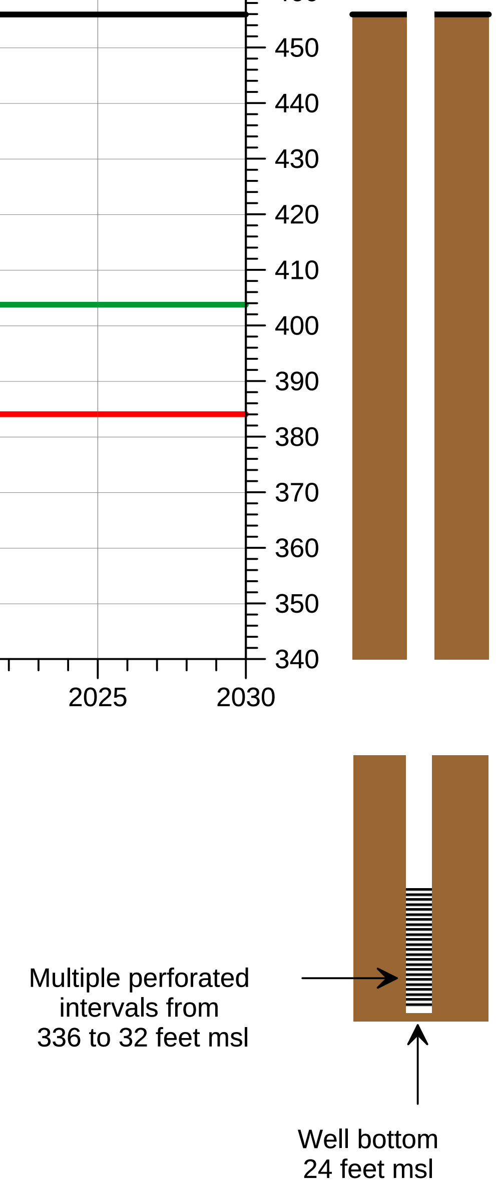
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 20S/08E-34G01

Upper Valley Aquifer Subbasin





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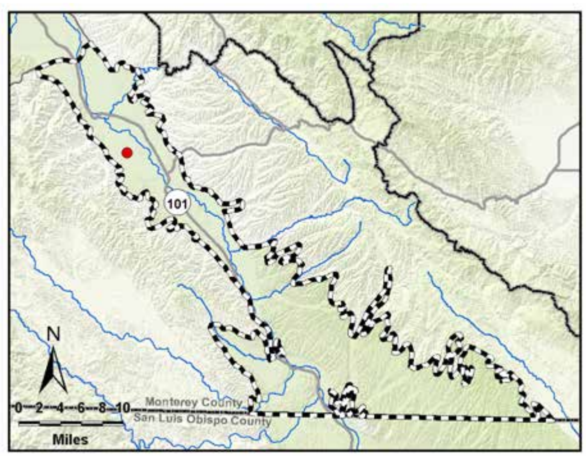
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

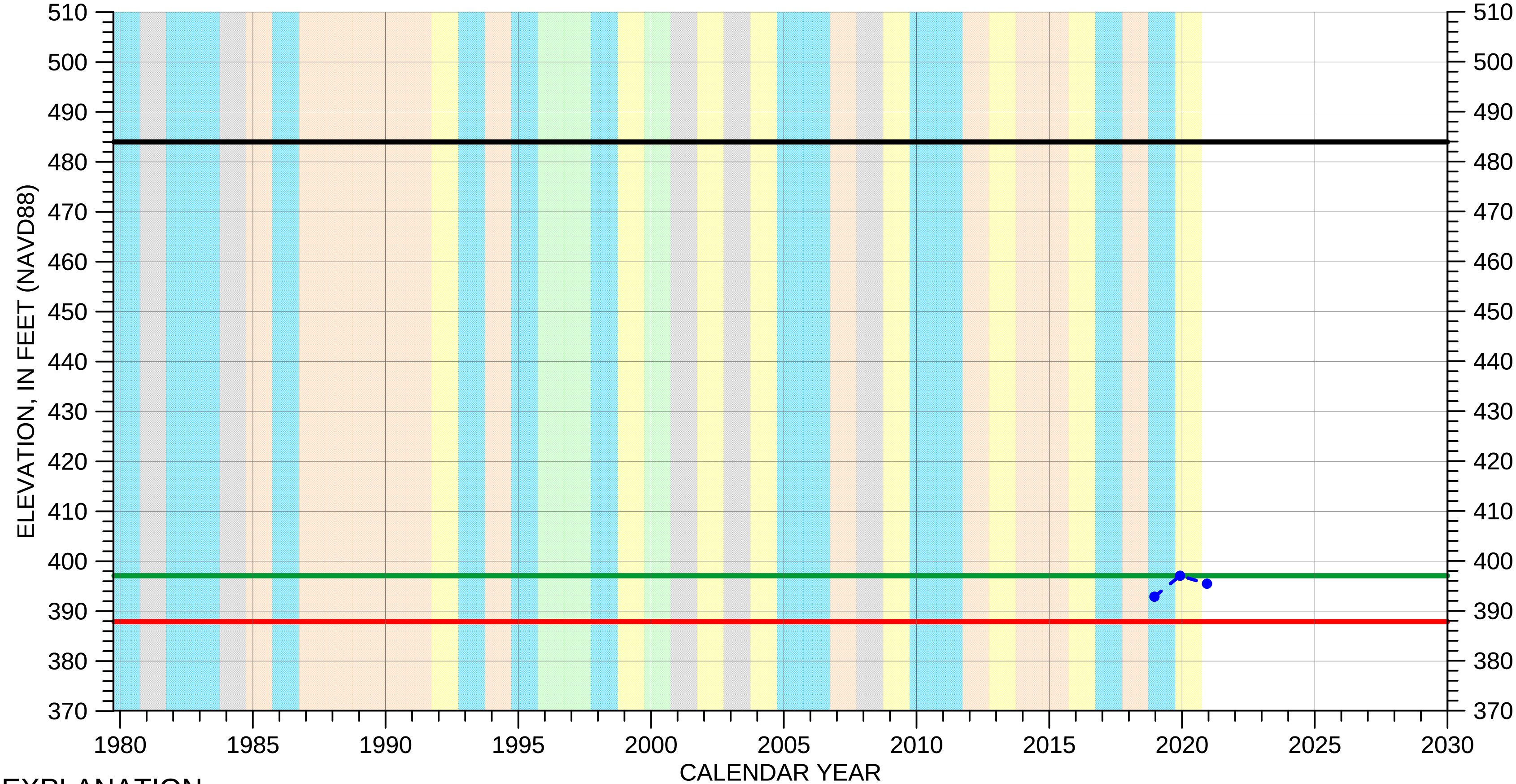
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 21S/08E-13H01

Upper Valley Aquifer Subbasin

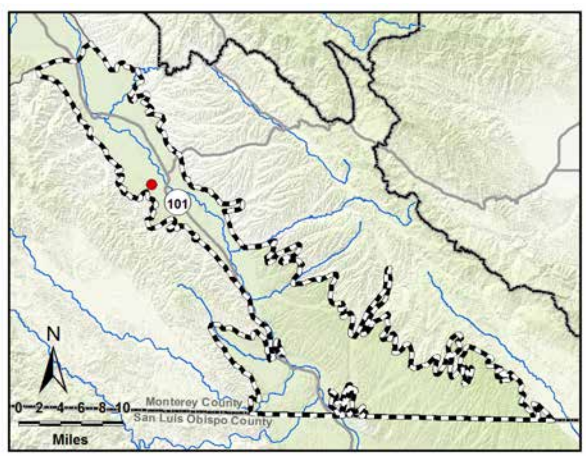


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



Perforated interval unknown

Well bottom elevation unknown

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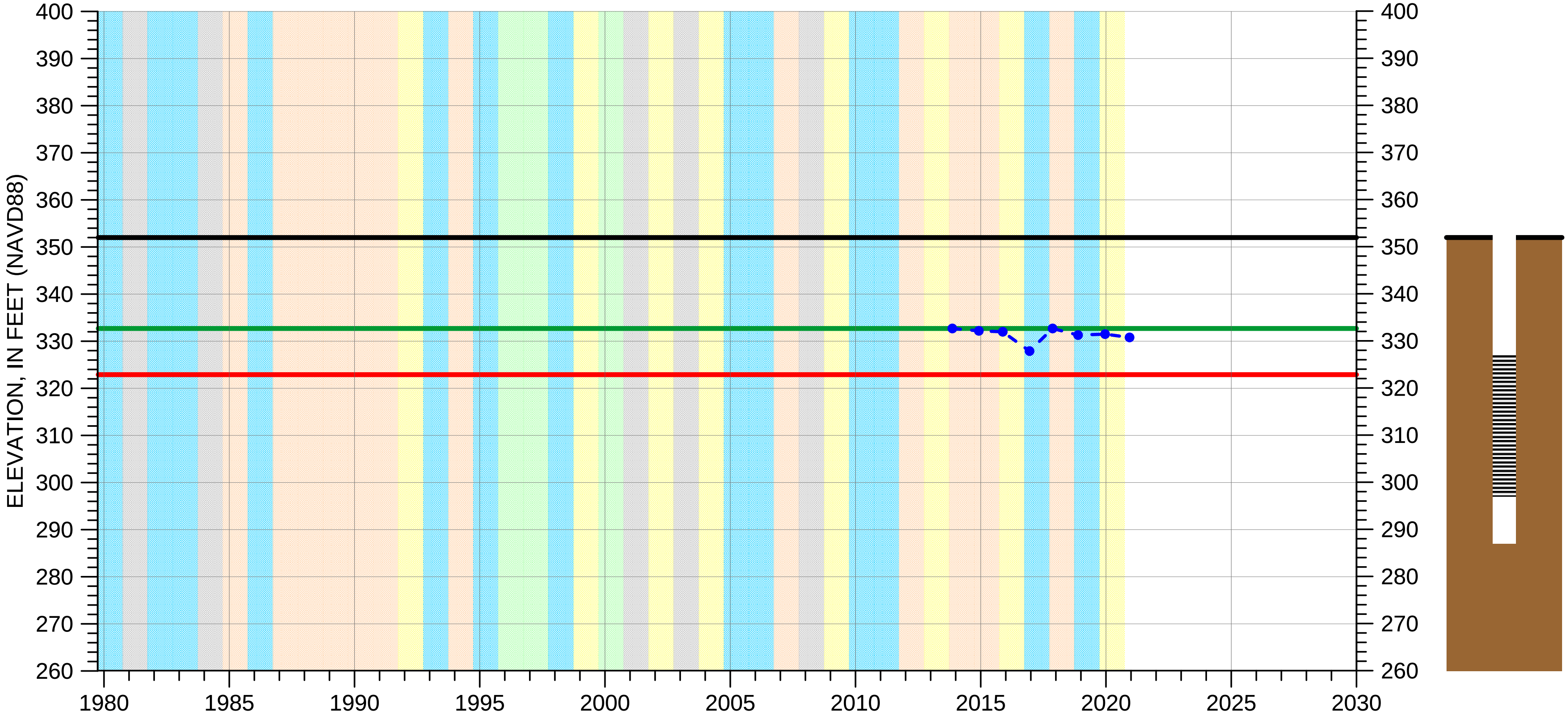
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 21S/09E-06F50

