

# RECOMMENDATIONS TO ADDRESS THE EXPANSION OF SEAWATER INTRUSION IN THE SALINAS VALLEY GROUNDWATER BASIN

Monterey County  
Water Resources Agency

Special Reports Series 17-01

October 2017





# **Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin**

Special Reports Series 17-01  
October 2017

## **Monterey County Water Resources Agency**

David E. Chardavoyne, General Manager

Brent Buche, Deputy General Manager

*This report was prepared by the Hydrology Section with assistance from the Operations and Maintenance Division.*

Howard Franklin, Senior Hydrologist, California P.G. #8456

### **Hydrology Section**

Tamara Voss, Associate Hydrologist

Peter Kwiek, Hydrologist, California P.G. #8695

Amy Woodrow, Hydrologist, California P.G. #8849

Sean Noble, Technician

### **Operations and Maintenance Division**

Mark Foxworthy, Associate Engineer, California P.E. #75476

Manuel Saavedra, Engineer

# Monterey County Water Resources Agency

## Mission Statement

The Water Resources Agency manages, protects, stores, and conserves water resources in Monterey County for beneficial and environmental use, while minimizing damage from flooding to create a safe and sustainable water supply for present and future generations.

## Vision Statement

To become a recognized and respected leader in the community we serve through demonstrated knowledge, integrity, and the quality of our actions.

## Monterey County Water Resources Agency Board of Supervisors

Luis Alejo	District #1
John M. Phillips	District #2
Simón Salinas	District #3
Jane Parker	District #4
Mary Adams, Chair	District #5

## Monterey County Water Resources Agency Board of Directors

Mark Gonzales, Vice Chair	District #1
Mike Scattini	District #2
Richard Ortiz	District #3
Deidre Sullivan	District #4
Ken Ekelund	District #5
Glen Dupree	Grower-Shipper Association
David Hart, Chair	Agricultural Advisory Committee
Claude Hoover	Monterey County Farm Bureau
Mike LeBarre	City Selection Committee



# Table of Contents

<b>SECTION 1 – INTRODUCTION</b>	<b>1</b>
1.1 Previous Activity	1
1.2 Objective of this Report	1
1.3 Recommendations	2
1.4 Explanation of Exemptions	6
1.4.1 Municipal water supply wells	6
1.4.2 CSIP wells	7
1.4.3 Monitoring wells	8
1.4.4 Well repairs	8
1.5 Defining the Area of Impact	8
<b>SECTION 2 – BACKGROUND</b>	<b>10</b>
2.1 Geology and Hydrogeology	10
2.1.1 Geology and Geologic Setting	10
2.1.1.1 180/400 Foot Aquifer Subbasin	13
2.1.1.2 East Side Aquifer Subbasin	14
2.1.2 Hydrogeology	16
2.1.2.1 Shallow Alluvial Aquifer	16
2.1.2.2 Salinas Valley Aquitard	16
2.1.2.3 Pressure 180-Foot Aquifer	17
2.1.2.4 Pressure 180/400-Foot Aquitard	17
2.1.2.5 Pressure 400-Foot Aquifer	17
2.1.2.6 Pressure 400-Foot/Deep Aquitard	17
2.1.2.7 Deep Aquifers	17
2.2 Seawater Intrusion	18
2.2.1 Defining seawater intrusion	18
2.2.2 Monitoring groundwater	18
2.2.2.1 Groundwater levels	18
2.2.2.2 Groundwater quality	19
2.2.3 Pathways of seawater intrusion	19
2.2.3.1 Regional Seawater Intrusion	19
2.2.3.2 Inter-Aquifer Seawater Intrusion	20
2.2.4 Rates of seawater intrusion	20
2.3 Castroville Seawater Intrusion Project	27

# Table of Contents

<b>SECTION 3 – PRESSURE 400-FOOT AQUIFER.....</b>	<b>28</b>
3.1 Recommendations.....	28
3.1.1 Area of Impact.....	29
3.2 Background and Discussion.....	30
3.2.1 Hydrogeology .....	30
3.2.2 Groundwater Extractions in the Pressure 400-Foot Aquifer .....	31
3.2.3 Water Quality in the Pressure 400-Foot Aquifer .....	32
3.2.4 Hydraulic Conditions Giving Rise to Seawater Intrusion .....	33
3.3 Wells and Vertical Migration of Groundwater .....	34
3.3.1 Well Inventory .....	34
3.3.2 Interpreting Hydraulic Separation.....	35
3.3.3 Efforts to Limit Inter-Aquifer Hydraulic Communication .....	37
3.4 Enhancement and Expansion of CSIP .....	37
3.4.1 Enhancement of CSIP .....	37
3.4.2 Expansion of CSIP .....	37
3.5 Findings in Support of Recommendations .....	38
<b>SECTION 4 – DESTRUCTION OF WELLS IN THE CSIP AREA .....</b>	<b>40</b>
4.1 Recommendation .....	40
4.2 Background.....	40
4.2.1 Agency Ordinance No. 3790.....	40
4.2.2 Impetus for Recommendation .....	41
4.3 Prioritization of Wells for Destruction.....	41
4.3.1 Criteria.....	41
4.3.2 Ranking .....	42
4.4 Costs and Funding.....	44
<b>SECTION 5 – DEEP AQUIFERS OF THE 180/400 FOOT AQUIFER SUBBASIN .....</b>	<b>45</b>
5.1 Recommendations .....	45
5.2 Background and Discussion.....	45
5.2.1 Nomenclature .....	45
5.2.2 Geology and Hydrostratigraphy of the Deep Aquifers.....	46
5.2.3 Spatial Extent of the Deep Aquifers.....	46
5.2.4 Wells in the Deep Aquifers.....	47
5.2.5 Well Installation History in the Deep Aquifers .....	47
5.2.6 Trends in Well Construction in the Deep Aquifers.....	48

# Table of Contents

5.2.7	Groundwater Levels in the Deep Aquifers .....	49
5.2.8	Groundwater Quality in the Deep Aquifers .....	50
5.2.9	Extraction from Wells in the Deep Aquifers.....	52
5.2.10	Recharge and Storage in the Deep Aquifers.....	53
5.2.11	Data Gaps in Knowledge of the Deep Aquifers.....	53
5.3	Findings in Support of Recommendations .....	54
<b>SECTION 6 – AGENCY AUTHORITY AND REGULATIONS APPLICABLE TO IMPLEMENTING RECOMMENDATIONS.....</b>		<b>55</b>
6.1	Monterey County Water Resources Agency Act.....	55
6.2	Monterey County Code Chapter 15.08 Water Wells.....	56
6.3	2010 Monterey County General Plan.....	56
6.4	Monterey County Water Resources Agency Ordinance No. 3709.....	56
6.5	Monterey County Water Resources Agency Ordinance No. 3790.....	57
6.6	Specifications for Wells in Zone 6 of the Monterey County Flood Control & Water Conservation District .....	57
6.7	Sustainable Groundwater Management Act (SGMA) .....	57
<b>SECTION 7 - SUMMARY .....</b>		<b>59</b>
<b>SECTION 8 - REFERENCES .....</b>		<b>61</b>

## Appendices

Appendix A	2015 Groundwater Elevation Contour Maps
Appendix B	Monterey County Water Recycling Projects and Salinas River Diversion Facility Water Production
Appendix C	Castroville Seawater Intrusion Project; Preliminary Well Destruction Priority List from Staal, Gardner, and Dunne (1994)
Appendix D	Geologic Cross Sections from Feeney and Rosenberg (2003)
Appendix E	Well Completion Reports for Wells in the Deep Aquifers
Appendix F	Well Construction Details for Wells in the Deep Aquifers
Appendix G	Excerpts from Monterey County Water Resources Agency Act

# Table of Contents

Appendix H	Monterey County Code Chapter 15.08 Water Wells
Appendix I	Excerpt from 2010 Monterey County General Plan
Appendix J	Monterey County Water Resources Agency Ordinance No. 3709
Appendix K	Monterey County Water Resources Agency Ordinance No. 3790
Appendix L	Specifications for Wells in Zone 6 of the Monterey County Flood Control & Water Conservation District
Appendix M	Excerpts from the Sustainable Groundwater Management Act (SGMA)

## List of Figures

Figure 1 - Map of Historical Seawater Intrusion in the Pressure 180-Foot Aquifer .....	4
Figure 2 - Map of Historical Seawater Intrusion in the Pressure 400-Foot Aquifer .....	5
Figure 3 - Total Reported Groundwater Extractions from Wells in the Area of Impact (1995 to 2015) .....	7
Figure 4 - Area of Impact.....	9
Figure 5 - Monterey County Geologic Setting .....	12
Figure 6 - Zone 2C Subareas.....	12
Figure 7 - Stratigraphy and Hydrostratigraphy of the 180/400 Foot Aquifer Subbasin of the Salinas Valley Groundwater Basin .....	14
Figure 8 - Generalized Fluvial and Alluvial Fan Facies of the Northern Salinas Valley .....	16
Figure 9 - Illustration of Regional Seawater Intrusion .....	21
Figure 10 - Illustration of Inter-Aquifer Seawater Intrusion .....	22
Figure 11- Boundary of the Castroville Seawater Intrusion Project Service Area (Zone 2B).....	27
Figure 12 - Areas of Discontinuities in the Pressure 180/400 Foot Aquitard .....	30
Figure 13 - Annual Groundwater Extractions from Pressure 400-Foot Aquifer Wells in the Area of Impact.....	32
Figure 14 - 2015 Extent of Seawater Intrusion.....	33
Figure 15 - Degree of Hydraulic Separation in Wells within and near the Area of Impact.....	35
Figure 16 - Criteria and Weighting Approach for Well Destructions in Zone 2B.....	43
Figure 17 - Map of Wells Prioritized for Destruction in Zone 2B .....	44
Figure 18- Wells in the Deep Aquifers .....	47
Figure 19 - Timeline of Well Installation in Deep Aquifers of the 180/400 Foot Aquifer Subbasin...	48
Figure 20 - Depth of Agricultural Wells in Deep Aquifers of the 180/400 Foot Aquifer Subbasin .....	49

# Table of Contents

Figure 21 - Average Groundwater Level Changes in the Deep Aquifers (1986-2016).....	50
Figure 22 - Piper Diagram of Native Water Quality in Pressure Subarea Aquifers.....	51
Figure 23 - Total Annual Groundwater Extractions from Deep Aquifers in Zone 2A (1995-2016)....	52

## List of Tables

Table 1 - Geologic time scale highlighting events in Monterey County .....	11
Table 2 - Historical Estimated Acreage Overlying Seawater Intrusion.....	26
Table 3 - Aquifer Assignments for Wells in the Area of Impact that Report Groundwater Extractions .....	31
Table 4 - Summary of Degree of Uncertainty Observed in Hydraulic Separation for Wells within the Area of Impact.....	36
Table 5 - Prioritization Categories and Well Counts for Destructions in Zone 2B .....	42
Table 6 - Well Destruction Costs by Prioritization Category.....	44
Table 7 - Summary of Ordinances, Regulations, and Statutes Applicable to the Recommendations in this Report.....	58

This page intentionally left blank.

# Section 1 - Introduction

## 1.1 Previous Activity

At a Special Joint Meeting of the Board of Supervisors of Monterey County, Board of Supervisors of the Monterey County Water Resources Agency (Agency), and the Water Resources Agency Board of Directors (Joint Boards) on July 11, 2017 staff presented the 2015 coastal Salinas Valley seawater intrusion contours (Figure 1 and Figure 2); 2015 groundwater elevation contours (Appendix A); an update on the Salinas Valley Groundwater Basin Investigation; and a presentation of the historical Salinas Valley Integrated Hydrologic Model (SVIHM-2014).<sup>1</sup> The updated extent of seawater intrusion depicted in the seawater intrusion maps and discussion of pathways of seawater intrusion indicated by the current data prompted a request from the Joint Boards that staff provide recommendations for actions to consider that, if implemented, would slow or halt further expansion of seawater intrusion.

## 1.2 Objective of this Report

This report provides a discussion of the current knowledge and related background information surrounding seawater intrusion pathways and potential impacts thereof on the Salinas Valley Groundwater Basin. This document also serves as a body of evidence to catalogue the findings used to support the recommendations presented herein.

Staff is making six recommendations, with each focused on a component that influences, or could be impacted by, the advancement of seawater intrusion. The recommendations are being presented in an order that builds upon the foundational knowledge laid out in the background section of this report, rather than in an order of priority.

Each recommendation can be implemented on its own or in concert with the others, and the relative importance of each will be discussed individually in this report. However, the recommendations have been conceptualized as a comprehensive solution that, along with continued operation of projects that have been constructed for the same purpose, have the strongest potential to ensure success in slowing or halting further seawater intrusion when implemented simultaneously.

---

<sup>1</sup> The 2015 seawater intrusion maps are available on the Water Resources Agency website at <http://www.co.monterey.ca.us/government/government-links/water-resources-agency/documents/seawater-intrusion-maps#wra> and the 2015 groundwater elevation contour maps are available at <http://www.co.monterey.ca.us/government/government-links/water-resources-agency/documents/groundwater-elevation-contours#wra>.

## 1.3 Recommendations

Staff makes the following six recommendations with the aim to slow or halt seawater intrusion, and impacts related thereto, in the Salinas Valley Groundwater Basin.

In no particular order of priority:

1. An immediate moratorium on groundwater extractions from new wells<sup>2</sup> in the Pressure 400-Foot Aquifer<sup>3</sup> within an identified Area of Impact<sup>4</sup>, except for the following use categories:
  - a. Wells operating under the auspices of the Castroville Seawater Intrusion Project; and,
  - b. Monitoring wells owned and maintained by the Agency or other water management agencies.
2. Enhancement and expansion of the Castroville Seawater Intrusion Project (CSIP) Service Area. The expansion should include, at a minimum, lands served by wells currently extracting groundwater within the Area of Impact.
3. Following expansion of the CSIP Service Area, termination of all pumping from existing wells within the Area of Impact, except for the following use categories:
  - a. Municipal water supply wells;
  - b. Wells operating under the auspices of the Castroville Seawater Intrusion Project; and,
  - c. Monitoring wells owned and maintained by the Agency or other water management agencies.
4. Initiate and diligently proceed with destruction of wells in Agency Zone 2B, in accordance with Agency Ordinance No. 3790, to protect the Salinas Valley Groundwater Basin against further seawater intrusion.
5. An immediate moratorium on groundwater extractions from new wells within the entirety of the Deep Aquifers of the 180/400 Foot Aquifer Subbasin until such time as an investigation of the Deep Aquifers is completed and data pertaining to the hydraulic

---

<sup>2</sup> "New well" is not intended to include (a) any well for which a construction permit has been issued by the Monterey County Health Department or (b) any well for which drilling or construction activities have commenced in accordance with a well construction permit issued by the Monterey County Health Department.

<sup>3</sup> Aquifer means: a water-bearing or saturated formation that is capable of serving as a groundwater reservoir supplying enough water to satisfy a particular demand, as in a body of rock that is sufficiently permeable to conduct groundwater and to yield economically significant quantities of water to wells and springs (Poehls and Smith, 2009).

<sup>4</sup> See Section 1.4 for a description of the Area of Impact. The Area of Impact is also depicted in Figure 4.



properties and long-term viability of the Deep Aquifers are available for knowledge-based water resource planning and decision making.

- a. Monitoring wells, public agency wells, municipal water supply wells, wells for which a construction permit has already been issued, and well repairs should be considered for exemption from this recommendation.
  - b. The moratorium should include a prohibition of:
    - i. Replacement wells, unless it can be demonstrated that the installation of such a well will not result in further expansion of the seawater intrusion front; and,
    - ii. Deepening of wells from overlying aquifers into the Deep Aquifers, deepening of wells within the Deep Aquifers, and other activities that would expand the length, depth, or capacity of an existing well.
6. Initiate and diligently proceed with an investigation to determine the hydraulic properties and long-term viability of the Deep Aquifers.

Implementation of these recommendations will require close consultation with the County Counsel and, depending on the actions pursued, additional work by Agency staff and cooperation with Resource Management Agency (RMA) – Planning staff to ensure compliance with California Environmental Quality Act (CEQA) and other applicable procedures and policies. Some of the recommendations, such as a moratorium<sup>5</sup> relating to the well ordinance, might require implementation under the Government Code and coordination between Agency and County staff, and the Board of Supervisors of the Monterey County Water Resources Agency and Board of Supervisors of Monterey County.

---

<sup>5</sup> Certain moratoria may have consequences for a “taking” where the moratorium deprives an owner of all reasonable economic use of the owner’s property. Whether there is a taking is an issue that would require further review and analysis on a case-by-case basis for each affected property.