Upper Valley Aquifer Subbasin



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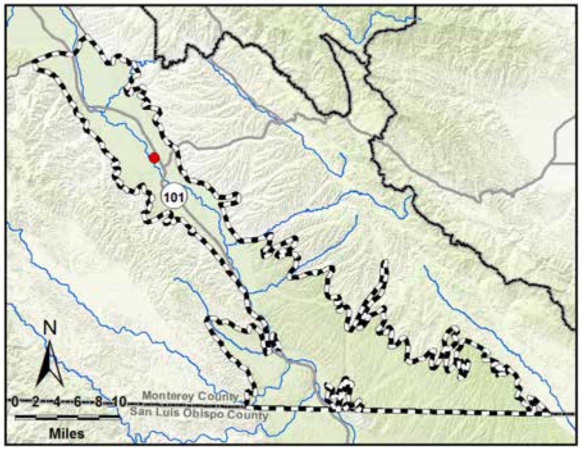
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

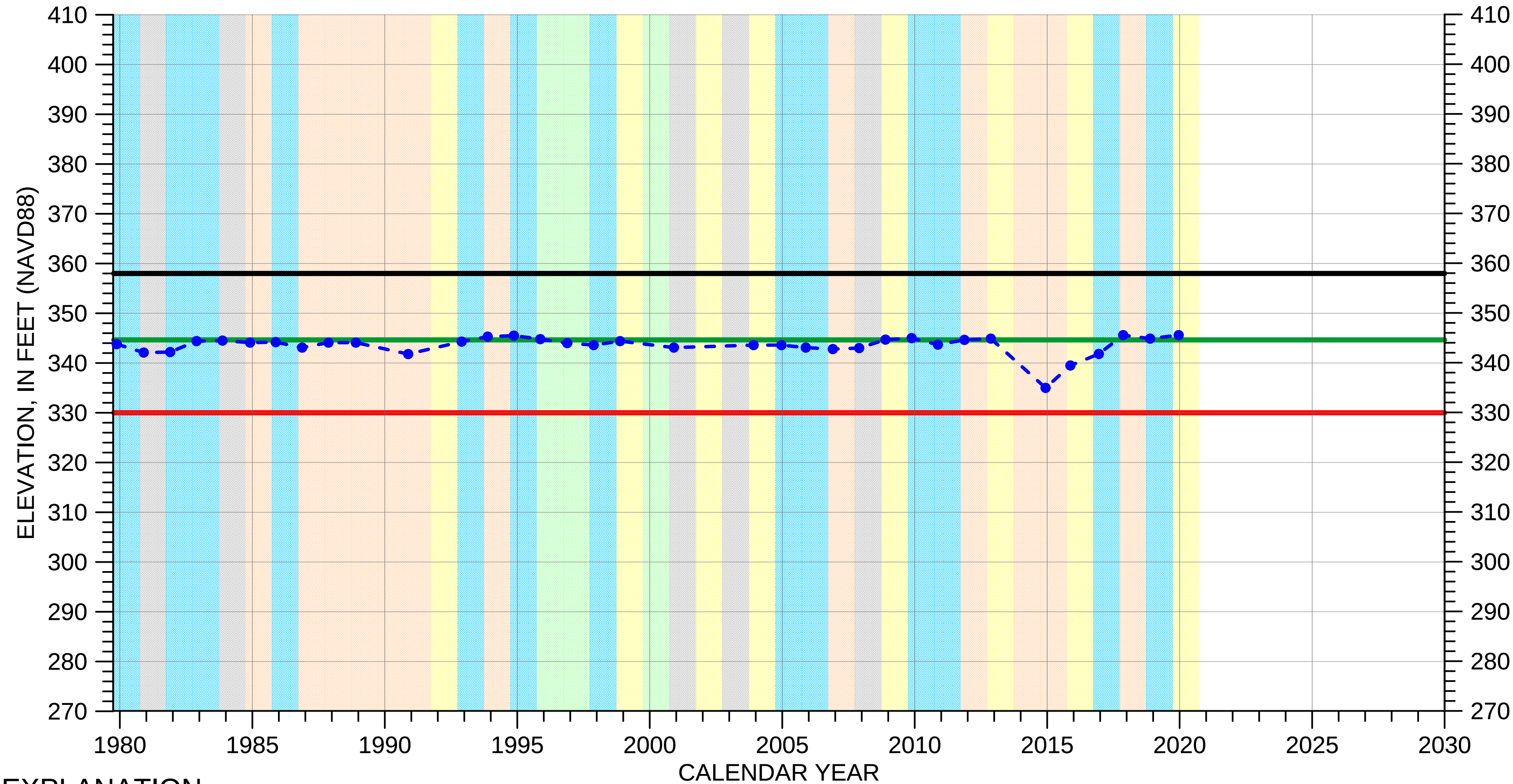
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 21S/09E-16E01

Upper Valley Aquifer Subbasin

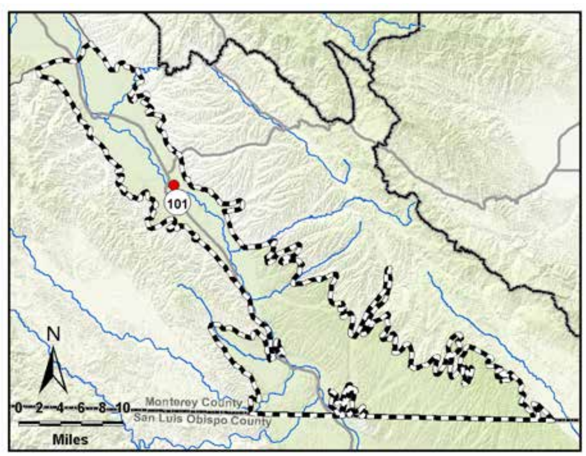


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



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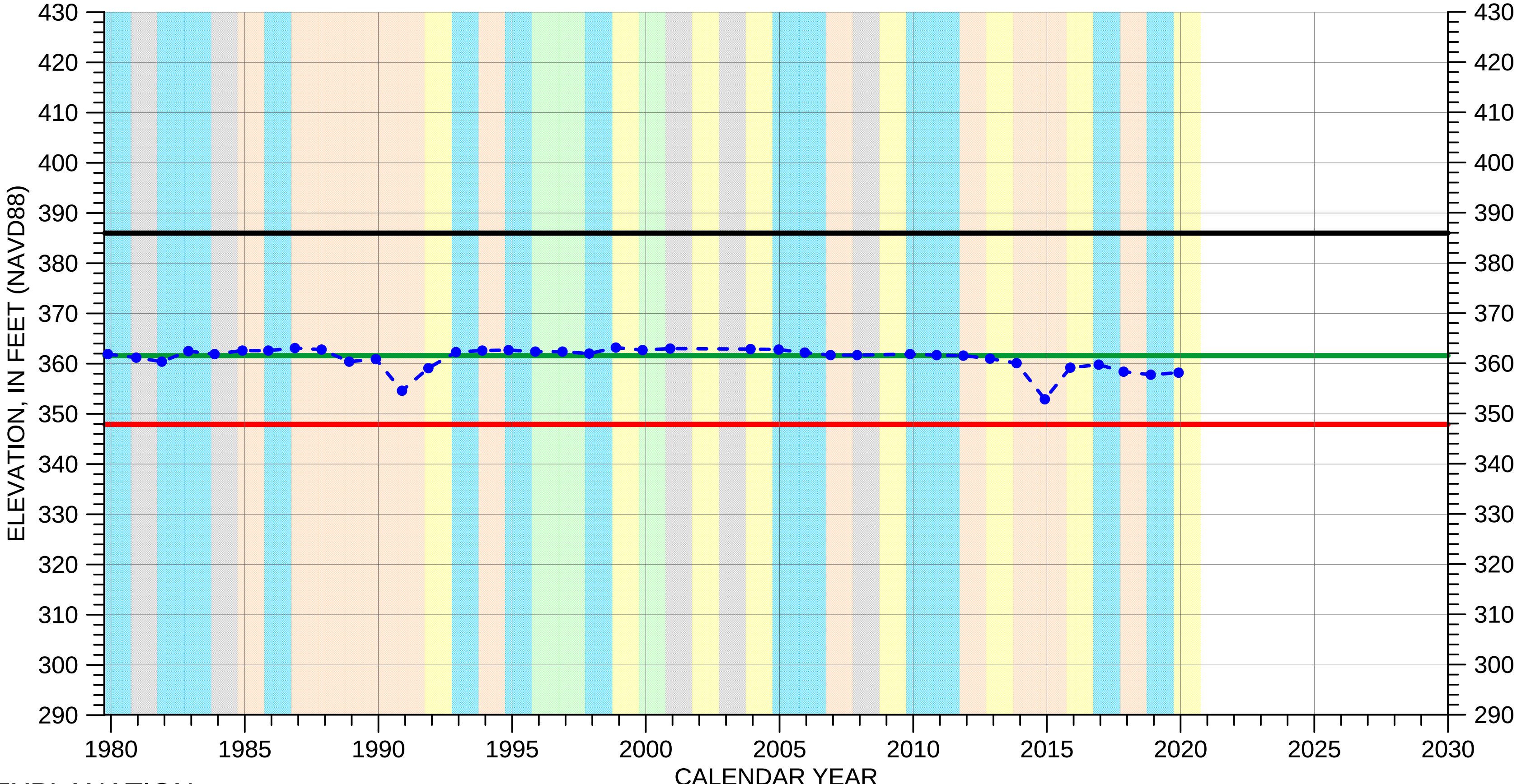
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 21S/09E-23G01