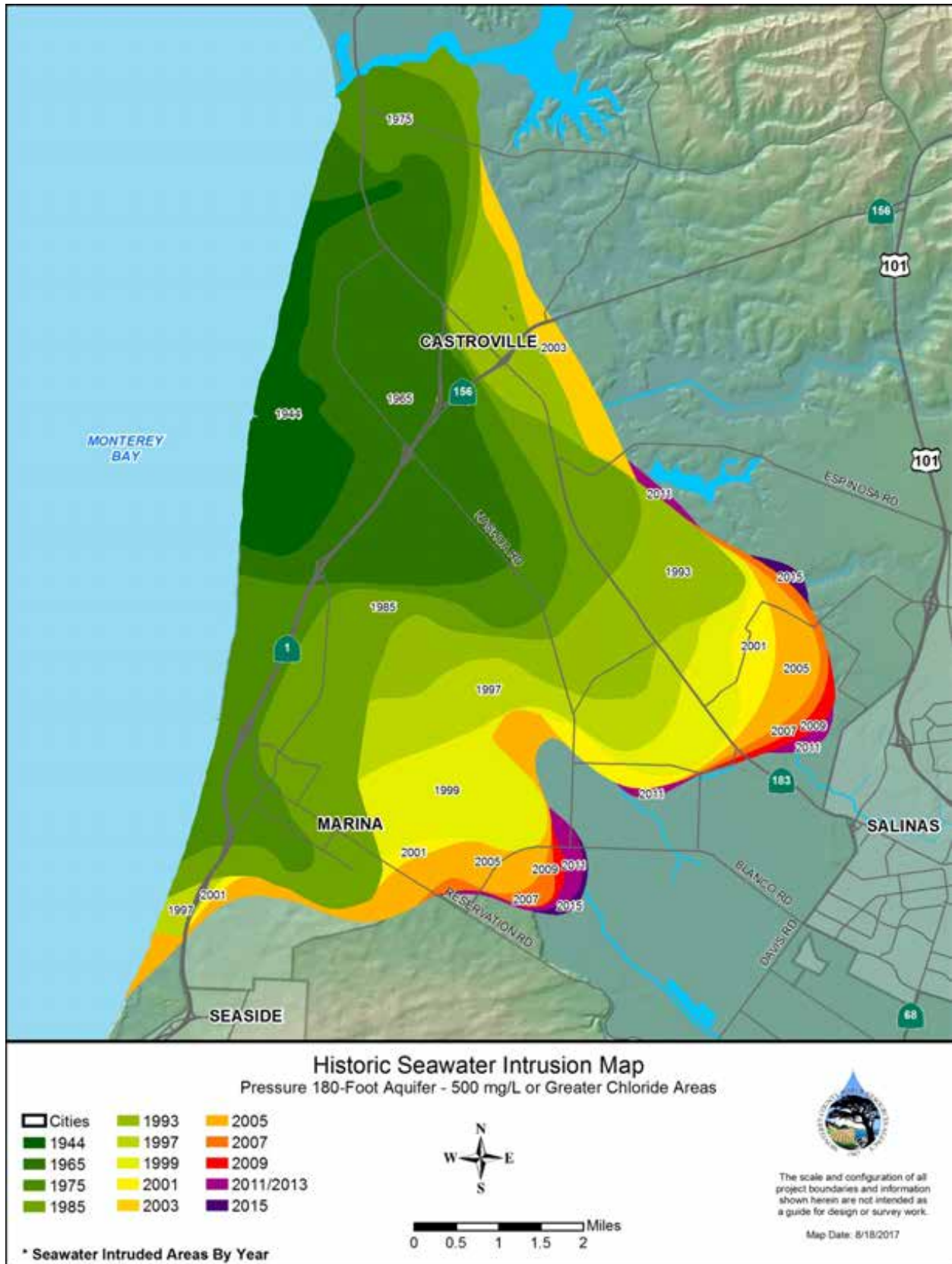


Figure 1 - Map of Historical Seawater Intrusion in the Pressure 180-Foot Aquifer

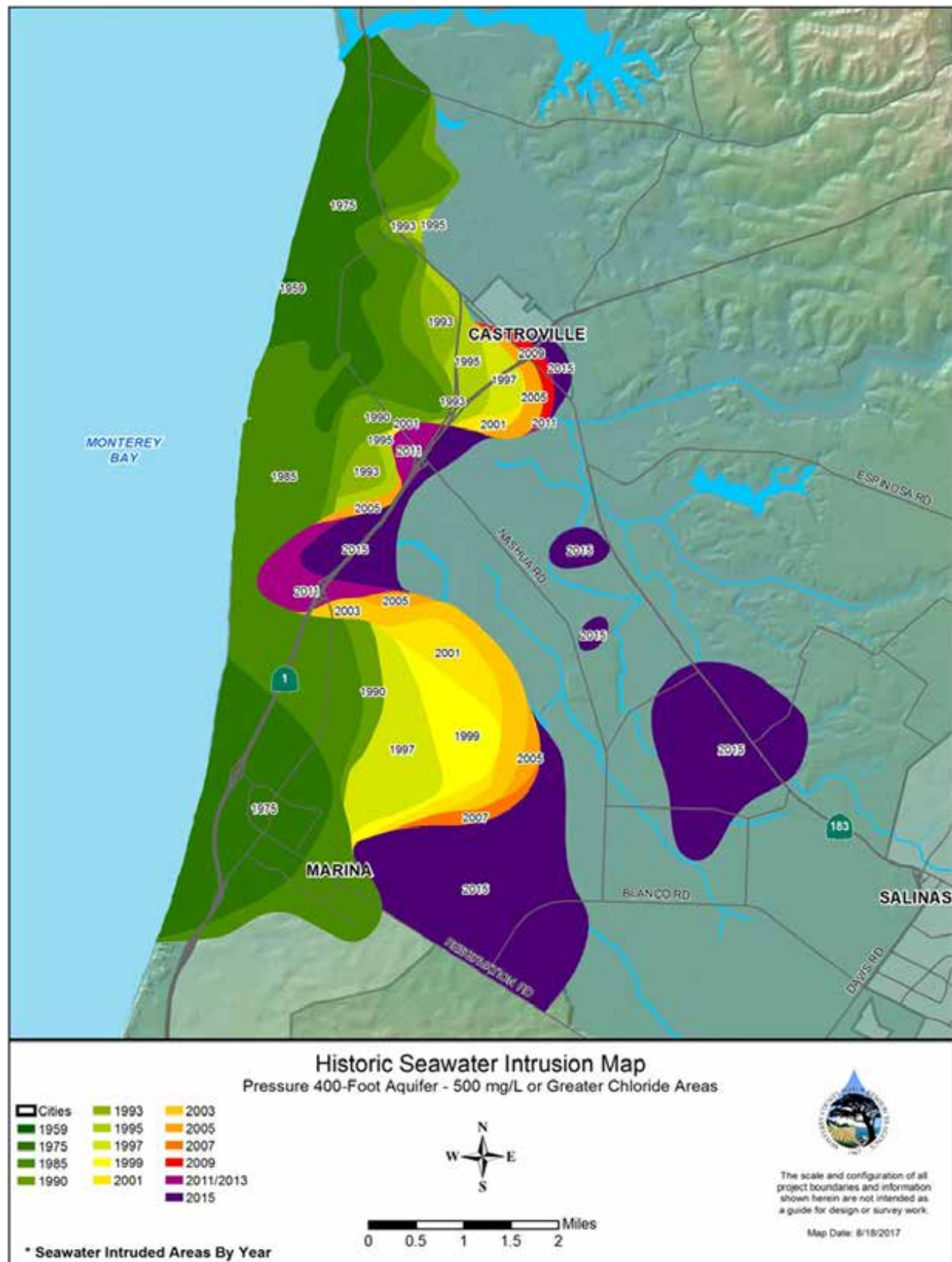


Figure 2 - Map of Historical Seawater Intrusion in the Pressure 400-Foot Aquifer

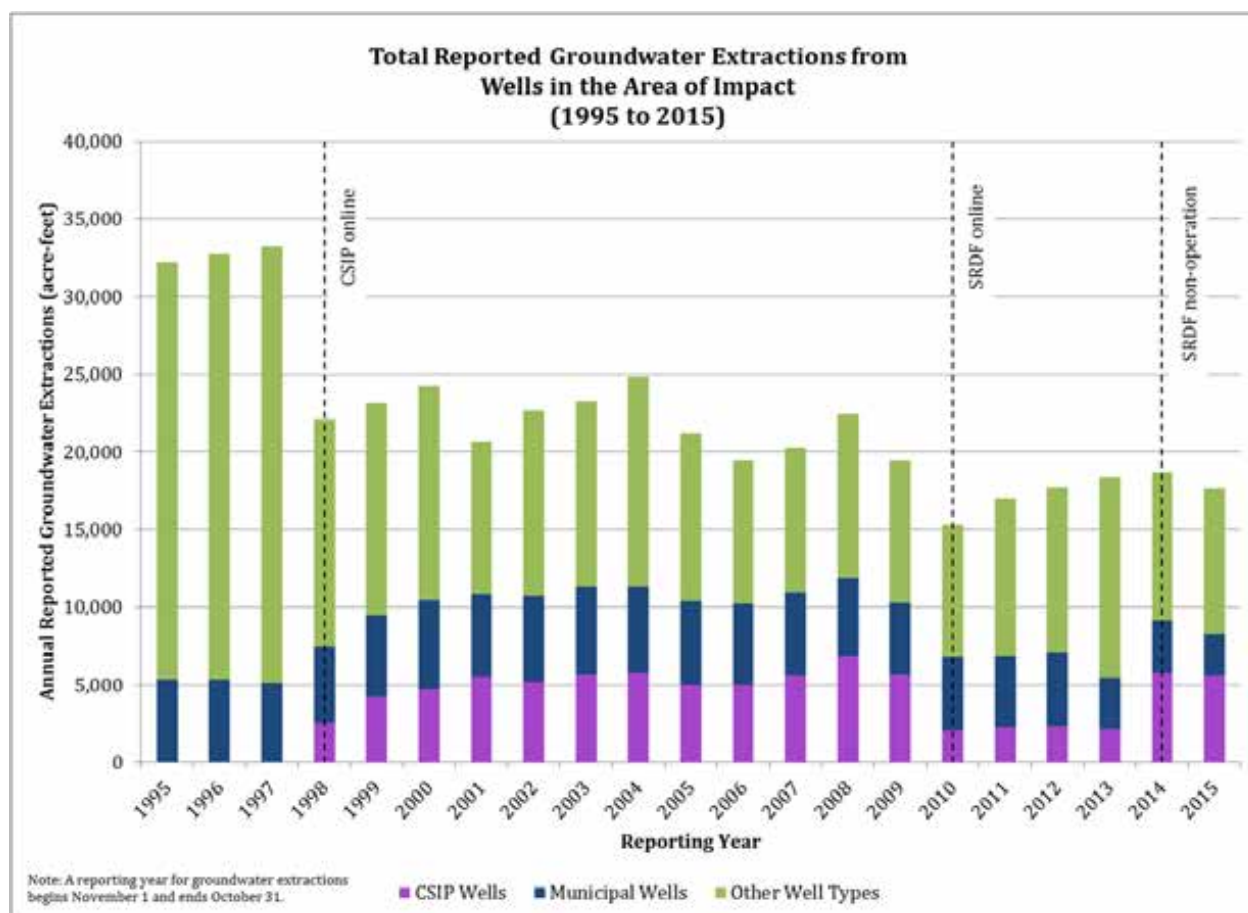
## **1.4 Explanation of Exemptions**

### **1.4.1 Municipal water supply wells**

The continued operation and expansion of municipal water supply wells within the identified Area of Impact must be carefully evaluated within the scope and context of the recommendations of this report. Pumping from municipal water supply wells in the Area of Impact represented an annual average of 23% of all groundwater extractions from 1995 to 2015 (17% in 2015). Groundwater extractions from the Area of Impact for municipal purposes ranged from 3,271 acre-feet (af) in 2015 to 5,714 af in 2000 (Figure 3). Annually, an average of 41% of all municipal pumping in the Area of Impact occurs from the Deep Aquifers.

This report recommends an immediate moratorium on groundwater extractions from new wells, including municipal wells, in the Pressure 400-Foot Aquifer (recommendation 1, Section 1.3). This report also recommends consideration of an exemption for new municipal water supply wells in the entirety of the Deep Aquifers (recommendation 5, Section 1.3a). Staff is of the opinion that these exemptions be considered only when weighed against the potential of risk to human health and safety.

The intent of these recommendations is to slow or halt the advancement of seawater intrusion in order to ensure the viability of current and future water supplies. To that end, staff views the continued pursuit of municipal water supply project which reduce or eliminate the reliance on groundwater extractions as preferable to an exemption for new municipal water supply wells in the Deep Aquifers.



**Figure 3 - Total Reported Groundwater Extractions from Wells in the Area of Impact (1995 to 2015)**

## 1.4.2 CSIP wells

As discussed in more detail in Section 2.3 of this report, the water supply for CSIP is derived from recycled water, treated surface water from the Salinas River, and groundwater pumped from supplemental wells. Groundwater pumped from supplemental wells is required in order to meet demands in the CSIP area. However, because this pumping occurs as part of an Agency project, the volume and distribution of the groundwater pumping within the Area of Impact for CSIP can be closely monitored and managed. Furthermore, because groundwater pumping from private wells is generally prohibited in the CSIP area, the Agency is obligated under Ordinance No. 3790 to provide a substitute water supply.<sup>6</sup>

The ability to regulate this source of groundwater pumping and the necessity of having water available for CSIP support this exemption from the recommendations.

<sup>6</sup> Additional discussion of Agency Ordinance No. 3790 occurs in Sections 4 and 6.5 of this report.



### **1.4.3 Monitoring wells**

Monitoring wells have been installed in the Pressure 180-Foot, Pressure 400-Foot, and Deep Aquifers within the Area of Impact for the purpose of facilitating periodic observation and sampling of groundwater levels and quality. While the measurement of groundwater levels does not require groundwater pumping, some groundwater pumping does occur during the process of collecting groundwater samples for water quality analysis. However, the total volume is on the order of fractions of an acre-foot per sampling event at each well.<sup>7</sup> Due to the relatively minimal amount of water extracted during groundwater sampling, and the importance of ongoing data collection to managing the resource, staff suggests that monitoring wells be exempt from the recommendations.

### **1.4.4 Well repairs**

The intent of an exemption for well repairs is to allow ongoing use of wells that were installed prior to implementation of any of the recommendations if the repair will result in the well's construction enhancing aquifer protections, reducing the potential for expansion of seawater intrusion. Well repairs typically involve changes to the existing structure of a well that are intended to return the well to a state that closely resembles how it performed when it was first installed; to prolong the operable lifespan of a well that has deteriorated in production; or to fix a problem that is physically endangering continued use of the well (for example, a hole in the well casing).

Replacement wells are exempt from some policies of the 2010 Monterey County General Plan. In order to maintain consistency with existing County policies, staff is suggesting the same exemption from these recommendations be considered for existing wells within the Deep Aquifers when it can be demonstrated that the installation of a replacement well will not result in further expansion of the seawater intrusion front.

## **1.5 Defining the Area of Impact**

The Agency has identified an Area of Impact (Figure 4), encompassing an area of the 180/400 Foot Aquifer Subbasin that meets the following criterion:

- That portion of the 180/400 Foot Aquifer Subbasin in which chloride concentrations in either the Pressure 180-Foot Aquifer or the Pressure 400-Foot Aquifer are 250 milligrams per liter (mg/L) or greater.

The location of areas where chloride concentrations in groundwater are 250 mg/L chloride concentration or greater will be defined by the most recently published data from the Agency;

---

<sup>7</sup> Standard procedures call for removing three casing volumes of water from a well before collecting a water quality sample in order to ensure that the sample is representative of aquifer water, rather than of water that has been stagnant in the well. Casing volume is dependent on the diameter and length of the casing. Using an average casing diameter of four inches (common for a monitoring well) and a depth of 1,370 feet (the average depth of a monitoring well in the Deep Aquifers), three casing volumes is approximately 2,930 gallons or 0.009 acre-feet. (One acre-foot equals 325,851 gallons.) Sampling of monitoring wells in the Pressure 180-Foot or Pressure 400-Foot Aquifers would result in even less groundwater pumping per sampling event because the wells are shallower.

currently this is data from 2015. The use of the 250 mg/L threshold is applicable only to identifying the Area of Impact as it pertains to these recommendations. The Agency will continue to define the extent of seawater intrusion as the area in which chloride concentrations are 500 mg/L or greater (Figure 1 and Figure 2).

The recommendations in this report are intended as a way to proactively manage, and take steps toward halting, the advancement of seawater intrusion. Groundwater within the Area of Impact is considered to be vulnerable due to the presence of pathways and conduits for seawater intrusion, all of which will be discussed in more detail in Sections 2 and 3 of this report.

Using the scientifically-based metric of 250 mg/L to delineate the vulnerable portion of the 180/400 Foot Aquifer Subbasin allows the Agency to implement recommendations in the areas of incipient seawater intrusion with the aim of preventing the water quality in those areas from declining further.

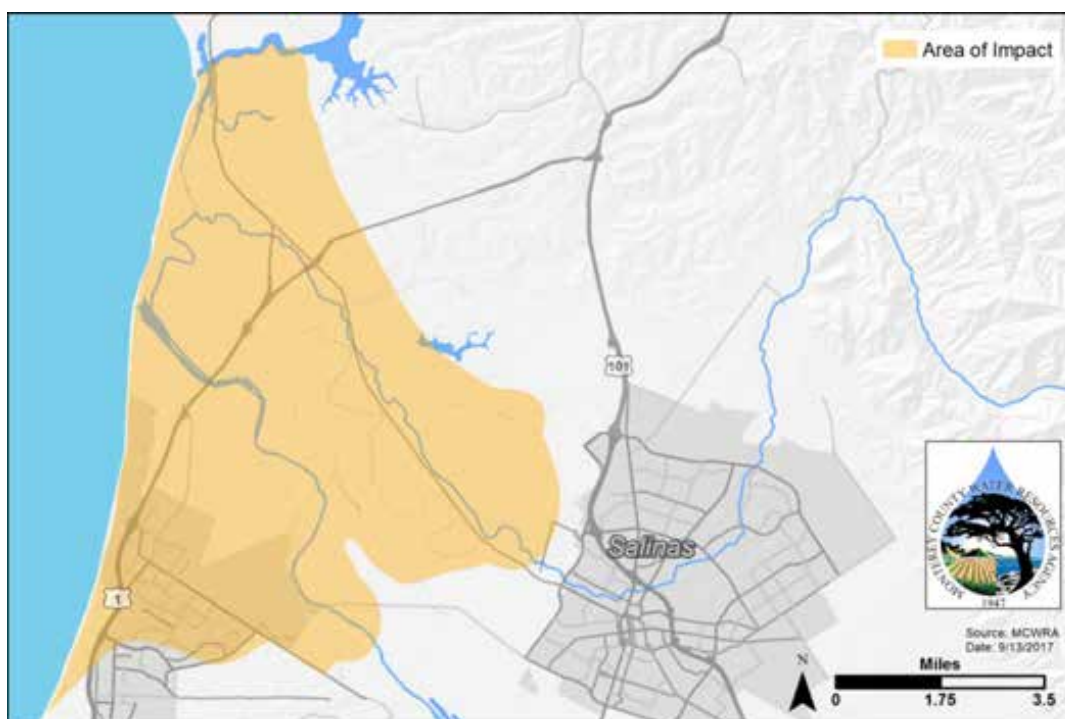


Figure 4 - Area of Impact

## Section 2 – Background

### 2.1 Geology and Hydrogeology

#### 2.1.1 Geology and Geologic Setting

Over millions of years, a succession of sea level fluctuations, uplift, and various types of sediment deposition created the geologic formations that are found in Monterey County today (Table 1). Monterey County lies entirely within the California Coast Range Geomorphic Province and is underlain by two fundamentally different basement terranes<sup>8</sup>: the Franciscan Complex and the Salinian Block (Rosenberg, 2001). The Salinian Block is primarily composed of granitic and metamorphic rocks that formed under high temperatures and was subsequently tectonically transported northward along its boundaries, now the San Andreas, San Gregorio, and Sur/Nacimiento faults (Figure 5). The Franciscan Complex consists mainly of oceanic crustal material and sedimentary rocks which formed under high pressure and relatively low temperatures and were transported on a tectonic plate moving toward North America (Lopez, 2006 and Rosenberg, 2001). Tectonic activity associated with the faults listed above continues to form the mountain ranges of Monterey County: the Santa Lucia Range, Sierra de Salinas, Gabilan Range, and Diablo Range (Rosenberg, 2001).

The Salinas Valley is a structural, inter-montane alluvial<sup>9</sup> basin on the eastern edge of the Pacific Plate. It is defined by the tectonically active Gabilan and Diablo Mountains to the northeast and Santa Lucia Mountains to the southwest. Over time, the Salinas Valley has been filled with 10,000 to 15,000 feet of marine and terrestrial sediments, of which up to 2,000 feet is now saturated alluvium (DWR, 2003).

Within the northern portion of the Salinas Valley Groundwater Basin, approximately from the City of Gonzales to the coast, thick alternating sequences of coarse and fine sediments deposited over millions of years by Plio-Pleistocene marine and terrestrial sedimentation form the 180/400 Foot Aquifer Subbasin. Bordering the 180/400 Foot Aquifer Subbasin to the east is the East Side Aquifer Subbasin (DWR, 2003).

---

<sup>8</sup> Terrane means: a large block of the earth's crust with a distinct geologic character, originally part of the same crustal plate (Harden, 2004).

<sup>9</sup> Alluvial means: pertaining to material or processes associated with transportation and/or subaerial deposition by concentrated running water (USDA).



**Table 1 - Geologic time scale highlighting events in Monterey County**  
From Rosenberg (2001) with age estimates from Hansen (1991)

<b>Era</b>	<b>Period, System, Subsystem</b>	<b>Epoch</b>	<b>Age estimates of boundaries in millions of years</b>	<b>Monterey County Geologic events, features, and deposits</b>
<b>Cenozoic (Age of mammals)</b>	Quaternary	Holocene	0 – 0.010	Floodplain deposits, landslides, beach deposits
		Pleistocene	0.010 – 1.6	Sea level fluctuates, sand dunes, marine terraces, Salinas Valley deposits
	Tertiary	Pliocene	1.6 – 5	Uplift of Santa Lucia Range
		Miocene	5 – 24	Seas advanced and retreated
		Oligocene	24 – 38	Seas retreated, lava flows
		Eocene	38 – 55	Uplift, deep basins, and isolated islands
		Paleocene	55 – 66	Seas advanced
<b>Mesozoic (Age of reptiles)</b>	Cretaceous		66 – 138	Salinian granitic rocks intruded
	Jurassic		138 – 205	Franciscan rocks subducted and accreted
	Triassic		205 – 240	
<b>Paleozoic (Age of fishes)</b>	Permian		240 – 290	Sur Complex formed hundreds of miles south of Monterey County
	Carboniferous	Pennsylvanian	290 – 330	
	Systems	Mississippian	330 – 360	
	Devonian		360 – 410	
	Silurian		410 – 435	
	Ordovician		435 – 500	
	Cambrian		500 – 570	
<b>Pre-Paleozoic</b>	pre-Cambrian		570 – 4600	--

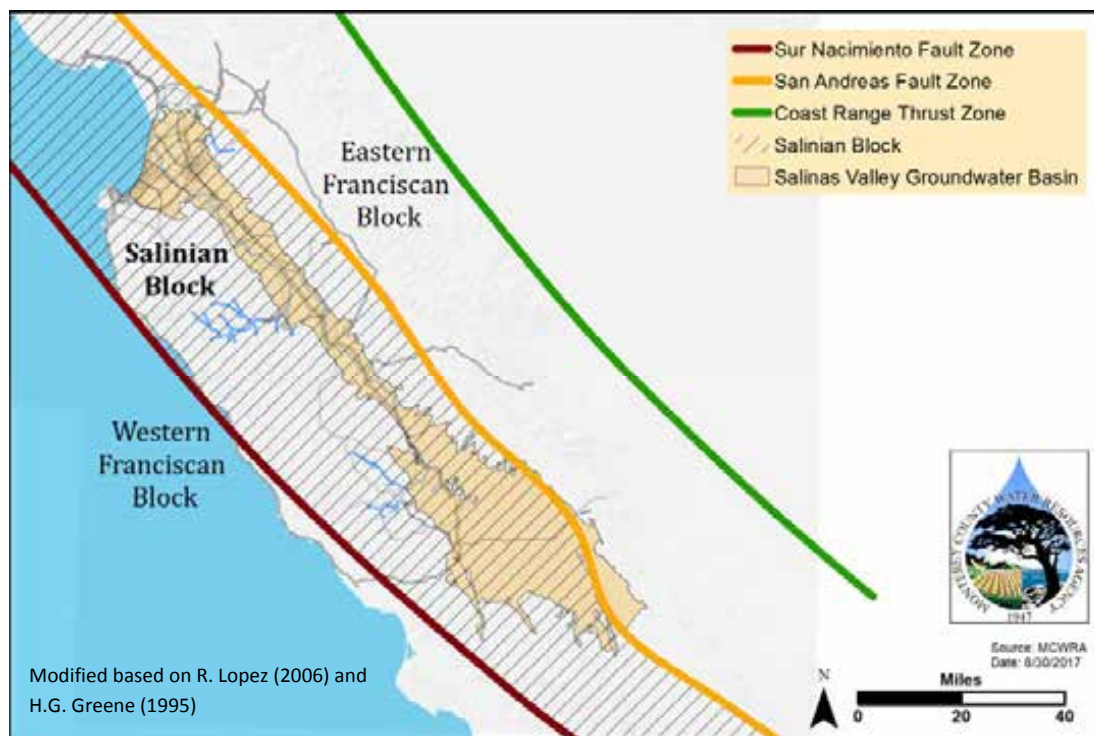


Figure 5 - Monterey County Geologic Setting

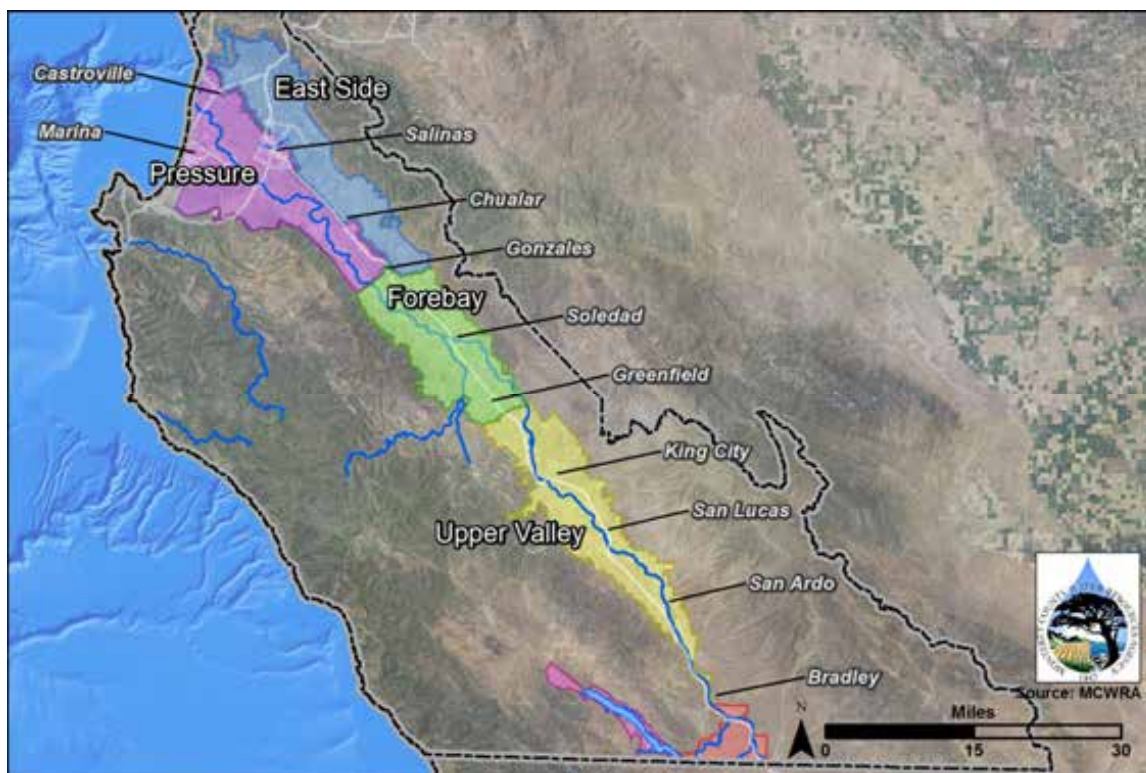


Figure 6 - Zone 2C Subareas

#### 2.1.1.1 180/400 Foot Aquifer Subbasin

The 180/400 Foot Aquifer Subbasin of the Salinas Valley Groundwater Basin is defined by the Department of Water Resources (DWR) on the basis of groundwater flow boundaries; however, it is generally coincident with the Pressure Subarea as defined by the Agency (Brown and Caldwell, 2015; Figure 6). The northwestern boundary of the 180/400 Foot Aquifer Subbasin is defined by the Monterey Bay and the western edge is shared with the Monterey Subbasin. The Corralitos-Pajaro Valley Groundwater Basin is found on the northern edge of the Subbasin while the southern border is shared with the Forebay Subbasin beginning near the city of Gonzales.

The 180/400 Foot Aquifer Subbasin contains three primary aquifer units, as discussed below: the Pressure 180-Foot Aquifer, Pressure 400-Foot Aquifer, and Deep Aquifers (Figure 6 and Figure 7). There is also a fourth aquifer unit, referred to as the Shallow Aquifer, located at or near the ground surface but it is considered to be limited in both the quantity and quality of water available.

The stratigraphy of the 180/400 Foot Aquifer Subbasin generally consists of eight geologic units, listed here from shallowest to deepest, though not all units are present throughout the subbasin:

1. Surficial deposits (recent alluvium and valley fill)
2. Aromas Sands
3. Paso Robles Formation
4. Purisima Formation
5. Santa Margarita Sandstone
6. Monterey Formation
7. Unnamed Sandstone
8. Granitic basement

Older portions of the surficial deposits and the upper portion of the Aromas Sands correlate with the Pressure 180-Foot Aquifer, while the Pressure 400-Foot Aquifer is associated with the lower portion of the Aromas Sands and the upper part of the Paso Robles Formation (DWR, 2003 and Figure 7). The Aromas Sands are present only in the northern portion of the subbasin, gradually transitioning to the Paso Robles Formation to the south.

Period/Epoch		Formation	Hydrostratigraphy
Quaternary 2.5 MYA to present	Holocene	Recent Alluvium	Shallow Aquifer
	Pleistocene	Valley Fill	Salinas Valley Aquitard
		Aromas Sands (near coast)	Pressure 180-Foot Aquifer
			Pressure 180/400-Ft Aquitard
			Pressure 400-Foot Aquifer
		Paso Robles	Pressure 400-Foot/Deep Aquitard
	Tertiary 23 to 2.5 MYA	Pliocene	Purisima / Pancho Rico
Miocene		Santa Margarita	
		Monterey	Minimally water-bearing
Mesozoic		Granitic basement	Non water-bearing

MYA = Million Years Ago

Not to scale.

**Figure 7 - Stratigraphy and Hydrostratigraphy of the 180/400 Foot Aquifer Subbasin of the Salinas Valley Groundwater Basin**

#### 2.1.1.2 East Side Aquifer Subbasin

The East Side Aquifer Subbasin lies to the east of the 180/400 Foot Aquifer Subbasin, extending from the town of Gonzales in the south to the city of Salinas, and is bounded by the Gabilan Range on the east (DWR, 2003). Stratigraphy of the East Side Aquifer Subbasin generally consists of a poorly bedded sequence of gravel, sand, silt, sandy and gravelly clay, and clay. Decomposed granite is also characteristic of sediments in the East Side Aquifer Subbasin, reflecting their origin in the Gabilan Range (Kennedy/Jenks, 2004).

While the fluvially<sup>10</sup> generated aquifers of the 180/400 Foot Aquifer Subbasin are not observed in the East Side Aquifer Subbasin, there is hydraulic communication between the aquifers and sediments of both subbasins can be correlated by zones that are stratigraphically equivalent (Kennedy/Jenks, 2004). However, the near-surface confining unit present in the 180/400 Foot

<sup>10</sup> Fluvial means: of or pertaining to rivers and streams, existing, growing, or living in or near a stream (Poehls and Smith, 2009).

Aquifer, the Salinas Valley Aquitard<sup>11</sup>, does not extend into the East Side Aquifer Subbasin (DWR, 2003).