Upper Valley Aquifer Subbasin



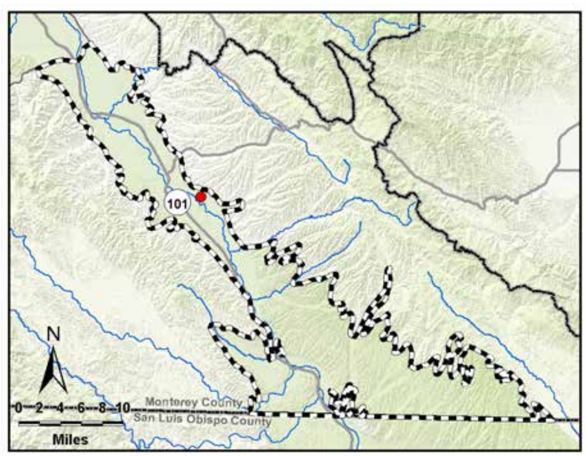
Perforated interval unknown

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



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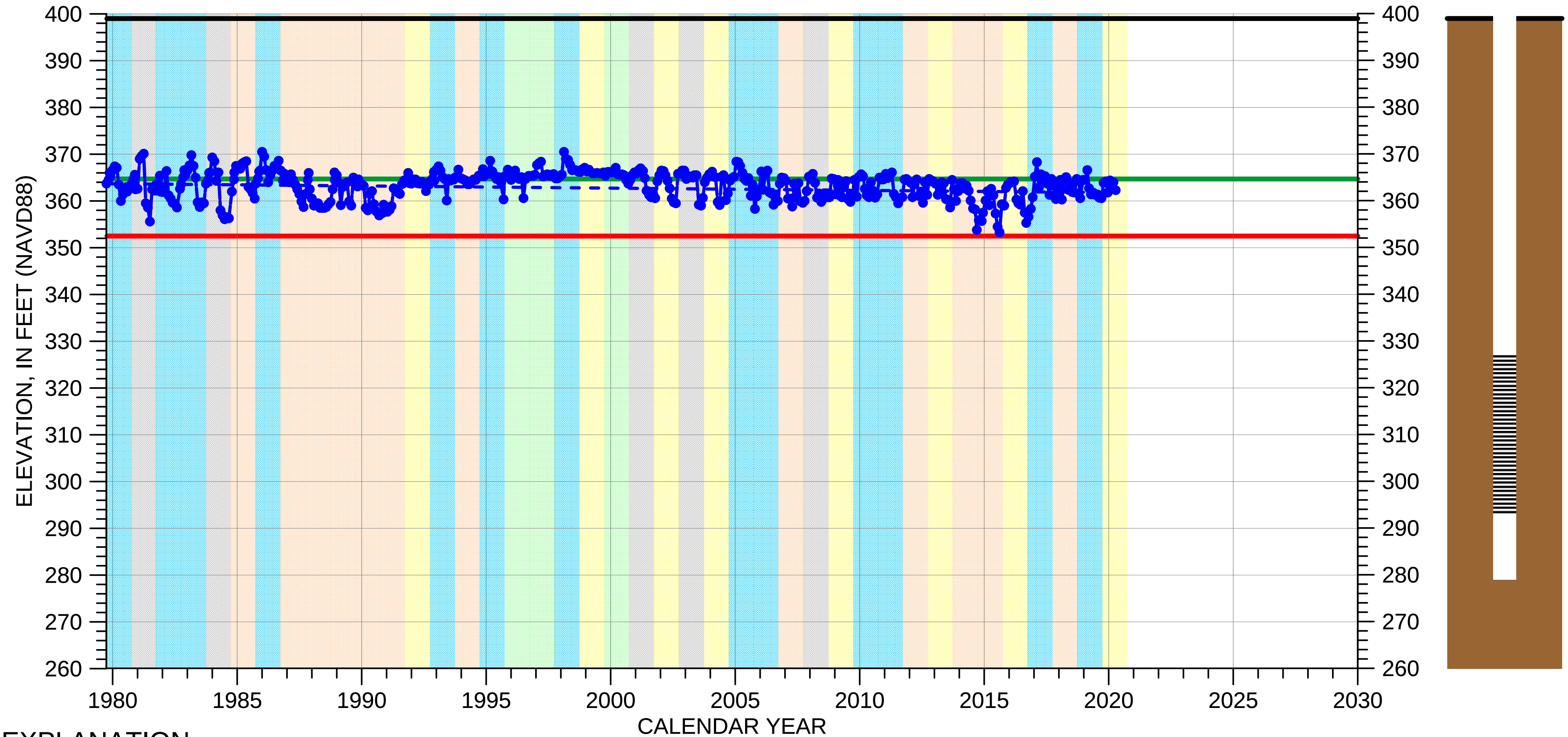
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 21S/09E-24L01

Upper Valley Aquifer Subbasin

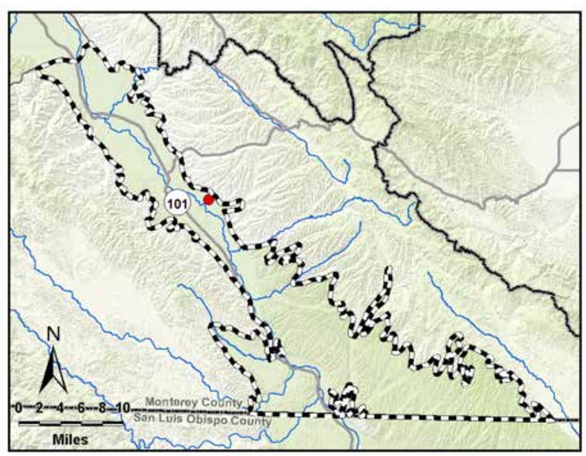


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



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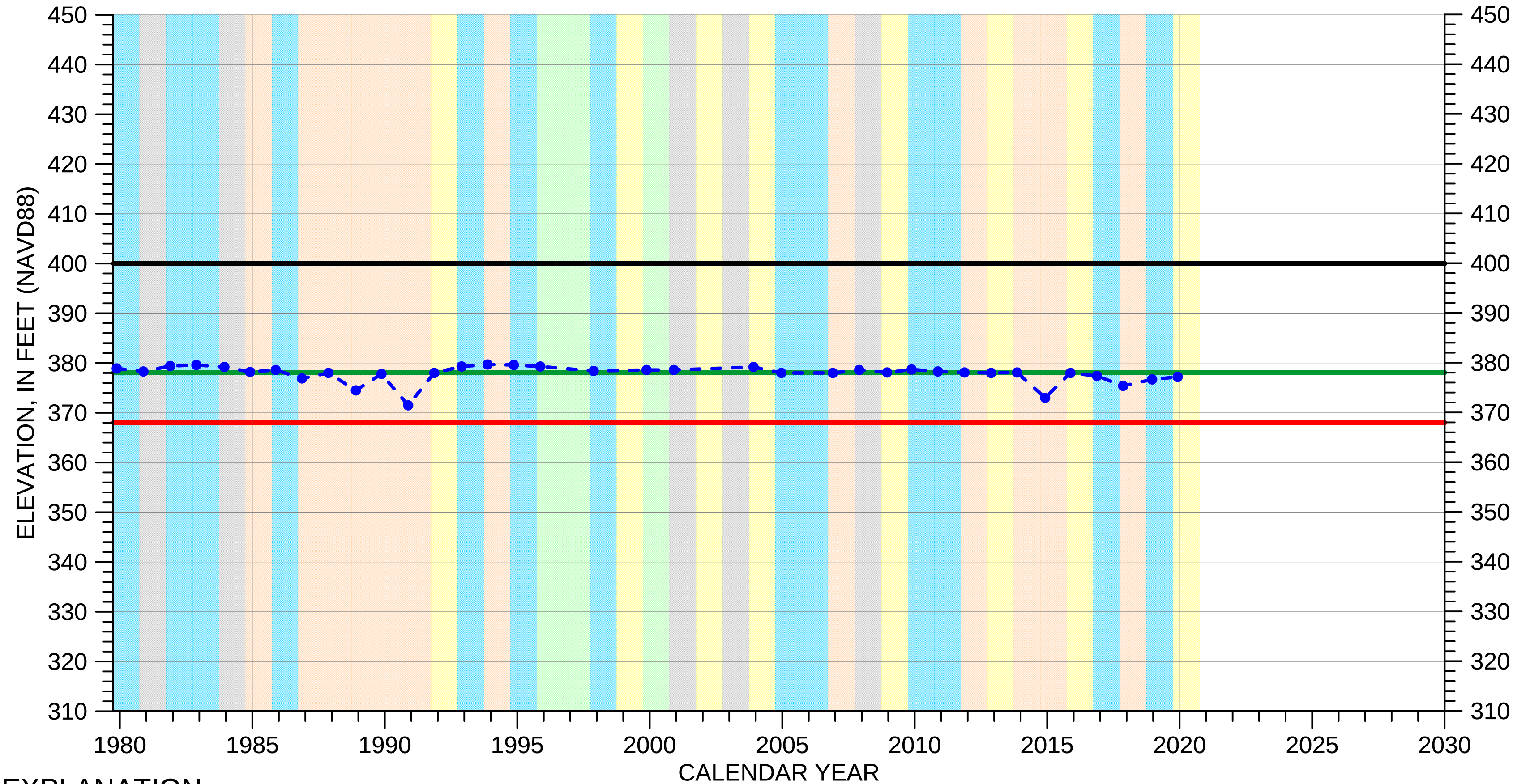
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 21S/10E-32N01