The boundary between the 180/400 Foot Aquifer and East Side Aquifer subbasins is significant to the discussion of seawater intrusion advancement. Originally, subbasin boundaries were defined by the Department of Water Resources (DWR) based on the source of aquifer recharge (Kennedy/Jenks, 2004). However, Kennedy/Jenks has defined an area of transition between the two subbasins based on the shift from predominantly alluvial facies to predominantly fluvial facies (2004). This change in depositional environment results in variable hydraulic properties along the transition zone between the two subbasins (Figure 8).<sup>12</sup>

Historically, the lateral advancement of seawater intrusion has occurred preferentially along geologic pathways that allow for easier movement of water. The discontinuous and layered nature of the sediments in the transition zone between the 180/400 Foot Aquifer Subbasin and the East Side Aquifer Subbasin result in a situation that restricts (but does not preclude) the flow of groundwater across this area.

A prominent and persistent groundwater feature within the East Side Aquifer Subbasin is the large groundwater depression referred to as the East Side trough. Decades of groundwater level monitoring data documents the presence of the trough, where groundwater levels vary seasonally in the range of 80 to 120 feet below mean sea level (Appendix A).

Persistent dewatering of the East Side Aquifer Subbasin, as revealed by the trough, is also a mechanism for land subsidence.<sup>13</sup> Preliminary data from the U.S. Geological Survey (USGS) indicates that land subsidence is occurring in the East Side Aquifer Subbasin in the area around Salinas (Personal communications with R. Hanson, 2017). Land subsidence results in an irreversible loss of aquifer storage and potential damage to infrastructure.

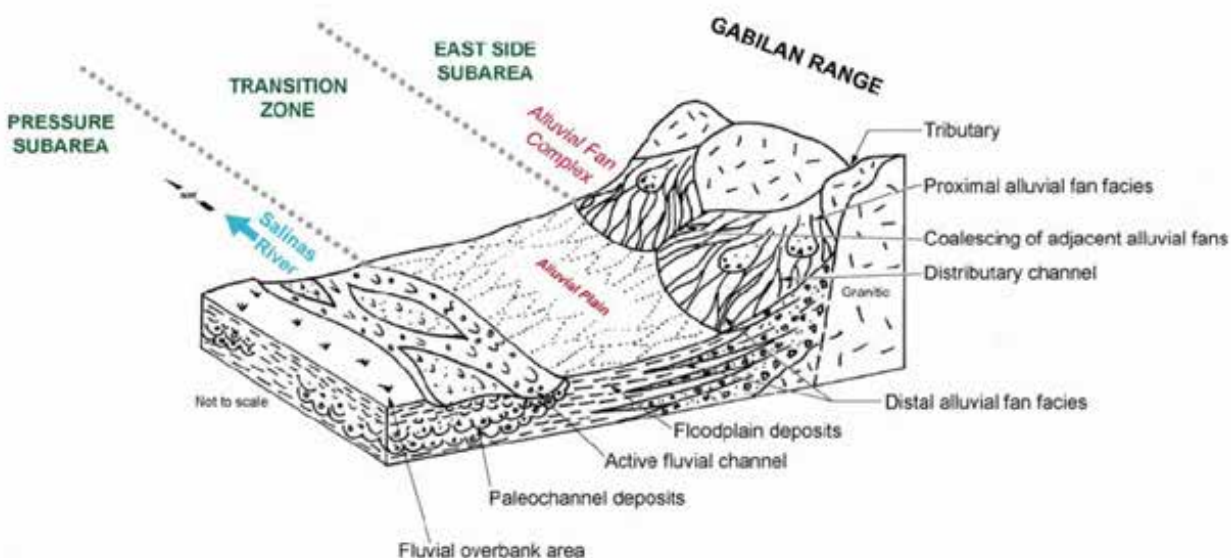
---

<sup>11</sup> Aquitard means: a confining unit that retards but does not prevent the flow of water to or from an adjacent aquifer (Poehls and Smith, 2009).

<sup>12</sup> In Figure 8, the terminology “Pressure Subarea” and “East Side Subarea” are used in lieu of 180/400 Foot Aquifer Subbasin and East Side Subbasin, respectively.

<sup>13</sup> Subsidence refers to differential settlements or sinking resulting from excessive groundwater withdrawals (based on Poehls and Smith, 2009).





**Figure 8 - Generalized Fluvial and Alluvial Fan Facies of the Northern Salinas Valley**  
(Kennedy/Jenks, 2004)

### 2.1.2 Hydrogeology

The 180/400 Foot Aquifer Subbasin of the Salinas Valley Groundwater Basin consists of a complex sequence of water-bearing sediments, characterized by alternating aquifers and aquitards (Figure 7). Historically, the sequence of strata has been grouped by major hydrostratigraphic units and represented from top to bottom as follows:

1. Shallow Alluvial Aquifer
2. Salinas Valley Aquitard
3. Pressure 180-Foot Aquifer
4. Pressure 180/400-Foot Aquitard
5. Pressure 400-Foot Aquifer
6. Pressure 400-Foot/Deep Aquitard
7. Deep Aquifers

#### 2.1.2.1 Shallow Alluvial Aquifer

The Shallow Alluvial Aquifer, which is the same unit where the “Dune Sand” aquifer is found near the coast, contains perched groundwater in some areas overlying the Salinas Valley Aquitard.

#### 2.1.2.2 Salinas Valley Aquitard

The Salinas Valley Aquitard consists of a series of blue or yellow sandy clay layers that overlies and confines the underlying Pressure 180-Foot Aquifer. The Salinas Valley Aquitard ranges in thickness from approximately 100 feet in the area west of Salinas, thinning to approximately 25 feet near Salinas, and pinches out east of Salinas (Kennedy/Jenks, 2004).

#### 2.1.2.3 Pressure 180-Foot Aquifer

The Pressure 180-Foot Aquifer is the uppermost laterally extensive aquifer in the northern Salinas Valley and is named for the depth at which it is typically encountered (DWR, 1946). The Pressure 180-Foot Aquifer ranges from 50 to 150 feet in thickness and spans multiple stratigraphic units (Figure 6) (Kennedy/Jenks, 2004).

#### 2.1.2.4 Pressure 180/400-Foot Aquitard

The Pressure 180-Foot and Pressure 400-Foot Aquifers are separated by a zone of clay, or clay and sand layers, referred to as the Pressure 180/400-Foot Aquitard. This hydraulic barrier is widespread in the 180/400 Foot Aquifer Subbasin and varies in thickness, continuity, and quality (Kennedy/Jenks, 2004 and MCFCWCD, 1960). Further discussion of the Pressure 180/400-Foot Aquitard follows in Section 3 of this report.

#### 2.1.2.5 Pressure 400-Foot Aquifer

This areally extensive layer of sand and gravel typically encountered between 270 and 470 feet below ground surface is referred to as the Pressure 400-Foot Aquifer (Kennedy/Jenks, 2004). The depth to the top of the aquifer, the thickness of the aquifer, and the degree of complete interbedding with clay layers is variable between wells (Thorup, 1976 and Kennedy/Jenks, 2004).

#### 2.1.2.6 Pressure 400-Foot/Deep Aquitard

The Deep Aquifers of the 180/400 Foot Aquifer Subbasin are separated from overlying strata and confined by an aquitard that can be several hundred feet thick (Kennedy/Jenks, 2004).

#### 2.1.2.7 Deep Aquifers

The Deep Aquifers of the 180/400 Foot Aquifer Subbasin include aquifer units that have been referred to as the 800-Foot Aquifer, 900-Foot Aquifer, 1,000-Foot Aquifer, and the 1,500-Foot Aquifer (Harding ESE, 2001).

The Deep Aquifers are discussed in more detail in Section 5 of this report.

## **2.2 Seawater Intrusion**

### **2.2.1 Defining seawater intrusion**

Seawater intrusion was first documented in the Salinas Valley Groundwater Basin in 1946 (Dept. of Public Works). Today, the Agency monitors the movement and extent of seawater intrusion by collecting groundwater samples from a series of wells located in the coastal northwestern portion of Monterey County.

The Agency defines the seawater intrusion front as the inland extent at which the concentration of chloride in groundwater is at least 500 mg/L. A chloride concentration of 500 mg/L represents a level that is twice the National Secondary Drinking Water Regulation (250 mg/L) and which exceeds the concentration for water considered to be of “Class III - injurious or unsatisfactory” quality for agricultural irrigation (350 mg/L) (USDA).

### **2.2.2 Monitoring groundwater**

#### **2.2.2.1 Groundwater levels**

The Agency has been monitoring groundwater levels in the coastal area since the 1940s. The Agency’s groundwater level monitoring program consists of surveys to determine fluctuations in groundwater levels as measured predominantly in privately-owned agricultural production wells. The Agency owns twenty-seven dedicated monitoring wells that augment this effort.

Surveys are conducted on a monthly basis at approximately 94 wells and on an annual basis at approximately 400 wells. An additional survey is conducted each August at approximately 130 wells, with the intent of capturing conditions during the period of seasonal maximum pumping.

Groundwater level data collected during the August and annual surveys are used to produce two sets of maps showing groundwater elevation contour lines for (1) the Pressure 180-Foot and East Side Shallow aquifers and (2) the Pressure 400-Foot and East Side Deep aquifers (Appendix A). Groundwater level data collected for the monthly survey are used to produce quarterly reports on groundwater conditions in the Salinas Valley Groundwater Basin.<sup>14</sup>

Groundwater level measurements are also used as a tool to understand the scale and geographic extent of conditions leading to a reversal of the normal seaward hydraulic gradient. An understanding of the dynamic configuration of the hydraulic gradients within the basin contributes to the Agency’s understanding of pathways for seawater intrusion, which will be discussed further in Section 2.2.3 of this report.

---

<sup>14</sup> Agency reports on Quarterly Salinas Valley Water Conditions are available on the Agency’s website at: <http://www.co.monterey.ca.us/government/government-links/water-resources-agency/documents/quarterly-salinas-valley-water-conditions#wra>



### 2.2.2.2 Groundwater quality

The Agency conducts two groundwater sampling events each year during the period of peak groundwater pumping, typically in June and August, in order to monitor water quality in the coastal region of the Salinas Valley. Each sampling event consists of collecting groundwater from 121 wells (96 agricultural production wells and 25 monitoring wells), which is then analyzed for general minerals, conductivity, and pH.

The Agency uses chloride concentration as an indicator of seawater intrusion.<sup>15</sup> A suite of geochemical tools, including Piper diagrams, Stiff diagrams, and an evaluation of chloride versus sodium/chloride molar ratios, are used to evaluate laboratory results. These geochemical tools allow the Agency to discern whether seawater intrusion is the source of chloride concentrations in a well or if the result is due to another source such as soil amendments, for example.

### 2.2.3 Pathways of seawater intrusion

#### 2.2.3.1 Regional Seawater Intrusion

In the Salinas Valley Groundwater Basin, the Pressure 180-Foot and Pressure 400-Foot Aquifers are in direct hydraulic communication with the Pacific Ocean, a condition that provides a pathway for seawater intrusion (Kennedy/Jenks, 2004). A secondary contributor to seawater intrusion into the Pressure 180-Foot and Pressure 400-Foot Aquifers is the persistent reversal of the seaward groundwater gradient, driven by inland groundwater levels that are below sea level (Kennedy/Jenks, 2004). The combination of these two factors is referred to as regional seawater intrusion (Figure 9).

In the case of regional seawater intrusion, seawater infiltrates the Pressure 180-Foot and Pressure 400-Foot Aquifers through the submarine outcrops of the aquifers offshore of Monterey Bay (Kennedy/Jenks, 2004). Seawater moves inland, infiltrating portions of the aquifers that contain fresh water, because groundwater pumping has resulted in groundwater levels that are below sea level in both aquifers (DWR, 1973; Kennedy/Jenks, 2004; Todd, 1989).

As shown in Figure 9, regional seawater intrusion results in the formation of a transition zone between native fresh water (50 mg/L chloride) and seawater (19,000 mg/L), where groundwater quality deteriorates with proximity to the coast.

A study conducted in the Marina area using conductivity profiles within a well also suggests that saline groundwater is likely to travel preferentially along pathways with coarse grained materials like sands and gravels (Staal, Gardner & Dunne, Inc., 1994). Traditional methods of sampling wells result in samples that represent composites of water quality throughout the water column; however, there may be concentrations of higher salinity water in certain zones around a well.

---

<sup>15</sup> Maps of the extent of seawater intrusion in the Pressure 180-Foot and Pressure 400-Foot Aquifers are created biennially, in odd-numbered years (e.g. 2013 and 2015).

### 2.2.3.2 Inter-Aquifer Seawater Intrusion

A second pathway for seawater intrusion, termed inter-aquifer seawater intrusion, has been discussed in previous reports and was recently documented in the 2015 Historic Seawater Intrusion Map for the Pressure 400-Foot Aquifer (Figure 2) (DWR, 1973; Kennedy/Jenks, 2004; Brown and Caldwell, 2015). Inter-aquifer seawater intrusion occurs when groundwater that has already been intruded with seawater migrates vertically between aquifers. Each of the following conditions contributes to the likelihood of inter-aquifer seawater intrusion:

- thin or discontinuous aquitards;
- wells with screens across multiple aquifer units (multi-aquifer wells);
- improperly constructed or abandoned wells;
- wells in poor condition; or,
- a vertical hydraulic gradient wherein groundwater levels are deeper in the underlying aquifer, either due to the naturally occurring piezometric heads in the aquifer or pumping-induced groundwater level differentials.

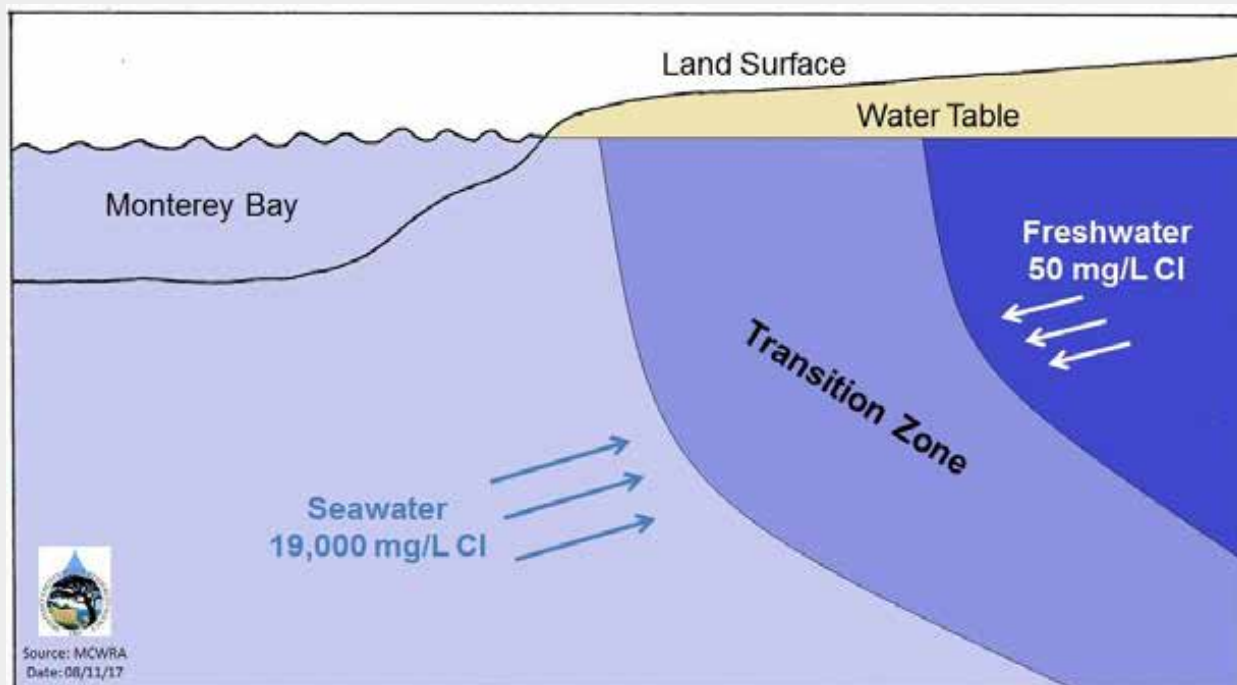
Varying combinations of these conditions are present at many locations throughout the 180/400 Foot Aquifer Subbasin. The implications will be discussed further in Sections 3 and 4 of this report, but all are potential conduits for inter-aquifer seawater intrusion (Figure 10).

### 2.2.4 Rates of seawater intrusion

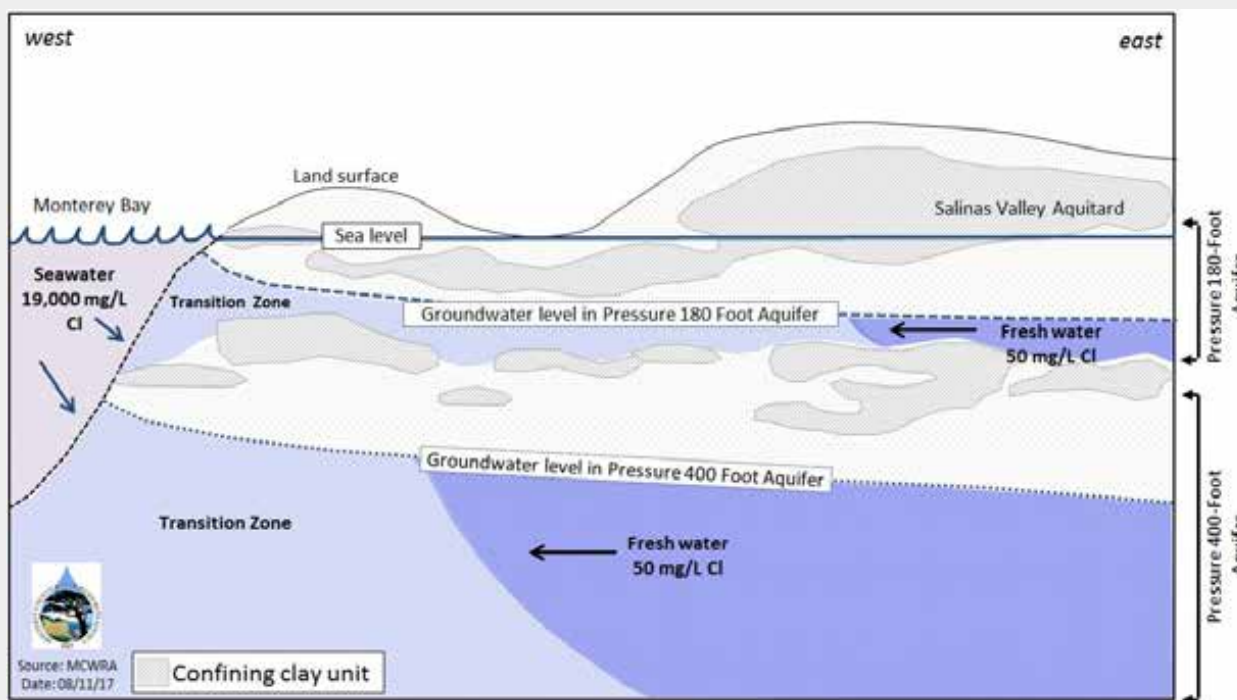
Rates of seawater intrusion can be determined using a variety of methods, as discussed by Kennedy/Jenks (2004). The rates of advancement have historically been variable and have been discussed in terms of both linear rates (e.g., feet per year) and the areal expansion of distinct lobes, (e.g., acres of ground surface underlain by the defined seawater intrusion extent). The linear rate of seawater intrusion over a given time interval is the distance moved by the 500 mg/L chloride contour divided by that time interval (conventionally reported in years). The number of acres advanced is calculated from the change in intruded area, as exhibited in Figure 1 and Figure 2 (Brown and Caldwell, 2015).

Expansion of seawater intrusion into an area may result from increased pumping or prolonged droughts, when groundwater level withdrawals exceed available recharge. Similarly, short-term reductions in the seawater intrusion rate may be observed during wet periods. As demonstrated in Kennedy/Jenks (2004), seawater intrusion data suggest that preferential “travel paths” may exist along which seawater intrusion could progress at a faster rate due to the underlying geology. In some cases, there may be no advancement along the fringes of a seawater intrusion lobe.

With each contouring event, the Agency determines the number of acres over which seawater intrusion has advanced (Table 2). Historical data on estimated acreage overlying seawater intrusion from 1999 to 2015 was used to determine that seawater intrusion is advancing at a rate of approximately 265 acres per year in the Pressure 180-Foot Aquifer since CSIP began operation in 1998. For the same time period, seawater intrusion has advanced at a rate of 414 acres per year in the Pressure 400-Foot Aquifer.

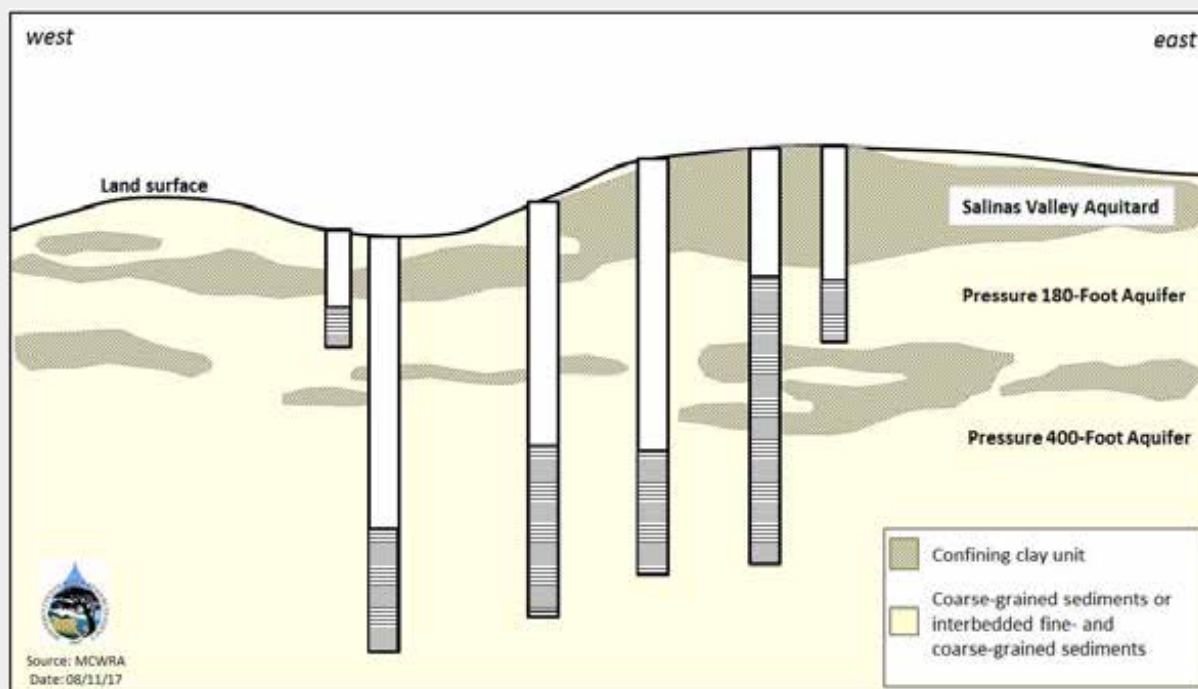


**Figure 9A.** As seawater intrudes into an aquifer there is a transition zone where seawater and fresh water mix.

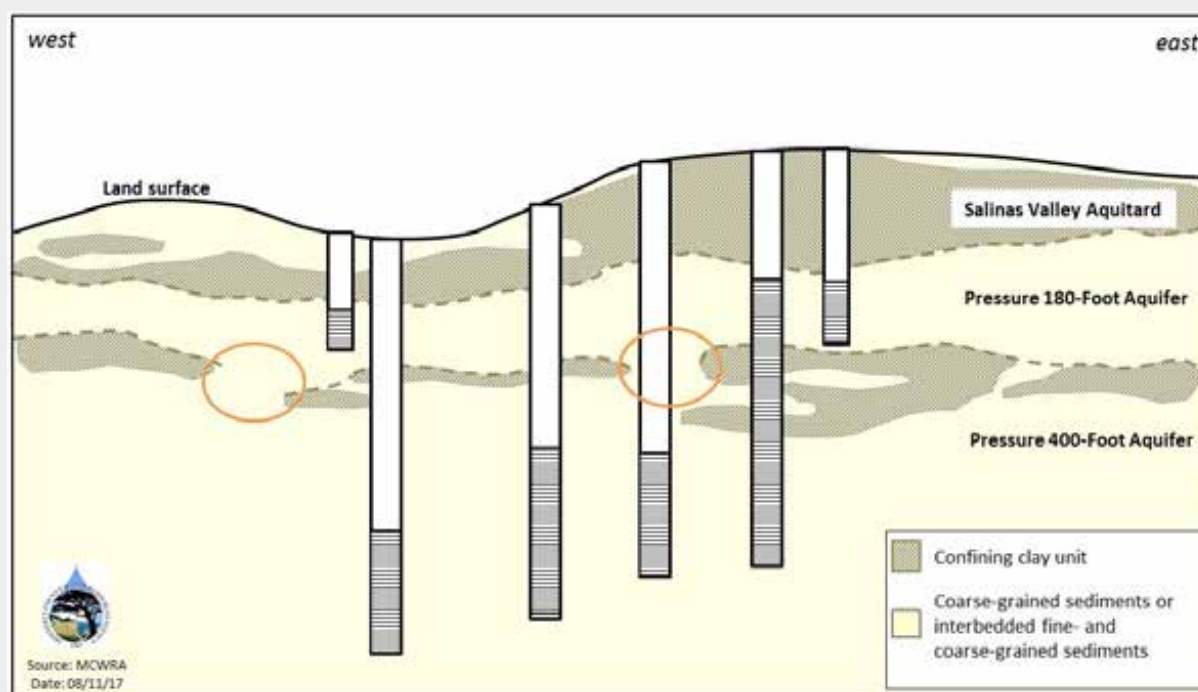


**Figure 9B.** With regional seawater intrusion, seawater moves inland because there are submarine outcrops of the geologic formations and a landward groundwater gradient.

**Figure 9 - Illustration of Regional Seawater Intrusion**

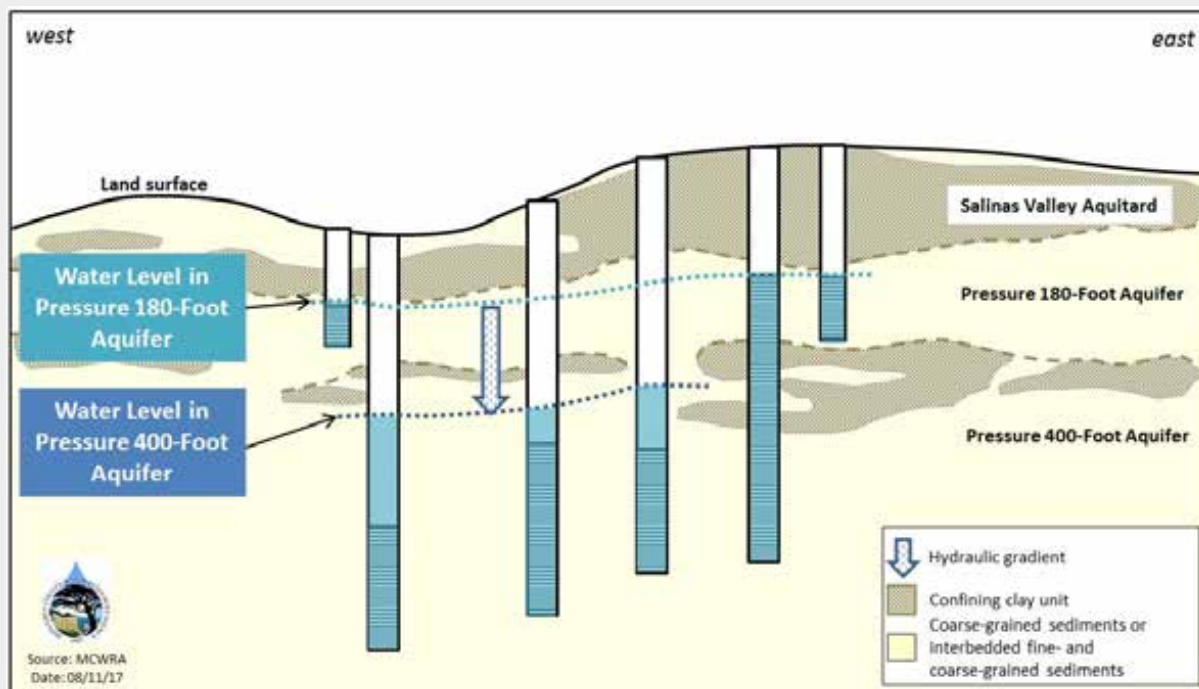


**Figure 10A.** The 180/400 Foot Aquifer Subbasin contains multiple layers of water-bearing zones interspersed with confining clay units.

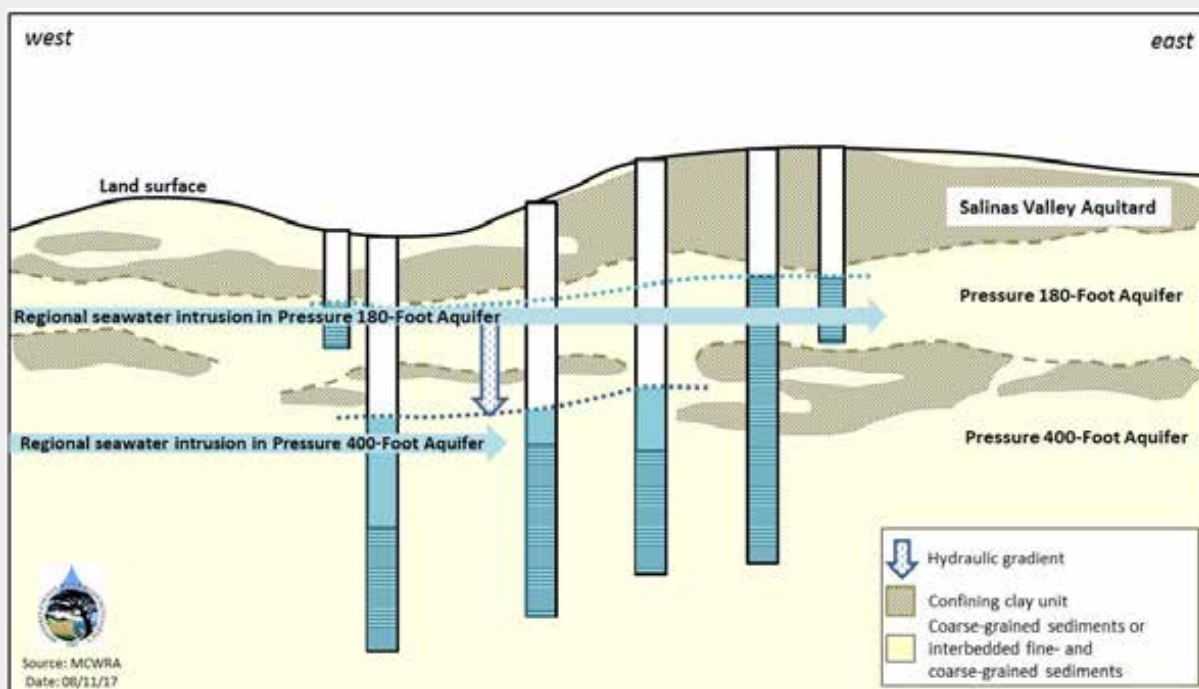


**Figure 10B.** In some areas of the 180/400 Foot Aquifer Subbasin, the confining clay unit is missing or very thin.

**Figure 10 - Illustration of Inter-Aquifer Seawater Intrusion**



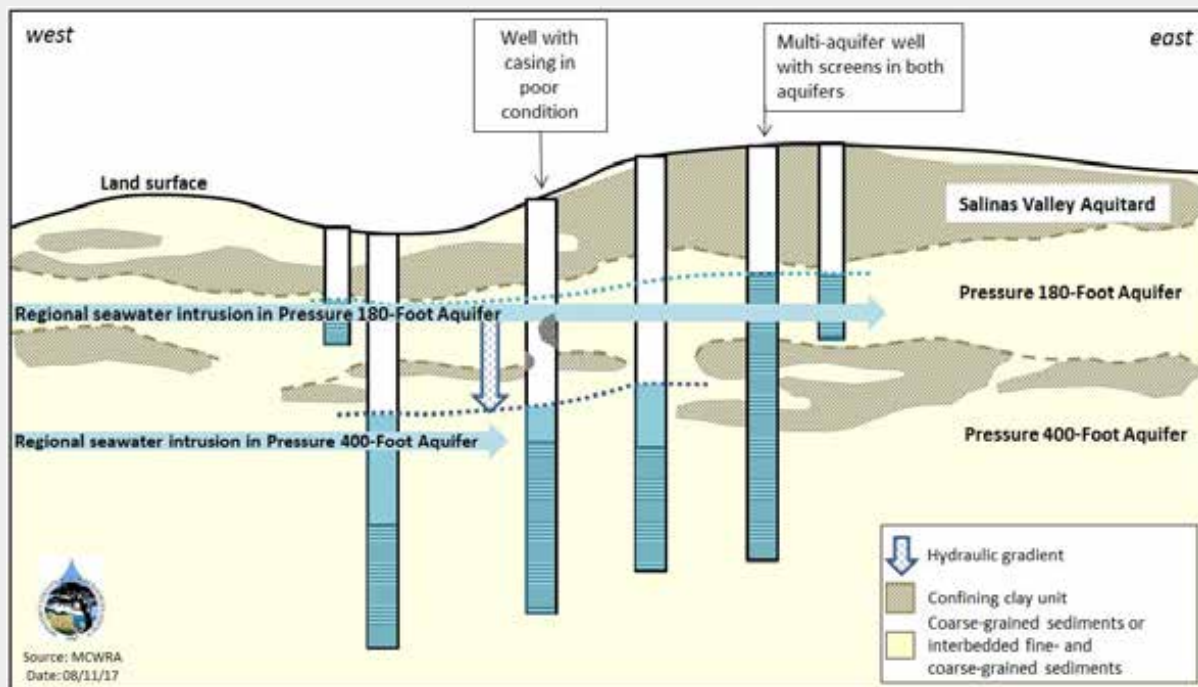
**Figure 10C.** Water levels in the Pressure 400-Foot Aquifer are lower than in the overlying Pressure 180-Foot Aquifer. This results in a downward hydraulic gradient.