Upper Valley Aquifer Subbasin



EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface

Measurable Objective

Minimum Threshold

WATER YEAR TYPE DESIGNATION

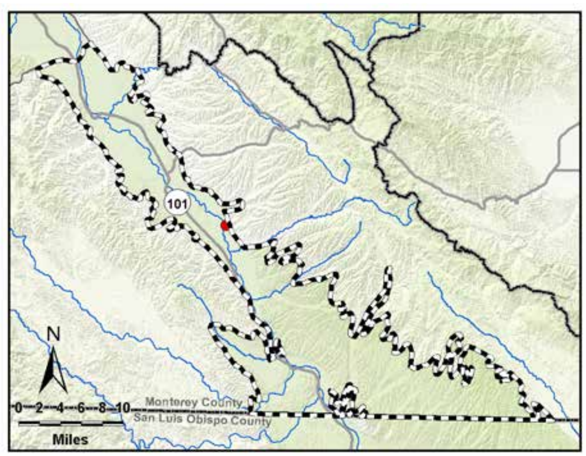
DRY

DRY - NORMAL

NORMAL

WET - NORMAL

WET



Perforated interval unknown

Well bottom elevation unknown

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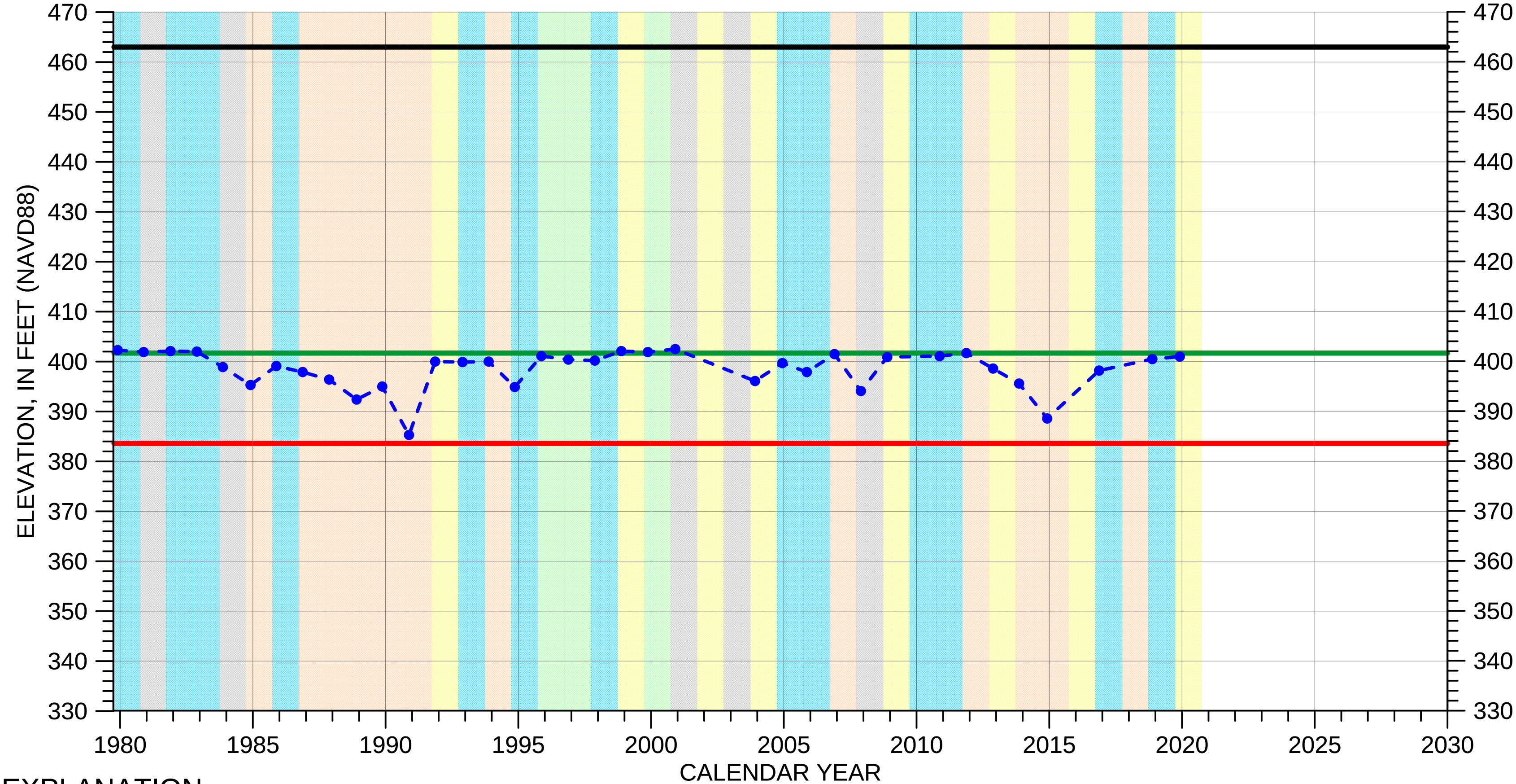
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 22S/10E-09P01

Upper Valley Aquifer Subbasin

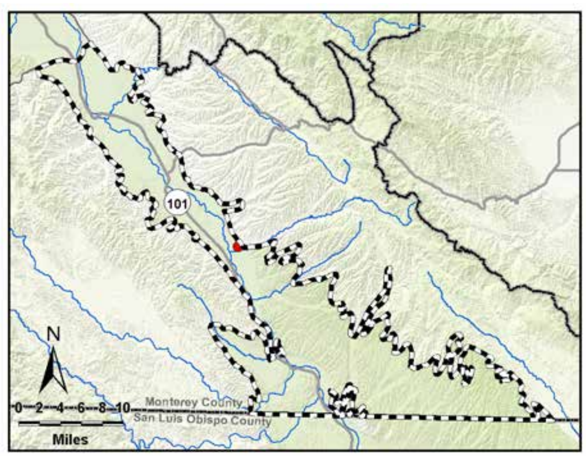


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



Perforated interval unknown

Well bottom elevation unknown

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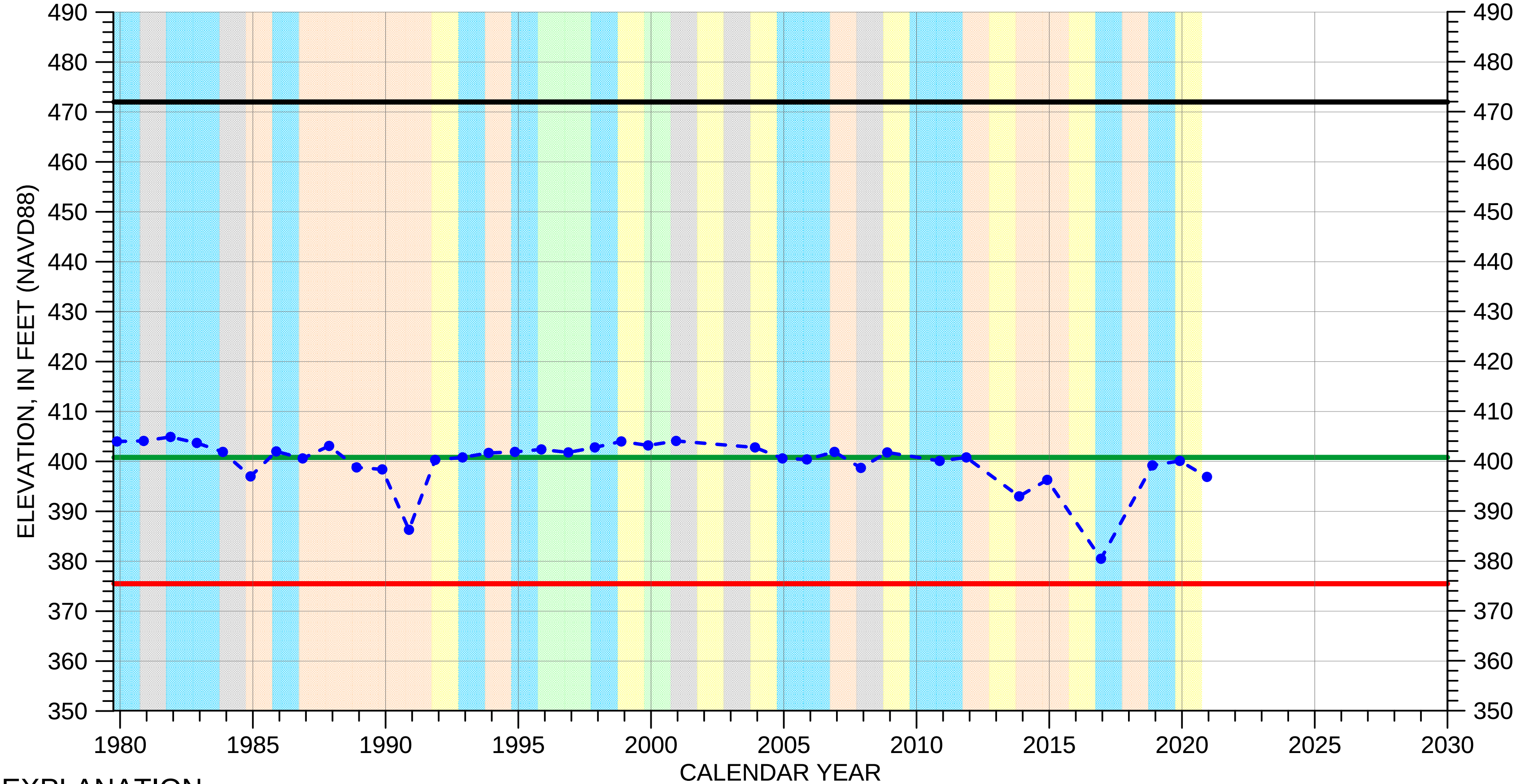
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 22S/10E-16K01

Upper Valley Aquifer Subbasin

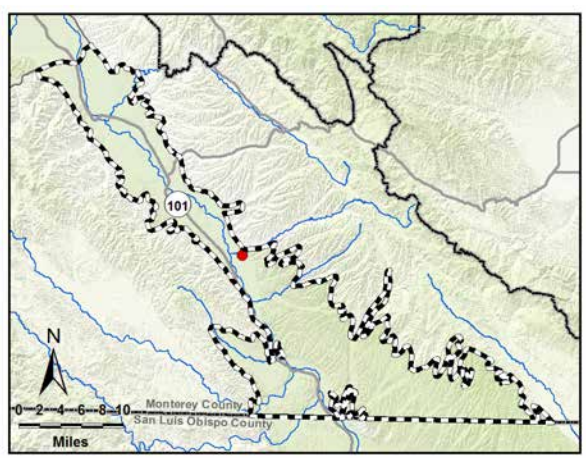


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



Perforated interval unknown

Well bottom elevation unknown

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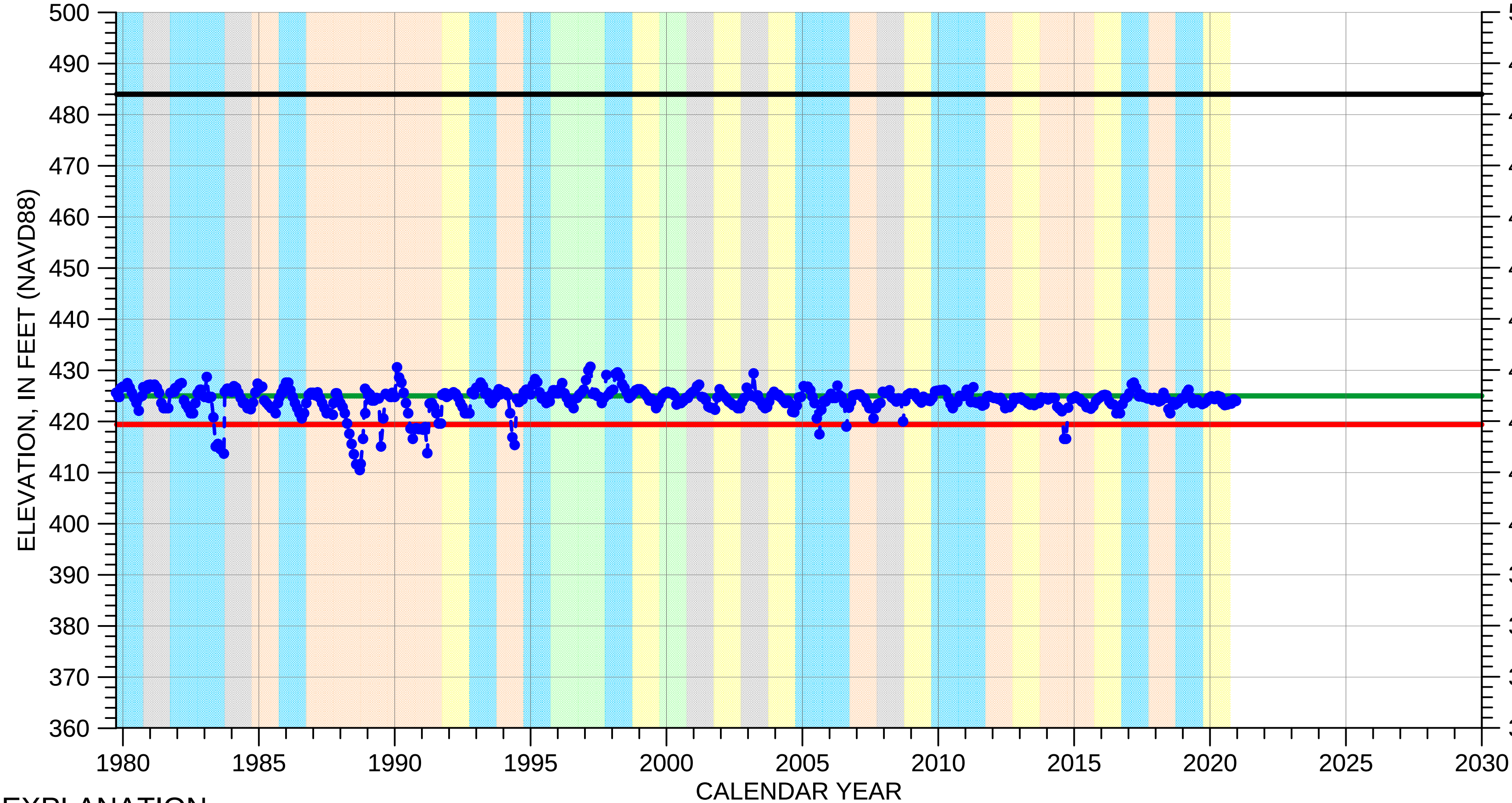
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 22S/10E-34G01