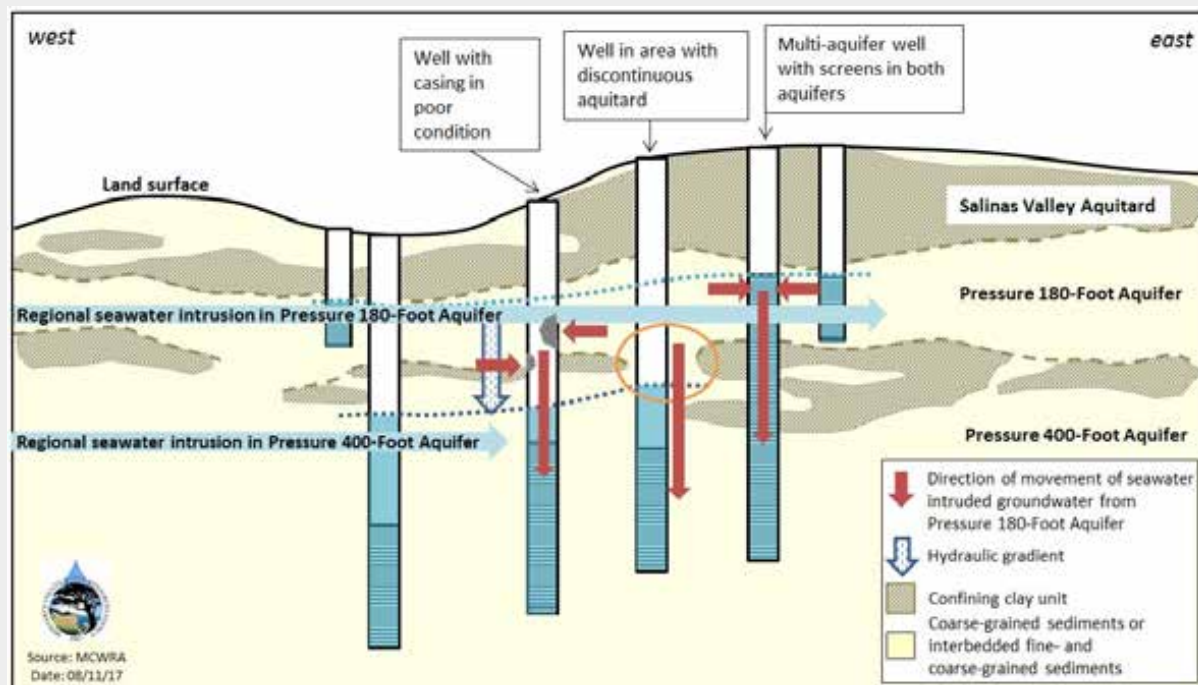
**Figure 10D.** Regional seawater intrusion has occurred in both the Pressure 180-Foot and Pressure 400-Foot Aquifers, but seawater intrusion extends further inland in the Pressure 180-Foot Aquifer.

**Figure 10 (continued) – Illustration of Inter-Aquifer Seawater Intrusion**



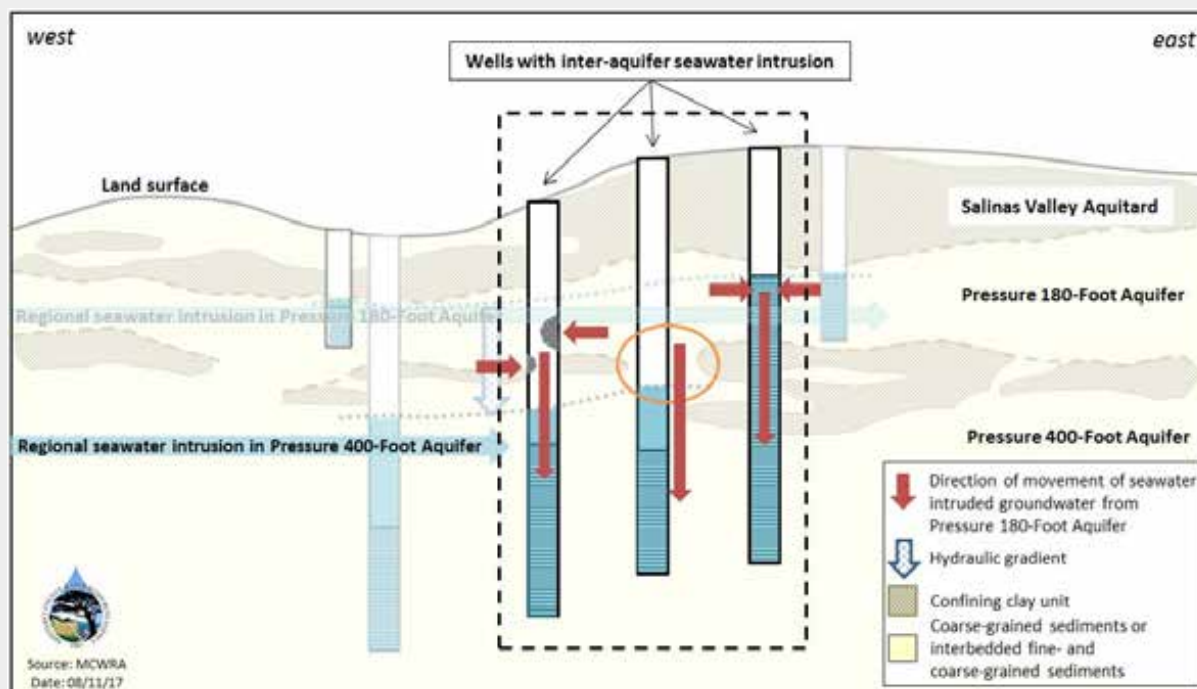


**Figure 10E.** Some wells in the 180/400 Foot Aquifer Subbasin are installed in multiple aquifers, have casings that are in poor condition, or have been improperly constructed or abandoned.



**Figure 10F.** A combination of the geology, hydraulic gradient, overlying intrusion, groundwater pumping, and well construction/condition allows for inter-aquifer seawater intrusion.

**Figure 10 (continued) - Illustration of Inter-Aquifer Seawater Intrusion**



**Figure 10G.** Seawater intrusion would be detected at the three highlighted wells in the Pressure 400-Foot Aquifer, even though the regional seawater intrusion front has not yet reached them, as a result of movement of seawater intruded groundwater through conduits.

**Figure 10 (continued) – Illustration of Inter-Aquifer Seawater Intrusion**

**Table 2 - Historical Estimated Acreage Overlying Seawater Intrusion**

<b>Water Year</b>	<b>Pressure 180-Foot Aquifer (acres advanced)</b>	<b>Total Acres Advanced in Pressure 180-Foot Aquifer</b>	<b>Pressure 400-Foot Aquifer (acres advanced)</b>	<b>Total Acres Advanced in Pressure 400-Foot Aquifer</b>
<b>1944</b>	1,833	1,833	NAD*	NAD*
<b>1959</b>	NAD*	1,833	22	22
<b>1965</b>	5,839	7,672	NAD*	22
<b>1975</b>	3,973	11,645	3,695	3,717
<b>1985</b>	4,576	16,221	3,804	7,521
<b>1990</b>	NAD*	16,221	826	8,347
<b>1993</b>	3,596	19,817	311	8,658
<b>1994</b>	NOC†	19,817	NOC†	8,658
<b>1995</b>	NOC†	19,817	407	9,065
<b>1997</b>	1,802	21,619	896	9,961
<b>1999</b>	2,400	24,019	543	10,504
<b>2001</b>	761	24,780	499	11,033
<b>2003</b>	627	25,407	520	11,523
<b>2005</b>	1,768	27,175	359	11,882
<b>2007</b>	425	27,600	122	12,004
<b>2009</b>	191	27,791	93	12,097
<b>2011</b>	351	28,142	476	12,573
<b>2013</b>	NOC†	28,142	NOC†	12,573
<b>2015</b>	115	28,257	4,552	17,125
<sup>a</sup> The seawater intrusion front did not change discernably between 2011 and 2013, based on the coincidental position of the 2011 and 2013 500 mg/L chloride contours. * = No Available Data (NAD) † = No Observed Change (NOC)				



## 2.3 Castroville Seawater Intrusion Project

The Castroville Seawater Intrusion Project (CSIP) is one component of the Monterey County Water Recycling Projects, the other being the Salinas Valley Reclamation Project, which began construction in 1995. CSIP started delivering recycled water and groundwater pumped from supplemental wells to agricultural fields in the Castroville area in 1998 (Figure 11). Beginning with operation of the Salinas River Diversion Facility (SRDF)<sup>16</sup> in 2010, CSIP also delivers treated surface water from the Salinas River. The water provided through CSIP allows for decreased pumping of groundwater near the coast.

A discussion of possible enhancements and expansion of CSIP is presented in Section 3 of this report.

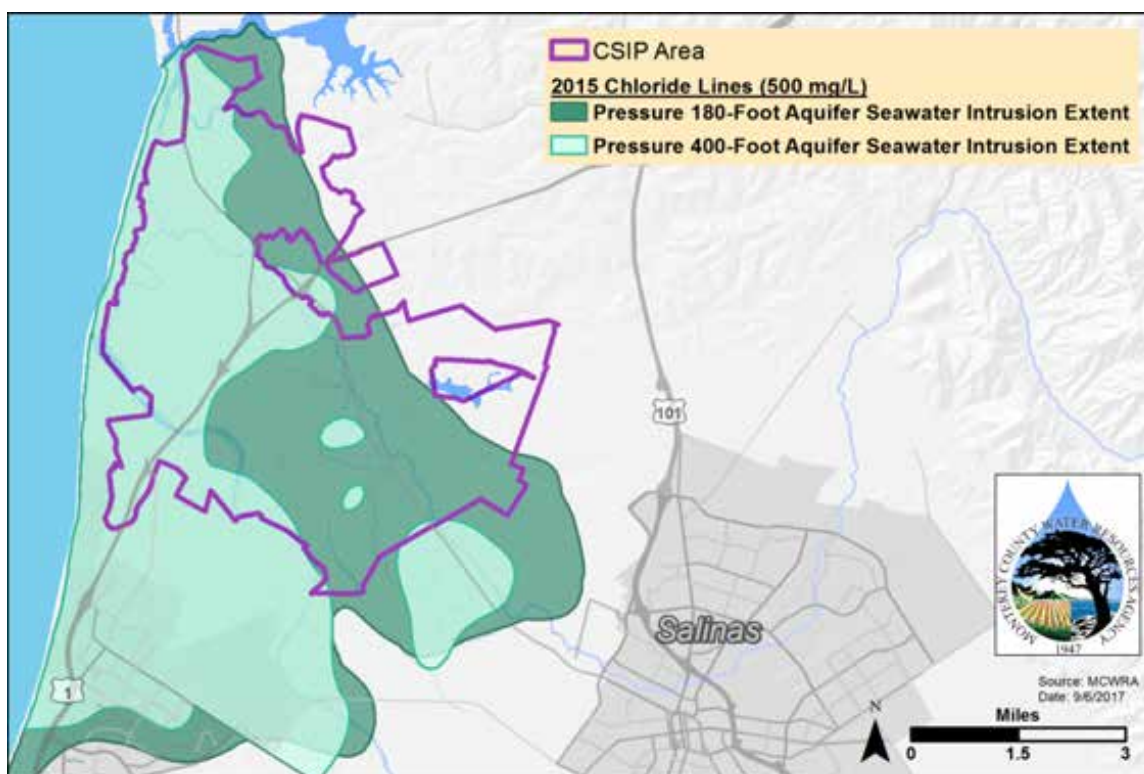


Figure 11- Boundary of the Castroville Seawater Intrusion Project Service Area (Zone 2B)

<sup>16</sup> The Salinas River Diversion Facility is a component of the Salinas Valley Water Project, along with the modification of Nacimiento Spillway and reoperation of the reservoirs.

# Recommendations

Sections 3, 4, and 5 of this report discuss the six recommendations that staff is making with the aim to slow or halt seawater intrusion, and related impacts, in the Salinas Valley Groundwater Basin. The recommendations are grouped not in order of priority but by the primary aquifer or project area that will be influenced by the recommendation, as follows: Pressure 400-Foot Aquifer (Section 3); Well Destruction (Section 4); and, Deep Aquifers (Section 5).

## Section 3 – Pressure 400-Foot Aquifer

### 3.1 Recommendations

The following three recommendations aim to cease activities having a strong likelihood of expanding the intrusion of seawater into remaining usable portions of the Pressure 400-Foot Aquifer:

1. An immediate moratorium on groundwater extractions from new wells<sup>17</sup> in the Pressure 400-Foot Aquifer<sup>18</sup> within an identified Area of Impact<sup>19</sup>, except for the following use categories:
  - a. Wells operating under the auspices of the Castroville Seawater Intrusion Project; and,
  - b. Monitoring wells owned and maintained by the Agency or other water management agencies.
2. Enhancement and expansion of the Castroville Seawater Intrusion Project (CSIP) Service Area. The expansion should include, at a minimum, lands served by wells currently extracting groundwater within the Area of Impact.
3. Following expansion of the CSIP Service Area, termination of all pumping from existing wells within the Area of Impact, except for the following use categories:
  - a. Municipal water supply wells;
  - b. Wells operating under the auspices of the Castroville Seawater Intrusion Project; and,
  - c. Monitoring wells owned and maintained by the Agency or other water management agencies.

---

<sup>17</sup> “New well” is not intended to include (a) any well for which a construction permit has been issued by the Monterey County Health Department or (b) any well for which drilling or construction activities have commenced in accordance with a well construction permit issued by the Monterey County Health Department.

<sup>18</sup> Aquifer means: a water-bearing or saturated formation that is capable of serving as a groundwater reservoir supplying enough water to satisfy a particular demand, as in a body of rock that is sufficiently permeable to conduct groundwater and to yield economically significant quantities of water to wells and springs (Poehls and Smith, 2009).

<sup>19</sup> See Section 1.4 for a description of the Area of Impact. The Area of Impact is also depicted in Figure 4.

### **3.1.1 Area of Impact**

As discussed in Section 1.4 of this report, the Agency has identified an Area of Impact. Non-intruded groundwater within the Area of Impact is considered to be vulnerable due to the presence of pathways and conduits for seawater intrusion (Figure 4).

There is a portion of the Area of Impact that is considered to be especially vulnerable because of the overlying seawater intrusion and the presence of conduits for inter-aquifer seawater intrusion. This is the portion of the Pressure 400-Foot Aquifer where seawater intrusion has not been detected but where it is overlain by seawater intrusion in the Pressure 180-Foot Aquifer. This focus area within the Area of Impact will be discussed further in the remainder of Section 3.

## 3.2 Background and Discussion

### 3.2.1 Hydrogeology

As discussed in Section 2.1.2, the Pressure 400-Foot Aquifer is one in a series of hydrogeologic units within the Area of Impact. Also of key importance to understanding conditions within the Pressure 400-Foot Aquifer are the Pressure 180-Foot Aquifer and the Pressure 180/400-Foot Aquitard.

In areas where groundwater within the Pressure 180-Foot Aquifer has become impaired due to seawater intrusion, the viability and sustainability of the underlying Pressure 400-Foot Aquifer depends in part upon the existence and integrity of hydraulic separation provided by the Pressure 180/400-Foot Aquitard. Figure 12 illustrates that the continuity of the Pressure 180/400-Foot Aquitard within the Area of Impact is highly variable and there are documented areas where the aquitard is thin or missing altogether (Todd, 1989 and Kennedy/Jenks, 2004). Within these areas of discontinuous aquitards the Pressure 180-Foot and Pressure 400-Foot Aquifers can be characterized as a single hydraulically continuous water-bearing unit lacking a separating aquitard.