Upper Valley Aquifer Subbasin



Perforated from
399 to 317 feet msl

Well bottom
302 feet msl

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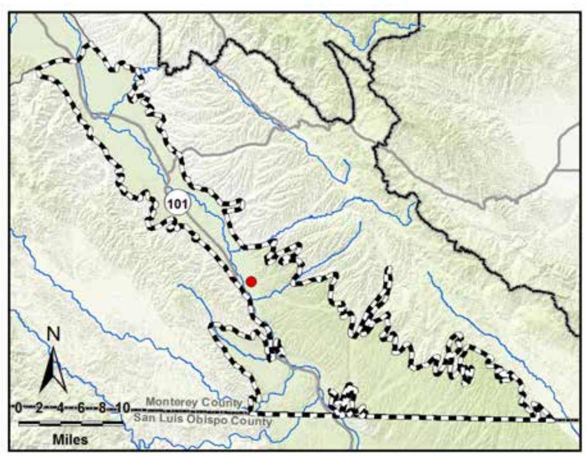
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

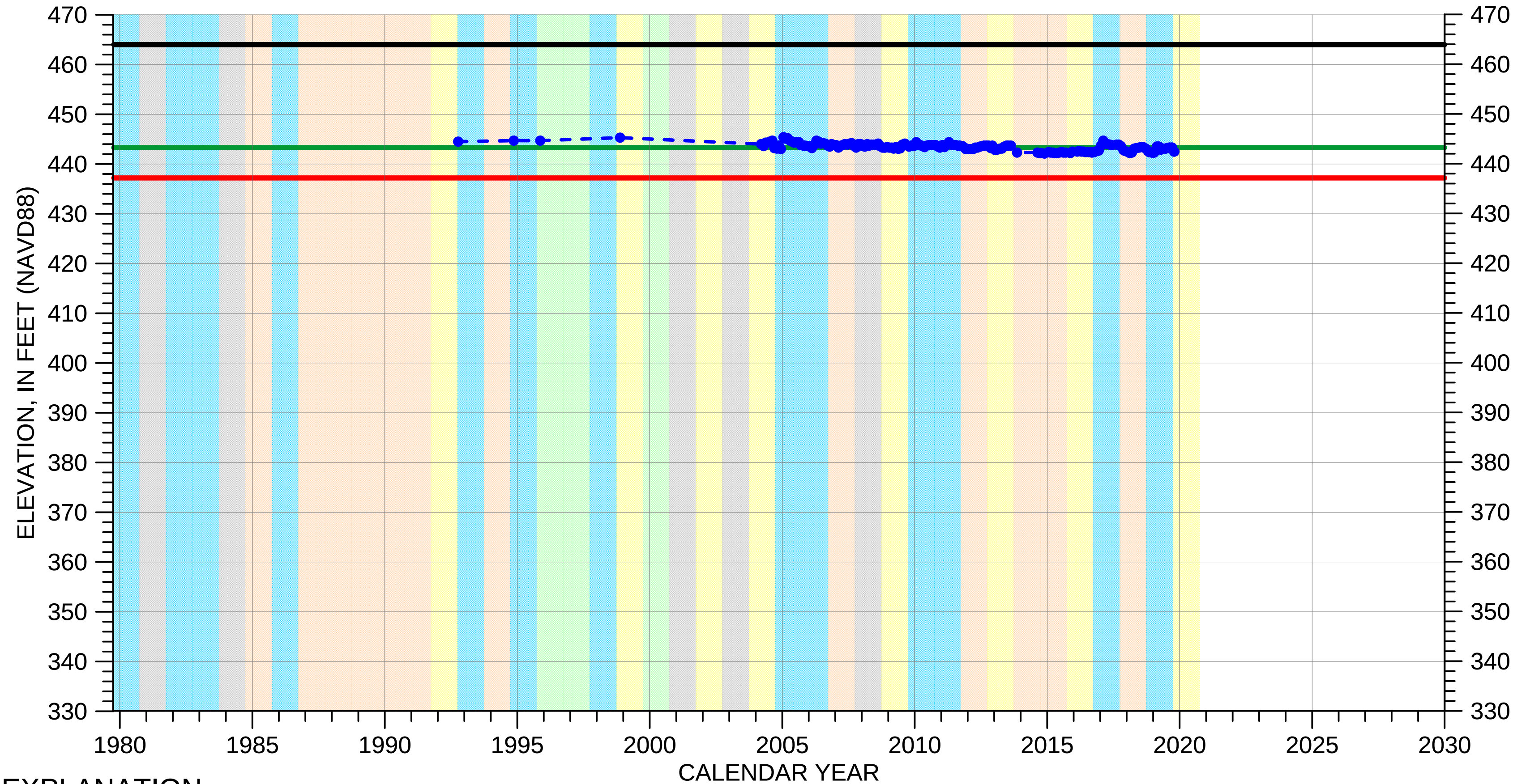
WATER YEAR TYPE DESIGNATION

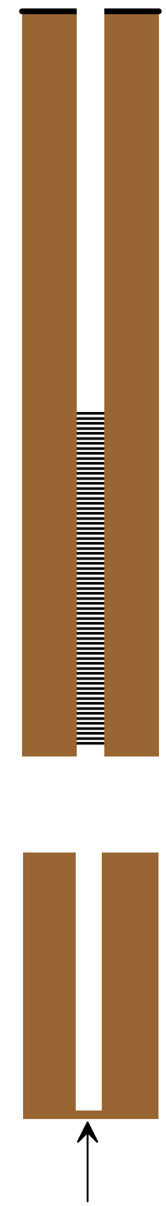
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 23S/10E-14D01

Upper Valley Aquifer Subbasin





Perforated from
392 to 332 feet msl

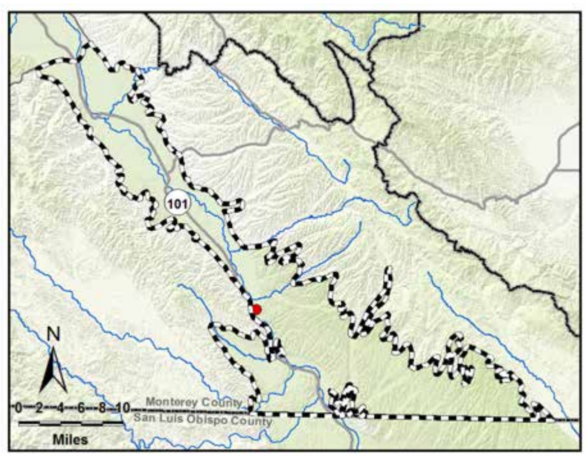
Well bottom
322 feet msl

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



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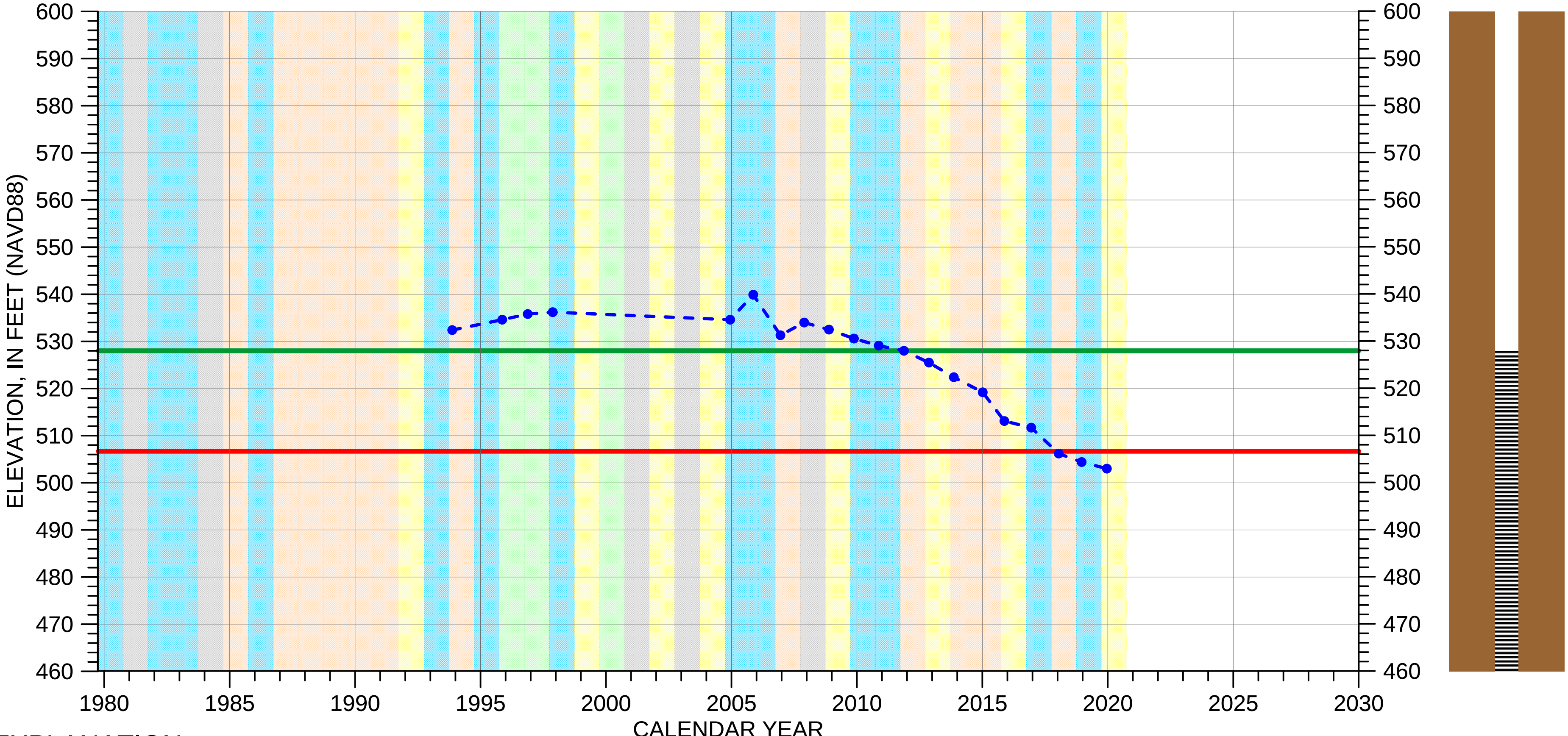
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 23S/10E-33P01