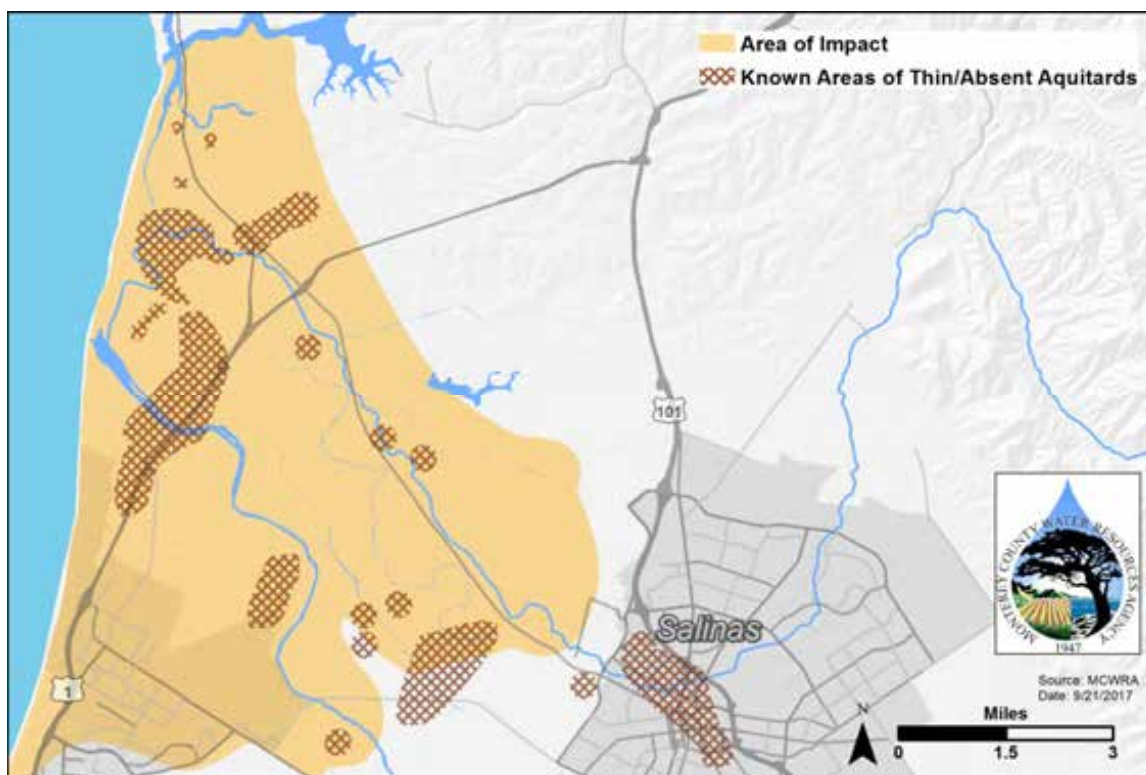


Figure 12 - Areas of Discontinuities in the Pressure 180/400 Foot Aquitard

### 3.2.2 Groundwater Extractions in the Pressure 400-Foot Aquifer

Groundwater extractions (pumping) have been reported to the Agency since 1993; however, the dataset is most comprehensive beginning in 1995.<sup>20</sup> Groundwater extraction data is available for 202 wells within the Area of Impact (Figure 4), with varying periods of record for the data at each well.

As shown in Table 3, groundwater extraction data is available for 123 wells that have reported groundwater extractions from the Pressure 400-Foot Aquifer. Another five wells within the Area of Impact are screened both in the Pressure 180-Foot and Pressure 400-Foot Aquifers, meaning that water from these wells comes from both aquifers. Some of the wells shown in Table 3 as “unknown” are likely pumping from the Pressure 400-Foot Aquifer as well. Figure 13 summarizes reported groundwater pumping totals from the Pressure 400-Foot Aquifer for wells in the Area of Impact since 1995.

**Table 3 - Aquifer Assignments for Wells in the Area of Impact that Report Groundwater Extractions**

<b>Aquifer Unit</b>	<b>Number of Wells in Area of Impact Reporting Groundwater Extractions</b>
Pressure 180-Foot Aquifer	36
Pressure 400-Foot Aquifer	123
Pressure 180-Foot and 400-Foot Aquifers	5
Deep Aquifers	12
Unknown <sup>21</sup>	26
<b>TOTAL</b>	<b>202</b>

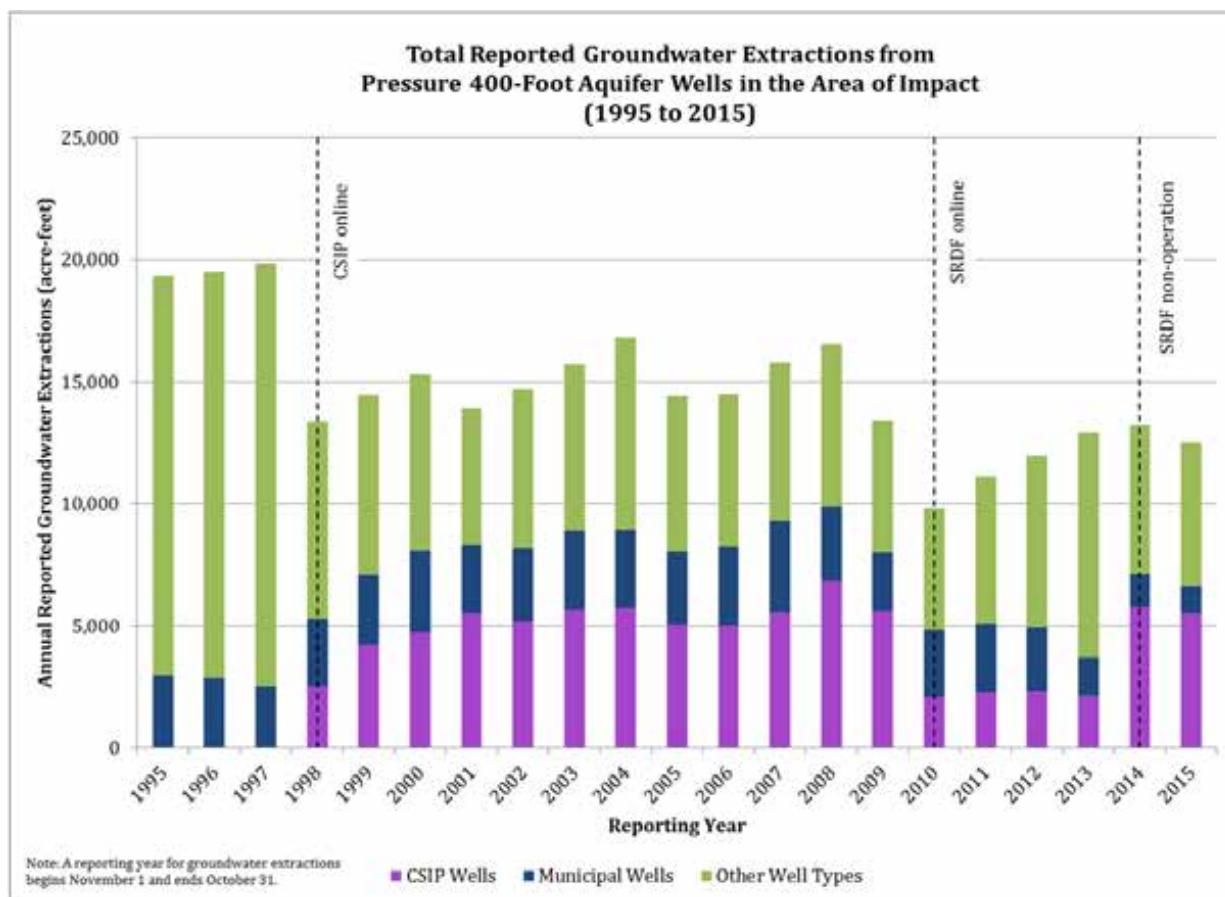
Since 1995, annual pumping totals from wells in the Pressure 400-Foot Aquifer within the Area of Impact ranged from approximately 9,808 acre-feet in 2010, the first year of operation of the Salinas River Diversion Facility (SRDF), to 19,853 acre-feet in 1997, the year prior to the beginning of CSIP operations (Figure 13). Annual average reported pumping for the period 1995 to 2015 was 14,713 acre-feet; this annual average decreases to 13,905 acre-feet for the CSIP operational period (1998 to 2015).

The groundwater extraction totals shown in Figure 13 represent a reasonable minimum approximation of pumping from the Pressure 400-Foot Aquifer in the Area of Impact. Of note is the period of reduced pumping from 2010 through 2013 when the SRDF was operational.

<sup>20</sup> The Groundwater Extraction Management System (GEMS) program was initiated in 1993 with the adoption of Agency Ordinances No. 3663 and No. 3717. The first full year of the program (1994) did not have the same level of participation as has occurred in subsequent years, making 1995 a good starting point for analyzing long-term extraction data in Zones 2, 2A, and 2B.

<sup>21</sup> The Agency does not have well construction details for all wells that report groundwater extractions. It is impossible to know which aquifer a well is extracting water from without knowing the depth and screened/perforated interval(s) of the well.

Extractions from CSIP supplemental wells in the Pressure 400-Foot Aquifer account for an average of 30% of the annual pumping total in the Area of Impact. Groundwater from the Pressure 400-Foot Aquifer CSIP supplemental wells is blended with recycled water for distribution to subscribing water users within the CSIP area as a means of alleviating groundwater pumping near the coast (Figure 11). During the operational period of the Salinas River Diversion Facility (2010-2013), CSIP also used treated water from the Salinas River, which was combined with recycled water and groundwater extracted from the CSIP Supplemental wells. During the SRDF operational period, pumping from CSIP supplemental wells constituted an average of 20% of the overall pumping in the Area of Impact.



**Figure 13 - Annual Groundwater Extractions from Pressure 400-Foot Aquifer Wells in the Area of Impact**

### 3.2.3 Water Quality in the Pressure 400-Foot Aquifer

Historically, groundwater within the Pressure 400-Foot Aquifer was predominantly of superior quality, reflecting its recharge sources of deep percolation of rainfall, seasonal flows within the Salinas River and its tributaries, agricultural return flows, and its residence time as interflow within the alluvium of the Salinas Valley Groundwater Basin.

Historical groundwater extractions from the Pressure 400-Foot Aquifer exceed natural recharge and have created a landward hydraulic gradient, resulting in a pathway for regional seawater



intrusion. Decades of seawater intrusion have resulted in increasing chloride concentrations near the coast in both the Pressure 180-Foot and Pressure 400-Foot Aquifers.

Native groundwater within the Pressure Subarea typically contains chloride at concentrations of about 50 mg/L and seawater has an average chloride concentration of 19,400 mg/L. The intruded portions of the Pressure 180-Foot and Pressure 400-Foot Aquifers can be thought of as transition zones within which seawater has encroached inland from the coast and mixed with native groundwater, resulting in an overall pattern of gradually increasing chloride concentrations, from approximately the landward edge of the Area of Impact to the coast.

Since the late 1940s the Agency has monitored and mapped a “seawater intrusion front,” that is, the location in the transition zone at which intruding seawater has elevated chloride levels to 500 mg/L or greater. The newly published 2015 Seawater Intrusion map of the Pressure 400-Foot Aquifer illustrates the presence, for the first time, of three isolated areas or “islands” of intruded groundwater, beyond the contiguous seawater intrusion front (Figure 2 and Figure 14).

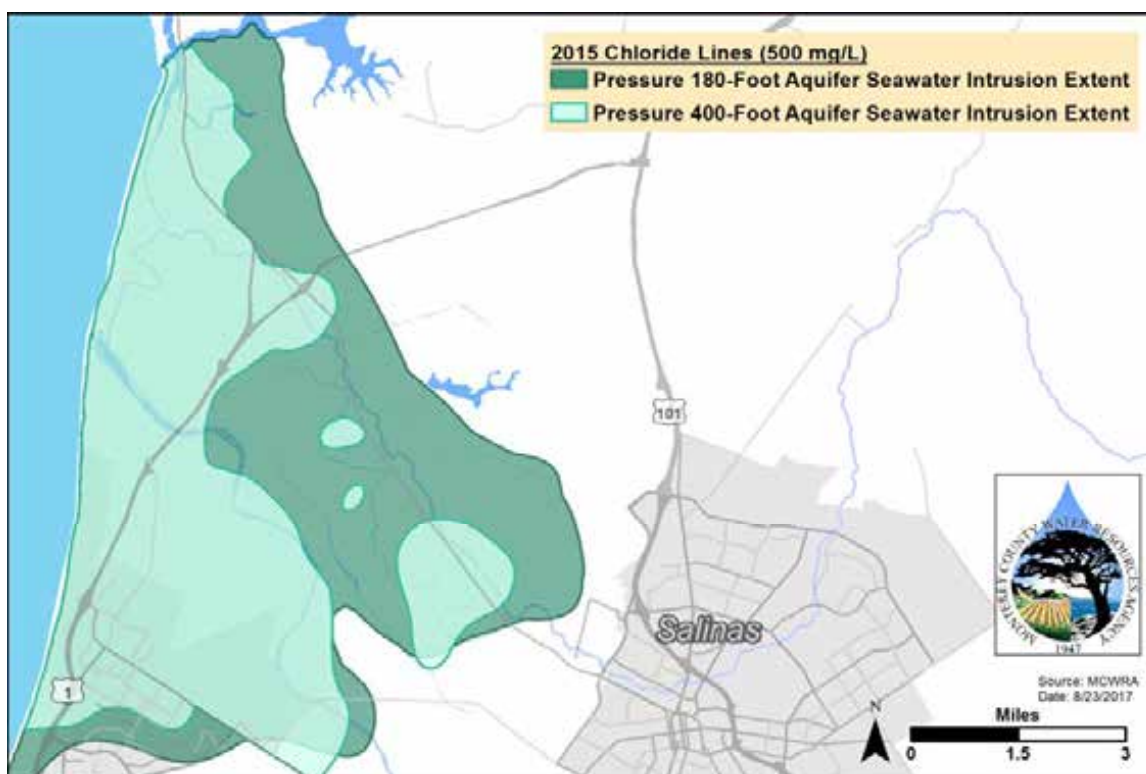


Figure 14 - 2015 Extent of Seawater Intrusion

### 3.2.4 Hydraulic Conditions Giving Rise to Seawater Intrusion

Groundwater elevation contour maps published by the Agency spanning the last two decades document a landward groundwater gradient from the coast towards Salinas and Spreckels in the

Pressure 400-Foot Aquifer.<sup>22</sup> Derived from depth-to-groundwater-level data collected by the Agency, these gradients persist not only during peak pumping season (as revealed in August Trough Groundwater Level Contour Maps) but at times of reduced aquifer stress (as is evident in Fall Groundwater Level Contour maps). These seawater intrusion-inducing patterns of landward sloping groundwater levels are seen during periods of drought, such as in the groundwater contour maps created using data from 2013 and 2015, as well as during the full range of climatic year types, including wet periods (e.g. 1995 and 2011). These groundwater level patterns have continued into the operational period of the Salinas River Diversion Facility, as reflected in the 2011 and 2013 groundwater elevation contour maps (Appendix A).

Groundwater levels in the vicinity of the Area of Impact also exhibit a persistent vertical pattern in which water levels in the Pressure 400-Foot Aquifer are consistently lower than those in the Pressure 180-Foot Aquifer. This pattern defines a vertical downward gradient, a condition that encourages downward migration of groundwater through available conduits, and which is enhanced by groundwater pumping in the Pressure 400-Foot Aquifer.