Upper Valley Aquifer Subbasin

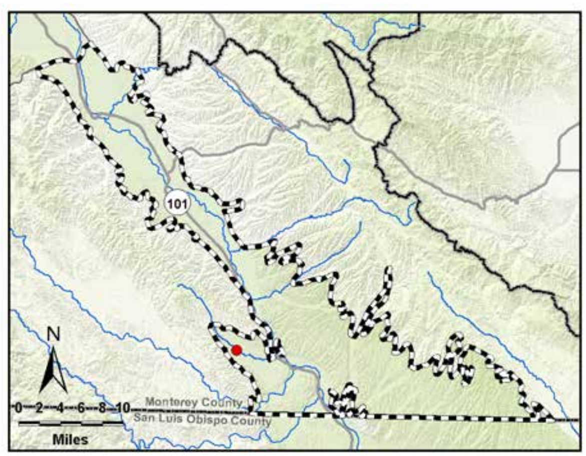


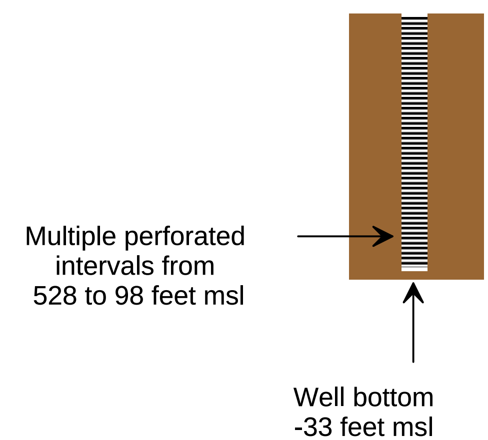
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (748 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET





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Chapter 9
Appendix 9-A

Cost Estimates for Projects and Management Actions

APPENDIX 9. COST ESTIMATES FOR PROJECTS AND MANAGEMENT ACTIONS

Project A-1: Multi-benefit stream channel improvements

Component 2

RCD Arundo Eradication Cost Estimate

Five-year cost for treating arundo (includes three herbicide treatments and mowing or hand-cutting if applicable)								
Work activity	Cost/acre for arundo control contractor	Cost/acre for biomonitoring	Cost/acre for biological surveys	Cost/acre for RCD program administration	Total Cost/acre	Estimated acres remaining	Total Cost (Low Estimate	Total Cost (High Estimate)
Mowed arundo	$ 10,350.00	$ 356.04	$ 2,127.50	$ 2,495.50	$ 15,329.04	700	$ 10,730,328.00	$ 13,949,426.40
Unmowed arundo	$ 7,475.00	$ 349.60	$ 1,322.50	$ 1,759.50	$ 10,906.60	150	$ 1,635,990.00	$ 2,126,787.00
Hand-cut arundo	$ 34,500.00	$ 2,300.00	$ 2,875.00	$ 3,737.50	$ 43,412.50	50	$ 2,170,625.00	$ 2,821,812.50
						Est. cost of initial + retreatment	**$ 14,536,943.00**	**$ 18,898,025.90**

Cost of O&M	
WCS completed treatment on approximately 21 river miles in 2020	$151,599.00
Cost per river mile of 2020 treatment	$7,219.00
Cost per river mile rounded up	$7,500.00
*Cost includes biological surveys and monitoring	
*90 miles of river in Monterey County	
Cost for retreating whole river 1 time	$675,000.00
Cost to re-treat equivalent of whole river five times over 25 years	$3,375,000.00
Cost of helicopter survey to re-map arundo over whole river	$400,000.00
RCD admin costs @ 20% of contractor cost	$755,000.00
Total cost for O&M	**$4,130,000.00**
Average annual cost (total cost/25 years)	**$165,200.00**

Capital and Annualized Costs

Multi-Benefit Stream Channel Improvement - Component 2 - Low Estimate

(Preliminary Cost Estimate)

SUMMARY					
Line No.	**Description**		**Units**		**Total**
1	Project Yield (high estimate)		acre-feet per year		20,880
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$14,536,943
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$1,100,000
7	Annual O&M Cost		$		$165,200
8	Total Annualized Cost		$		$1,265,200
9	Unit Cost		$/AFY		$60
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Mowed arundo	700	Acres	$15,329	$10,730,328
11	Unmowed arundo	150	Acres	$10,907	$1,635,990
12	Hand-cut arundo	50	Acres	$43,413	$2,170,625
13	***Subtotal***				$14,536,943
OPERATIONS AND MAINTENANCE					
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
16	O&M Estmate	1	LS	$165,200	$165,200
17	***Total O&M Cost***				$165,200

NOTES:
1. "Project Yield" based on: Range of 6,000 to 36,000 AF, assumed an average of 20,000 AF
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" based on: Phase I and Phase II.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on facility life and interest rate.
7. "Annual O&M Cost" estimate based on average annual needs for on going monitoring and maintenance (checmical treatment every 3 to 5 years).

Capital and Annualized Costs

Multi-Benefit Stream Channel Improvement - Component 2 - High Estimate

(Preliminary Cost Estimate)

SUMMARY					
Line No.	**Description**		**Units**		**Total**
1	Project Yield (low estimate)		acre-feet per year		2,790
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$18,898,026
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$1,500,000
7	Annual O&M Cost		$		$165,200
8	Total Annualized Cost		$		$1,665,200
9	Unit Cost		$/AFY		$600
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Mowed arundo	700	Acres	$19,928	$13,949,426
11	Unmowed arundo	150	Acres	$14,179	$2,126,787
12	Hand-cut arundo	50	Acres	$56,436	$2,821,813
13	***Subtotal***				$18,898,026
OPERATIONS AND MAINTENANCE					
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
16	O&M Estmate	1	LS	$165,200	$165,200
17	***Total O&M Cost***				$165,200

NOTES:
1. "Project Yield" based on: Range of 6,000 to 36,000 AF, assumed an average of 20,000 AF
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" based on: Phase I and Phase II.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on facility life and interest rate.
7. "Annual O&M Cost" estimate based on average annual needs for on going monitoring and maintenance (checmical treatment every 3 to 5 years).

Component 3

Capital and Annualized Costs
Multi-Benefit Stream Channel Improvements - Component 3
(Preliminary Opinion of Probable Cost)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		100
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$1,116,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$87,300
7	Annual O&M Cost		$		$6,000
8	Total Annualized Cost		$		$93,300
9	**Unit Cost**		$/AF		**$930**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Mobilization/Demobilization	1	LS	$52,000	$52,000
11	Environmental and Stormwater	1	LS	$103,000	$103,000
12	Off-Stream Recharge Basin	8.5	AC	$48,500	$412,250
13	Land Acquisition	1	AC	$45,000	$45,000
14	*Subtotal*				$612,250
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
15	Construction Contingency			30%	$124,000
16	General Conditions			15%	$92,000
17	Contractor Overhead and Profit			15%	$92,000
18	Sales Tax			9.25%	$11,300
19	Engineering, Legal, Admininstrative, Contingencies			30%	$184,000
20	***Total Capital Cost***				$1,116,000
OPERATIONS AND MAINTENANCE					
Line No.	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
21	Detention Basin Maintenance	1	LS	$4,300	$4,300
22	Contingency			30%	$1,300
23	***Total O&M Cost***				$6,000

NOTES:
1. "Project Yield" based on: Assumed 100 acre-feet per year.
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" includes land acquisition costs estimated for an area equivalent to 10% of required recharge basin area. Recharge basin unit cost assumes inclusion of site civil earthwork and access road improvements. Environmental and stormwater requirements are estimate at 15% of capital base costs for off-stream basins.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on facility life and interest rate.

Project A-2: Managed Aquifer Recharge of Overland Flow (Overland Flow MAR)

Capital and Annualized Costs
Managed Aquifer Recharge of Overland Flow Project
(Preliminary Opinion of Probable Cost)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		100
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$1,032,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$80,700
7	Annual O&M Cost		$		$6,000
8	Total Annualized Cost		$		$86,700
9	**Unit Cost**		$/AF		**$870**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Mobilization/Demobilization	1	LS	$47,000	$47,000
11	Environmental and Stormwater	1	LS	$62,000	$62,000
12	Off-Stream Recharge Basin	8.5	AC	$48,500	$412,250
13	Land Access	1	LS	$40,000	$40,000
14	*Subtotal*				$561,250
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
15	Construction Contingency			30%	$124,000
16	General Conditions			15%	$84,000
17	Contractor Overhead and Profit			15%	$84,000
18	Sales Tax			9.25%	$10,400
19	Engineering, Legal, Admininstrative, Contingencies			30%	$168,000
20	***Total Capital Cost***				$1,032,000
OPERATIONS AND MAINTENANCE					
Line No.	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
21	Detention Basin Maintenance	1	LS	$4,300	$4,300
22	Contingency			30%	$1,300
23	***Total O&M Cost***				$6,000

NOTES:
1. "Project Yield" based on: Assumed 100 acre-feet per year.
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. Line 11, Environmental and stormwater requirements, are estimated at 15% of capital base costs for off-stream basins.
5. Line 12 incldes construction of the recharge basin; this cost assumes inclusion of site civil earthwork and access road improvements.
6. Line 13 land access costs are those for acquiring access to land for construction through an easement, license, or other mechansim.
7. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.

Chapter 9
Appendix 9-B

MCWRA Drought TAC

Drought Operations Technical Advisory Committee

Standards and Guiding Principles of Reservoir Operations During Drought Conditions

This document provides a foundation of standards and guiding principles to be used in the development of a proposed reservoir release schedule triggered under specific, seasonally defined conditions.

Standards: a level of quality or achievement that is considered acceptable or desirable.
Standards are in place to ensure that basic needs are met by partners through clearly defined behaviors that are acceptable. The drought operations technical advisory committee will strive to have attainable standards.

Guiding Principles: guide an organization towards its goals.
Guiding Principles are in place to ensure we continue to move toward our goals with flexibility and unity of effort.

Introduction

Prior to being formally established in 1991, the Monterey County Water Resources Agency (MCWRA) was the Monterey County Flood Control and Water Conservation District, established in 1947 and organized as a division of the Public Works Department of the County of Monterey. MCWRA provides services related to the control of flood and storm waters in Monterey County, conservation, protection of water quality, reclamation of water and the exchange of water. MCWRA is a public agency created by the State of California pursuant to the Monterey County Water Resources Agency Act (California Water Code, Appendix 52).

MCWRA owns and operates two dams along with associated reservoirs. Nacimiento Dam is on the Nacimiento River, a tributary to the Salinas River. Nacimiento Dam is approximately 12.3 river miles upstream of its confluence with the Salinas River and forms the Nacimiento Reservoir, with a maximum storage capacity of approximately 377,900 acre-feet. San Antonio Dam, on the San Antonio River is approximately 8.6 river miles upstream of its confluence with the Salinas River. San Antonio Dam forms the San Antonio Reservoir, with a maximum storage capacity of approximately 335,000 acre-feet of water. The Nacimiento and San Antonio Rivers enter the Salinas River at river miles 108 and 104, respectively, from its mouth at the Pacific Ocean in Monterey Bay.

The purpose of the Drought Operations Technical Advisory Committee (D-TAC) is to provide, when drought triggers occur, technical input and advice regarding the operations of Nacimiento and San Antonio Reservoirs. This document was developed by the members of the D-TAC to

provide a foundation of Standards and Guiding Principles to be used in the development of a proposed reservoir release schedule triggered under specific, seasonally defined conditions.
A Habitat Conservation Plan (HCP) is currently being developed to address the effects of reservoir operations and other actions on Federally endangered species and will further address drought operations in the Salinas River system. Documents and procedures developed by the D-TAC will be considered during development of the HCP. MCWRA will convene with stakeholders to determine if modifications to these drought procedures are warranted in light of the terms of the final HCP. Drought operations developed by the D-TAC will also consider management actions and sustainability criteria within the Groundwater Sustainability Plans for the Salinas Valley groundwater basin.

Formation of the D-TAC

The D-TAC was formed through a settlement agreement (Appendix A) to develop Standards and Guiding Principles and proposed reservoir release schedules for MCWRA drought operations. The D-TAC is an ad hoc committee of independent third-party experts with expertise in any of the following fields: hydrology, hydrogeology, hydrologic modeling, civil engineering, ecology, or fish and wildlife biology. The experts are retained and paid for, but not employed by any interested person or organization. The U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Wildlife, State Water Resources Control Board, Salinas Valley Basin Groundwater Sustainability Agency and the Monterey County Water Resources Agency are using in-house staff as D-TAC members. Each time a Drought Trigger occurs, the chair of the D-TAC shall rotate, in alphabetical order, by the name of the organization D-TAC members represent. Organizations with multiple members will only have one-person chair in the rotation.

D-TAC Members (ordered alphabetically by organization):

- Donald Baldwin, Environmental Scientist, - California Department of Fish and Wildlife
- Dennis Michniuk, District Biologist Coastal Fisheries - California Department of Fish and Wildlife
- Robert Abrams, PhD, PG, CHg – Grower-Shipper Association
- William Stevens, Natural Resource Management Specialist - National Marine Fisheries Service
- Shaunna Murray, Senior Water Resources Engineer – Monterey County Water Resources Agency
- Germán Criollo, PE, Associate Hydrologist – Monterey County Water Resources Agency
- Jason Demers, Associate Engineer – Monterey County Water Resources Agency
- Emily Gardner, Dep. General Manager – Salinas Valley Basin Groundwater Sustainability Agency
- Curtis Weeks, PE, - Salinas Valley Water Coalition
- Mark Ogonowski, Senior Fish and Wildlife Biologist – U.S. Fish and Wildlife Service

Facilitation and Support:

- Howard Franklin, PG, Senior Hydrologist – Monterey County Water Resources Agency
- Nicole Koerth, GIT, Hydrologist – Monterey County Water Resources Agency

D-TAC Triggers

Drought Triggers, or reservoir storage thresholds for when the D-TAC shall meet to develop a release schedule, are defined in Exhibit B of the Settlement Agreement (Appendix A). These triggers are based on operational considerations and not water year type. The storage thresholds defined assume that MCWRA can make conservation releases to the Salinas River Diversion Facility (SRDF) for two months and maintain minimum releases until September.

A Drought Trigger occurs if the following criteria is met:

- At the October Reservoir Operations Advisory Committee meeting of each year, MCWRA staff will present an updated reservoir release schedule and the then-current forecast for December 1st storage at Nacimiento and San Antonio Reservoirs. If the December 1st forecasted combined reservoir storage volume at Nacimiento and San Antonio Reservoirs is below 220,000 acre-feet and the San Antonio Reservoir's December 1st forecasted storage is below 82,000 acre-feet, the D-TAC process shall commence.
- The MCWRA will schedule the first D-TAC meeting to occur no earlier than February 15th and the D-TAC will meet as needed through March 31st. The D-TAC will develop a recommended release schedule that is consistent with the Standards and Guiding Principles.
- If at any time between December 1st and March 31st the actual reservoir storage volumes equals or exceeds the combined or individual minimum storage thresholds, the D-TAC process will terminate, and no release schedule will be prepared by the D-TAC.

Standards:

- The proposed reservoir release operations schedule triggered under specific, seasonally defined conditions of drought will be developed based on the best available scientific knowledge, data, and understanding of the environmental biology, hydrology and hydrogeology of the Salinas Valley; under the technical expertise of the members of the D-TAC.
- The proposed reservoir release schedule will be implemented based on specific tools and templates made available to the D-TAC. These are discussed further in the Implementation Procedures section.
- The proposed reservoir release schedule will acknowledge, address, and balance the water needs of various stakeholders for limited resources during a drought.

Guiding Principles:

- MCWRA is a public agency charged with the long-term management of water resources in the Salinas Valley and is also the flood control agency for Monterey County. Therefore, any releases of water from Nacimiento or San Antonio Reservoirs will be made with consideration given first to safety, including flow conditions and the structural integrity of Nacimiento and San Antonio Dams.
- MCWRA operates Nacimiento and San Antonio Reservoirs under regulatory authorizations; as well as through legal agreements (Appendix C).
- Any reservoir release schedule developed by the D-TAC should:
    - When conservation releases are made, maintain geographic equity to fullest extent possible;
    - Comply with applicable regulations and agreements relating to the operation of Nacimiento and San Antonio Reservoirs;
    - Avoid, to the extent possible, consecutive years where only minimum releases are made from the reservoirs;
    - Avoid, to the extent possible, adverse effects to native species and their habitats;
    - Safely use existing MCWRA infrastructure while balancing water availability and use; and
    - Avoid, to the extent possible, adverse impacts to valley-wide agricultural operations.

Implementation Procedures:

- The D-TAC will use a MCWRA provided template when developing the release schedule. The specific actions will also be described in a narrative form to expound upon the actions taken for each month shown in the release schedule.
- The release schedule will be developed for April through December of the current year. If significant inflow occurs during this period, then modifications to the release schedule will be made through existing MCWRA protocols.
- The D-TAC will develop a dry winter scenario narrative for the following January- March period to allow for the possibility of multiple dry winter release operations.
- The reservoir release schedule includes estimated values for demands, releases and associated reservoir elevations and storage volumes. It serves as a guideline for reservoir operations. Actual operations will require the flexibility to respond to current hydrologic and facility conditions.
- The release schedule will be updated on a monthly basis for discussion at the Reservoir Operations Committee.
- Reservoir releases will be made under direction of the MCWRA Board of Directors or Board of Supervisors through the adoption of a reservoir release schedule or dry winter release priorities, to be executed by MCWRA staff.

Summary Actions

The Standards and Guiding Principles Document and any recommended release schedule prepared by the D-TAC will first be received by the Reservoir Operations Advisory Committee. The Reservoir Operations Advisory Committee will meet to discuss the Standards and Guiding Principles or release schedule and will solicit information, data and public comment regarding appropriate MCWRA operations during droughts. Following receipt of public input regarding the Standards and Guiding Principles or any subsequent release schedule, the Reservoir Operations Advisory Committee will then prepare a written recommendation regarding reservoir operations which will be transmitted to the MCWRA Board of Directors for consideration and action. Any interested party that dissents from the Reservoir Operations Committee's recommendation may submit separate written comments to the MCWRA Board of Directors. The MCWRA Board of Directors will determine, in accordance with applicable law, whether MCWRA will adopt and implement the Standards and Guiding Principles or release schedule, provided the MCWRA General Manager may, in his sole discretion, refer the question of whether MCWRA should adopt and implement the Standards and Guiding Principles or a release schedule to the MCWRA Board of Supervisors for final determination. In the event the MCWRA General Manager elects not to refer the question of adoption and implementation of Standards and Guiding Principles or a release schedule to the MCWRA Board of Supervisors, the decision of the MCWRA Board of Directors regarding such questions shall constitute final agency action for all purposes. The MCWRA Board of Directors (or MCWRA Board of Supervisors, if applicable) will retain full discretion and authority to accept or reject, in whole or in part, the written recommendations of the Reservoir Operations Advisory Committee.

APPENDICES

Appendix A: *Settlement Agreement Between Monterey County Water Resources Agency, The Agency Board of Supervisors, the Agency Board of Directors, the County of Monterey, the County Board of Supervisors, and the Salinas Valley Water Coalition; November 15, 2019*

- https://www.co.monterey.ca.us/Home/ShowDocument?id=98911

Documents referenced in Exhibit B of the Settlement Agreement

- *Salinas Valley Water Project, Engineer's Report, January 2003*
    - https://www.co.monterey.ca.us/home/showdocument?id=24202
- *Final Environmental Impact Report/Environmental Impact Statement for the Salinas Valley Water Project*
    - *Draft, June 2001:* https://www.co.monterey.ca.us/home/showdocument?id=24180
    - *Final Volume 1, April 2002:* https://www.co.monterey.ca.us/home/showdocument?id=24186
    - *Final Volume 2, April 2002:* https://www.co.monterey.ca.us/home/showdocument?id=24188
- *Salinas Valley Water Project EIR Addendum, July 17, 2007*
    - https://www.co.monterey.ca.us/home/showpublisheddocument?id=98572

Appendix B: *Definition of Terms*

Appendix C: *Monterey County Water Resources Agency's Water Rights and Agreements*

Appendix B: Definition of Terms

Adult Steelhead Upstream Migration Releases – Reservoir releases made to facilitate upstream migration of adult steelhead between February 1st- March 31st, when triggers are met. If the 1) combined storage of Nacimiento and San Antonio reservoirs is greater than 220,000 AF, 2) 340 cfs or higher flows are present at the Arroyo Seco near Soledad gage (USGS streamflow gage 11152000), and 3) 173 cfs or higher flows are present at the Arroyo Seco below the Reliz Creek gage (USGS streamflow gage 11152050), MCWRA will provide flows of at least 260 cfs at the Salinas River near Chualar (USGS streamflow gage 11152300) for five or more consecutive days, when the river mouth is open to the ocean.

Block Flow Releases – Reservoir releases made to facilitate the downstream migration of smolts and rearing juvenile steelhead in the Salinas River beginning March 15th in normal-category type years. The following triggers must be meet for releases to be made 1) water year type is dry-normal, normal or wet-normal, 2) combined storage of Nacimiento and San Antonio reservoirs is 150,000 AF or more on March 15th, and 3) 125 cfs or higher at the Nacimiento River below Sapaque Creek gage (USGS streamflow gage 111489000) or 70 cfs at the Arroyo Seco below Reliz Creek gage (USGS streamflow gage 11152050). Amount and duration of block flow depends on when the flows are triggered.

Conservation Pool – Water in reservoirs used for groundwater recharge, operation of the Salinas River Diversion Facility, water supply, fish migration, and fish habitat requirements. Volume of 289,013 acre-feet between 687.8 feet and 787.75 feet in Nacimiento Reservoir and volume of 282,000 acre-feet between 666 feet and 774.5 feet in San Antonio Reservoir.

Conservation Releases – Water discharged for the purpose of recharging the groundwater basin.

Dead Pool – The storage between the bottom of the reservoir and elevation 670 feet for Nacimiento Reservoir, the invert of the intake structure of the low-level outlet works, and elevation 645 feet for San Antonio Reservoir, the invert of the intake structure of the outlet works. The volume of the Dead Pool is 10,300 acre-feet in Nacimiento Reservoir and 10,000 acre-feet in San Antonio Reservoir. Water cannot flow out by gravity out of Nacimiento Reservoir below 670 feet elevation and out of San Antonio below 645 feet elevation.

Downstream Migration of Juvenile Steelhead and Kelts Releases – Reservoir releases and SRDF bypass flows made to enhance migration opportunities for juvenile steelhead and post-spawn adult steelhead (kelts) made in years when block flow releases for smolt migration don't occur by April 1st.

Dry Year – Water year in which unimpaired annual mean flow at the USGS streamgage on the Arroyo Seco near Soledad (USGS streamgage 11152000) falls in the 75-100% percentile of mean annual flows ranked in descending order (as defined in the Salinas Valley Water Project Flow Prescription for Steelhead Trout in the Salinas River).

Environmental Compliance – Conforming to any environmental regulatory requirements currently imposed or those that become imposed in the future.

Flood Pool – Water used to temporarily store flood water during the winter. Volume of 66,587 acre-feet between 787.75 feet and 800 feet in Nacimiento Reservoir and volume of 30,000 acre-feet between 774.5 feet and 780 feet in San Antonio Reservoir.

Maximum Reservoir Elevation – Maximum reservoir elevation that can be sustained, and the level at which the reservoir is considered full. Elevation of 800 feet in Nacimiento Reservoir and 780 feet in San Antonio Reservoir.

Minimum Releases – Reservoir releases made to provide steelhead spawning and rearing habitat flows. Minimum releases are 60 cfs from Nacimiento Dam as long as the water surface elevation of Nacimiento Reservoir is above 687.8 feet, and 10 cfs from San Antonio Dam as long as the water surface elevation of San Antonio Reservoir is above 666 feet.

Minimum Pool – The storage above Dead Pool and below Conservation Pool. This is between elevation 670 feet and 687.8 feet in Nacimiento Reservoir. The volume of this pool is 12,000 acre-feet which is reserved for use by the County of San Luis Obispo per the 1959 San Luis Obispo County Agreement. In San Antonio Reservoir, minimum pool is between elevation 670 feet and 687.7 feet, with a volume of 12,000 acre-feet.

Minimum Recreation Elevation – Lowest Nacimiento Reservoir elevation at which most of the boat ramps around the reservoir are useable and which most private property owners have access to the reservoir.

Natural Flow – Water that would exist in a stream at a given point in time in the absence of human activity *(Source: https://www.waterboards.ca.gov/waterrights/board_info/faqs.html)*

NWP Intake Elevation – Lowest Nacimiento Reservoir elevation at which San Luis Obispo County can take water through the Nacimiento Water Project. Elevation of 670 feet.

Operations Ratio – The ratio of empty space in the conservation pools of San Antonio and Nacimiento Reservoirs, with Nacimiento as the numerator. Historically, this ratio was defined as 3 to 1, and reservoir releases were made in such a manner that the ratio was reached prior to halting releases at onset of the rainy season.

Salinas River Diversion Facility (SRDF) – A component of the Salinas Valley Water Project that consists of an inflatable Obermeyer dam and a river intake structure to provide treated river water to growers within the Castroville Seawater Intrusion Project service area. This facility is located approximately 5 river miles upstream of the mouth of the Salinas River.

Salinas Valley Water Project (SVWP) – A project developed by MCWRA and Salinas Valley interests that consists of the modifications of the spillway at Nacimiento Dam and the construction of the Salinas River Diversion Facility, near the city of Marina. The goals of the project are to help stop seawater intrusion, improve flood control, recharge Salinas Valley groundwater, and improve conditions for steelhead trout.

Top of Dam – The dam crest. Elevation of 825 feet at Nacimiento Dam and 802 feet at San Antonio Dam.

Water Year – The 12-month period from October 1st through September 30th. The water year is designated by the calendar year in which it ends, and which included 9 out of the 12 months. For examples, the year ending on September 30th, 1959 is called “1959 water year”.

Water Year Type – Determination of water year type (e.g. dry, normal, wet) is made based on unimpaired annual mean flows at the USGS streamgage on the Arroyo Seco near Soledad (USGS Streamgage 11152000). Annual mean flows are ranked in descending order and stream flow corresponding to the 25^{th} and 75^{th} percentile are selected as the thresholds. Wet years are defined as flows below the 25^{th} percentile, Normal years between the 25^{th} and 75^{th} percentile, and Dry years above the 75^{th} percentile. Year type determinations are made on March 15^{th} (preliminary) and April 1^{st} (official) of each year. (as defined in the Salinas Valley Water Project Flow Prescription for Steelhead Trout in the Salinas River).

Appendix C: Monterey County Water Resources Agency's Water Rights and Agreements

Nacimiento Reservoir

Water Rights License 7543 – License for Diversion and Use of Water, No. 7543, from the California State Water Resources Control Board, was issued November 4, 1965.

This license was last amended September 5, 2008 to specify that the place of use of water from this license changed to include 421,435 acres of land comprising MCWRA's Zone 2C assessment zone, to add a point of rediversion at the Salinas River Diversion Facility (SRDF), and to add fish flow requirements that were consistent with the June 21, 2007, National Marine Fisheries Service (NMFS) biological opinion issued to the U.S. Army Corps of Engineers (biological opinion).

License No. 7543 gives MCWRA the right to store 350,000 AF from October 1 of each year to July 1 of the succeeding year and to withdraw a maximum of 180,000 AF per year. The purpose of use are for irrigation, domestic, municipal, industrial, and recreational uses. *Documents for this can be found in Appendix B of the Nacimiento Dam Operation Policy: https://www.co.monterey.ca.us/Home/ShowDocument?id=63151*

Water Rights Permit 21089 – Permit for Diversion and Use of Water, No. 21089, from the California State Water Resources Control Board, was issued March 23, 2001. This permit was last amended September 5, 2008, to specify that the place of use of water from this license changed to include 421,435 acres of land comprising MCWRA's Zone 2C assessment zone, to add a point of rediversion at the SRDF, and to add fish flow requirements that were consistent with the NMFS biological opinion.

The original reservoir volume computations submitted and subsequently approved in License No. 7543, were based on United States Geological Survey (USGS) Quad sheets from the 1940s. In the early 1990s, aerial surveys with increased accuracy showed that the actual volume of Nacimiento Reservoir was greater than the 350,000 AF in License 7543. In order to correct this discrepancy, MCWRA filed water rights Application No. 30532. Nacimiento Dam has never been modified in any way to increase storage and the reservoir volume is unchanged from the time of the dam's construction, with the exception of the inflow of silt from natural runoff which has decreased storage volume.

As a result of this application, MCWRA has a permit to collect to storage 27,900 AF per annum from October 1 of each year to July 1 of the succeeding year. The total quantity of water collected to storage under this permit and License 7543 shall not exceed 377,900 AF per year.

Documents for this can be found in Appendix B of the Nacimiento Dam Operation Policy: *https://www.co.monterey.ca.us/Home/ShowDocument?id=63151*

Water Rights Permit 19940 – Permit for Diversion and Use of Water, No. 19940, from the California State Water Resources Control Board, was issued December 31, 1986. Permit 19940 gives MCWRA the right to divert up to 500 cfs through the Hydroelectric Plant from January 1 to December 31 of each year for irrigation, domestic, municipal, industrial and recreational uses. Diversion under this permit is incidental to releases being made for other purposes.

Documents for this can be found in Appendix B of the Nacimiento Dam Operation Policy: *https://www.co.monterey.ca.us/Home/ShowDocument?id=63151*

San Luis Obispo County Agreement – MCWRA's Water Rights License No. 7543 is subject to an agreement between MCWRA and SLO District which gives SLO District the right to use 17,500 AF of water annually from Nacimiento Reservoir. The SLO District Board has adopted a policy designating a portion of the total, approximately 1,750 acre-feet per year (AFY), for use around Nacimiento Reservoir; Heritage Ranch Community Services District (HRCSD) has agreements with SLO District which collectively entitle HRCSD to use 889 AFY of the 1,750 AFY; pursuant to these agreements, HRCSD takes its allotment from a well gallery in the Nacimiento River downstream of the Dam. SLO District can use up to the remaining 15,750 AF per water year through the NWP. The agreement also provides that MCWRA shall not make conservation releases during the water year that result in a reservoir elevation below 687.8 feet on September 30 of each year in order to assure SLO District of its rights and entitlements to water under the terms of the agreement (i.e. in order to assure the maintenance of a minimum storage pool of 12,000 AF above the present low-level outlet works for SLO District use). The original agreement is dated October 19, 1959, and it has been amended six different times in 1959, 1967, 1970, 1977, 1988, and 2007. These documents are collectively referred to as the SLO County Agreement.
Documents for this can be found in Appendix C of the Nacimiento Dam Operation Policy: *https://www.co.monterey.ca.us/Home/ShowDocument?id=63151*

Nacimiento Water Company Agreement – The 1984 agreement with MCWRA allows the Nacimiento Water Company a water allocation of up to 600 AF per year to be extracted from wells within the floodage easement of Nacimiento Reservoir. The Nacimiento Water Company shall pay MCWRA quarterly for water from the allocation on the basis of AF used at a rate determined by this agreement.
Documents for this can be found in Appendix D of the Nacimiento Dam Operation Policy: *https://www.co.monterey.ca.us/Home/ShowDocument?id=63151*

San Antonio Reservoir

Water Rights License 12624 - License for Diversion and Use of Water, No. 12624, from the California State Water Resources Control Board, was issued December 2, 1965 and amended April 22, 1990. This license was most recently amended September 5, 2008 to specify that the place of use of water from this license changed to include 421,435 acres of land comprising MCWRA's Zone 2C assessment zone, to add a point of rediversion at the SRDF, and to add fish flow requirements consistent with the June 21, 2007, National Marine Fisheries Service BO.

License No. 12624 gives MCWRA the right to store 220,000 AF from October 1 of each year to July 1 of the succeeding year and to withdraw a maximum of 210,000 AF per year for municipal, domestic, industrial, irrigation, and recreational uses.

The amended license can be found on the CA State Water Resources Control Board website: https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2008/wro2008_0037dwr.pdf