### **3.3 Wells and Vertical Migration of Groundwater**

#### **3.3.1 Well Inventory**

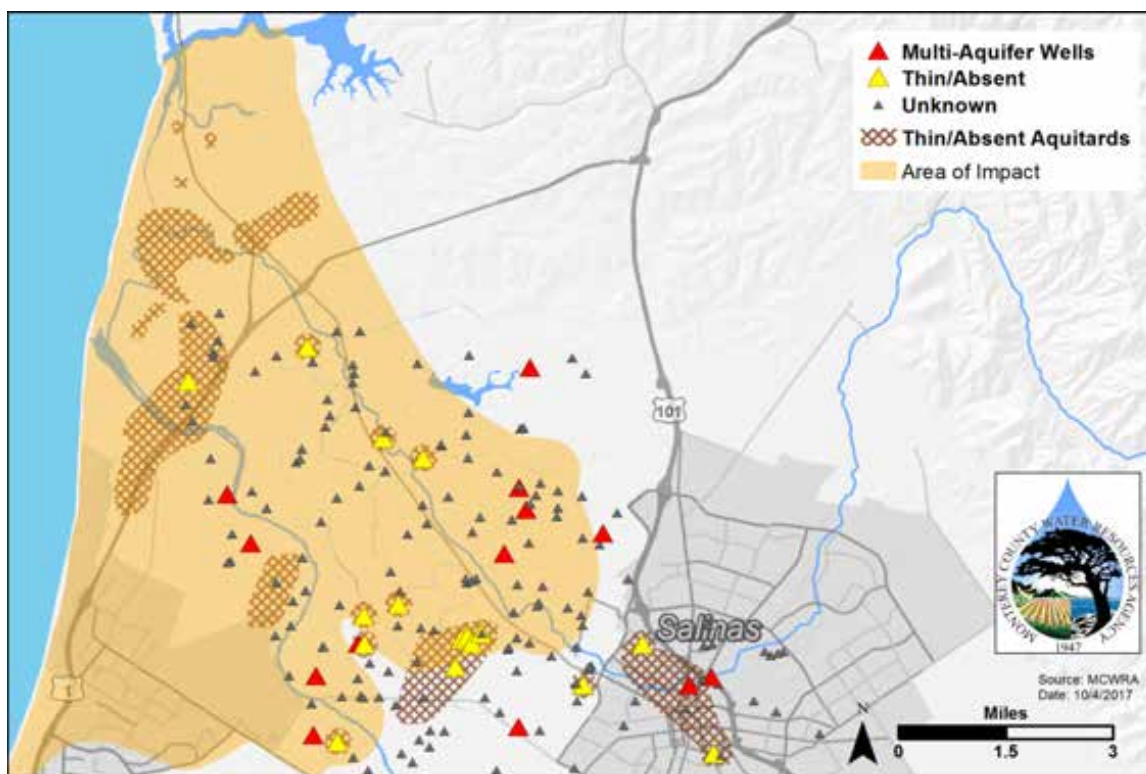
Agency well records that include location coordinates primarily consist of data that predates 1998. Based on a query of this data from the Area of Impact, staff was able to identify and locate 187 wells within and near the Area of Impact (Figure 15). Other wells have been installed in the Area of Impact since the last effort by the Agency to collect location data in the mid-1990s; however, many of these newer wells are not depicted in Figure 15 because the specific location of the wells is unknown. An Agency effort to obtain GPS coordinates for new wells has not been completed since the mid-1990s due to resource constraints.

Of the 187 wells with known locations, 10 are domestic, 3 are municipal water supply wells, 4 are dedicated monitoring wells; the remaining wells are agricultural production wells. The majority of these wells draw water from the Pressure 400-Foot Aquifer, although 66 of the wells lack definitive information on aquifer of extraction or screen depth.

---

<sup>22</sup> Maps depicting groundwater elevation contours are available on the Water Resources Agency website here: <http://www.co.monterey.ca.us/government/government-links/water-resources-agency/documents/groundwater-elevation-contours#wra>





**Figure 15 - Degree of Hydraulic Separation in Wells within and near the Area of Impact**

### 3.3.2 Interpreting Hydraulic Separation

The 2015 Pressure 400-Foot Aquifer seawater intrusion map is the first published documentation by the Agency of isolated areas or “islands” of intruded waters beyond the seawater intrusion front (Figure 2). The presence of chloride concentrations less than 500 mg/L in groundwater between the seawater intrusion front and the islands, as well as between the islands themselves, and the documented presence of conduits as discussed in Section 2, suggest vertical migration of groundwater between the intruded Pressure 180-Foot Aquifer and the underlying Pressure 400-Foot Aquifer as a dominant pathway of seawater intrusion in these isolated areas of the Pressure 400-Foot Aquifer. Chloride concentrations in wells within and nearby the islands have been increasing for the past ten to fifteen years and reached the 500 mg/L threshold for the first time in 2015.

As part of the Agency’s analysis of chloride data during development of the 2015 seawater intrusion maps, a detailed review of the 187 wells known to be located within the Area of Impact was conducted in an effort to fully understand potential pathways of seawater intrusion into the “chloride islands.” That review, which focused on the vulnerable portion of the Area of Impact where the Pressure 400-Foot Aquifer is currently unintruded, revealed that there are at least 74 wells for which adequate hydraulic separation between the intruded Pressure 180-Foot and the Pressure 400-Foot Aquifers cannot be confirmed (Table 4).

Of these 74 wells, eight have lithologic logs indicating poor or no hydraulic separation; another seven have lithologic logs that have an inconclusive determination of hydraulic separation; and

three others have well completion reports that document multiple aquifer construction enabling direct hydraulic communication between the intruded Pressure 180-Foot and the Pressure 400-Foot Aquifers. For the remaining 56 wells within this group, neither lithologic nor well construction data were available to determine the degree of separation between the aquifers at these locations.

An additional 25 Pressure 400-Foot Aquifer wells in the northern portion of the Area of Impact, near Castroville, have yet to be evaluated for hydraulic separation. At least one of these is an active well known to be screened in both the intruded Pressure 180-Foot Aquifer and in the Pressure 400-Foot Aquifer.

Continued pumping of wells contributes to the ongoing landward gradient of the groundwater levels. Additionally, with known conduits between the Pressure 180-Foot and Pressure 400-Foot Aquifers within the Area of Impact, downward migration of impaired Pressure 180-Foot Aquifer is exacerbated by groundwater pumping from Pressure 400-Foot Aquifer wells.

The newly mapped “intrusion islands” evident in the Pressure 400-Foot Aquifer, coupled with evidence of known conduits within and in close proximity to the Area of Impact, will result in the continued spatial and temporal spreading of impaired water within the Pressure 400-Foot Aquifer.

In some locations this will mean rapidly deteriorating water quality. Current groundwater level and chloride concentration trends suggest that without protective steps, the continued viability of the Pressure 400-Foot Aquifer in and near the Area of Impact is endangered.

**Table 4 - Summary of Degree of Uncertainty Observed in Hydraulic Separation for Wells within the Area of Impact**

<b>Hydraulic Separation Category</b>	<b>Well Count in Area of Impact**</b>	<b>Well Count within 0.5 miles seaward of 2015 500 mg/L contour line</b>	<b>Well count within 0.5 miles landward of 2015 500 mg/L contour line</b>	<b>Total</b>
<b>No separation</b>	4	1	1	6
<b>Poor</b>	4	1	2	7
<b>Multi-aquifer well</b>	3	1	2	6
<b>Unknown*</b>	56	10	24	90
<b>Inconclusive</b>	7	3	1	11
<b>TOTAL</b>	<b>74</b>	<b>16</b>	<b>30</b>	<b>120</b>
* “Unknown” includes wells for which a well log has not been located.				
** The analysis of hydraulic separation at well locations was conducted only for wells in the portion of the Area of Impact where the intruded Pressure 180-Foot Aquifer overlies the unintruded Pressure 400-Foot Aquifer. This portion of the Area of Impact is considered to be particularly vulnerable.				

### **3.3.3 Efforts to Limit Inter-Aquifer Hydraulic Communication**

Through its role as a technical consultant to the Monterey County Health Department (Environmental Health Bureau) in the well permitting process, the Agency seeks to mitigate inter-aquifer migration of groundwater through implementation of well construction standards. Specifically, the Agency does not recommend construction of any production well (domestic, municipal, or agricultural) in an area where there is no hydraulic separation between the Pressure 180-Foot and Pressure 400-Foot Aquifers. Furthermore, at well sites where the aquitard is present, the Agency recommends that wells be constructed in a manner that ensures that water can be extracted from only one aquifer. This is achieved by the Agency providing review of site-specific geologic and geophysical data and well construction designs.

Despite these efforts, water quality data now show that regional impacts from groundwater pumping are overriding the preventative measures implemented on the basis of site-specific hydrogeology, allowing for continued inter-aquifer migration of groundwater and advancement of seawater intrusion.

## **3.4 Enhancement and Expansion of CSIP**

The Castroville Seawater Intrusion Project (CSIP) delivers recycled water from the Salinas Valley Reclamation Project (SVRP), treated Salinas River water from the Salinas River Diversion Facility (SRDF), and groundwater from twelve supplemental wells to 12,000 acres of irrigated land in the Castroville Area in order to reduce groundwater pumping near the coast (Figure 11).

CSIP delivered 17,363 acre-feet of water in fiscal year 2016-2017<sup>23</sup> and, since deliveries began in 1998, an average of approximately 19,500 acre-feet has been delivered annually (Appendix B).

### **3.4.1 Enhancement of CSIP**

Enhancement of CSIP involves optimization within the current service area boundary (Zone 2B, Figure 11) and would take the form of installing storage tanks capable of retaining water from the SRDF. Storage tanks would optimize operation of the SRDF by allowing surface water to be pumped during low-demand times and stored for later delivery, when demands are high. The installation of storage tanks would also assist with maintaining pressure in the CSIP delivery system and would reduce the need for the installation of any new supplemental wells.

Enhancement of CSIP would allow for more flexibility in the timing of SRDF deliveries and would provide the potential to reduce groundwater pumping from supplemental wells.

### **3.4.2 Expansion of CSIP**

Expansion of CSIP could take many forms, all of which would involve enlarging the boundary of the service area. One possibility for expansion is the installation of new supplemental wells near Chualar, which would replace the groundwater pumping that, currently, occurs from supplemental wells in the Castroville and Salinas areas. Groundwater from the Chualar supplemental wells would

---

<sup>23</sup> Fiscal Year 2016-2017 covers the time period from July 1, 2016 to June 30, 2017.

be delivered via a pipeline, to meet irrigation demands in the expanded CSIP area. Irrigated lands between Chualar and the current Zone 2B boundary would simultaneously be brought into the expanded service area, offsetting groundwater pumping from those lands.

CSIP could also be expanded with a progressive build-out from the current service area toward Chualar, effectively “chasing” groundwater of good quality and moving south-southeast down the Salinas Valley ahead of the seawater intrusion front. Additional irrigated lands would be brought into the CSIP service area in a step-wise fashion with this approach.

Expansion of CSIP would have the benefits of further reducing groundwater pumping near the coast, stabilizing groundwater levels in and around the current service area, and building upon the benefits that have already been realized by CSIP, further contributing to the effort of slowing or halting the advancement of seawater intrusion.

### **3.5 Findings in Support of Recommendations**

The recommendation for an immediate moratorium on new well construction in the Pressure 400-Foot Aquifer is necessary for the following reasons:

- Islands of high chloride concentrations (500 mg/L or greater) in the Pressure 400-Foot Aquifer have been documented.
- Water quality data collected in 2016 and 2017 show evidence of areal expansion of the islands of high chloride concentrations from water quality data collected in 2016 and 2017.
- Evidence of communication between the Pressure 180-Foot Aquifer and the Pressure 400-Foot Aquifer via conduits has been documented, including:
  - Areas of discontinuous aquitards;
  - Wells screened in multiple aquifers enabling vertical mixing;
  - Wells with potentially compromised casings penetrating both the Pressure 180-Foot and the Pressure 400-Foot Aquifers; and,
  - Uncertainty in the integrity of hydraulic separation within the Area of Impact at existing wells for which no construction or hydrostratigraphic information has been located.
- A persistent inland groundwater gradient exists, which allows for lateral or regional seawater intrusion.
- A constant downward groundwater gradient from the Pressure 180-Foot Aquifer toward the Pressure 400-Foot Aquifer exists within an area where the Pressure 400-Foot Aquifer is overlain by the intruded Pressure 180-Foot Aquifer. This downward gradient acts as a driving force for vertical migration or inter-aquifer seawater intrusion.
- Variation in the hydrogeology of the 180/400 Foot Aquifer Subbasin results in pathways within the Pressure 400-Foot Aquifer along which intruded water can flow.
- Groundwater pumping directly impacts the severity and areal extent of seawater intrusion, diminishing the quality and quantity of the usable groundwater supply in the Salinas Valley.

Enhancement and expansion of CSIP, the second recommendation, will improve the resiliency of the existing CSIP delivery system and allow for continued decreases in groundwater pumping near

the coast. Implementing this recommendation, along with the third recommendation to terminate pumping in the Area of Impact following expansion of CSIP, will further reduce groundwater pumping in the Pressure 400-Foot Aquifer. The combination of these three recommendations has a high potential to positively impact the goal of slowing or halting seawater intrusion.

## Section 4 – Destruction of Wells in the CSIP Area

### 4.1 Recommendation

The following recommendation aims to slow or halt seawater intrusion in the Pressure 180-Foot and Pressure 400-Foot Aquifers:

4. Initiate and diligently proceed with destruction of wells in Agency Zone 2B, in accordance with Agency Ordinance No. 3790, to protect the Salinas Valley Groundwater Basin against further seawater intrusion.

### 4.2 Background

#### 4.2.1 Agency Ordinance No. 3790

On November 8, 1994 the Board of Supervisors of the Monterey County Water Resources Agency approved Ordinance No. 3790:

*An ordinance of the Monterey County Water Resources Agency establishing the regulations for the classification, operation, maintenance and destruction of groundwater wells in MCWRA Zone 2B, to protect the Salinas Valley Groundwater Basin against further seawater intrusion.*

The ordinance provides “...for the destruction of abandoned wells, contaminated wells, wells that allow cross-contamination of aquifers in intruded areas, and other wells.” The ordinance also establishes a procedure for the destruction of wells in Zone 2B, which is the area served by the Castroville Seawater Intrusion Project (CSIP) (Figure 11). As described in §1.02.05 of Ordinance No. 3790:

*After the start-up of the Castroville Seawater Intrusion Project, no person shall own, operate, or maintain a well in Zone 2B if such well is required to be destroyed, in violation of such destruction requirement, and no person shall interfere with actions taken by the MCWRA to accomplish the destruction of such a well in conformity with this ordinance.*

Ordinance No. 3790 includes provisions for wells that are exempt from destruction, if they have not been abandoned and are not contaminated or cross-contaminating wells, including: supplemental, aquifer storage and recovery (ASR), domestic, commercial or industrial, monitoring, test, cathodic protection, and standby wells.

Ordinance No. 3790 further instructs that any well not exempt from destruction shall be destroyed by the Agency once (a) the Castroville Seawater Intrusion Project has established a satisfactory record of water deliveries, as determined by the Board of Directors, or (b) until at least one year after the start-up of the Castroville Seawater Intrusion Project, whichever occurs later. The cost of said well destructions shall be borne by the Agency (§1.03.05).

#### **4.2.2 Impetus for Recommendation**

As described previously in this report, the presence of wells in poor condition with potentially corroded well casings; wells constructed in multiple aquifers; and improperly constructed or abandoned wells serve as conduits for movement of seawater intruded groundwater between aquifers when coupled with a downward hydraulic gradient. Maps of the 2015 seawater intrusion contours depict newly emerging islands of groundwater with chloride concentrations exceeding 500 mg/L (Figure 2). Evidence discussed in Section 3 suggests that the cause of these islands in the Pressure 400-Foot Aquifer is inter-aquifer seawater intrusion facilitated by the presence of multiple conduits in an area with overlying seawater intrusion in the Pressure 180-Foot Aquifer and aided by a downward hydraulic gradient.

By initiating the destruction of wells in Zone 2B, as specified in Ordinance No. 3790, the Agency will begin eliminating some of the anthropogenic<sup>24</sup> conduits facilitating inter-aquifer seawater intrusion.

#### **4.3 Prioritization of Wells for Destruction**

One hundred forty-two (142) wells within Zone 2B have been identified as being subject to destruction under Ordinance No. 3790. This total does not include supplemental wells for the CSIP program or monitoring wells. Given the large number of wells that require destruction per Ordinance No. 3790, staff used three weighted criteria to rank the wells, the goal of which was to identify those wells whose destruction would yield the highest benefit. The criteria used and resulting prioritization are described below.

##### **4.3.1 Criteria**

Each well in Zone 2B that is subject to Ordinance No. 3790 was evaluated for:

- Degree of hydraulic separation between aquifers at the well location (i.e. thin/absent Pressure 180/400 Foot Aquitard or unimpaired aquitard);
- Well location relative to the seawater intrusion front in the Pressure 400-Foot Aquifer as defined by contour line demarking 500 mg/L chloride concentration; and,
- Chloride concentration at the well during the 2015 sampling event.

Wells were first categorized by which aquifer the well was screened in: Pressure 180-Foot or Pressure 400-Foot Aquifer. Each well was then ranked on the basis of the three categories listed above (Figure 16). Assigned points from all three categories were summed to derive a total for each well.

A relative value was assigned to each variation of the criteria, providing a mechanism for weighting. Multi-aquifer wells - those with screened intervals in both the Pressure 180-Foot and Pressure 400-Foot Aquifers - were assigned a total of 30 points; this effectively ensured that such wells would receive the highest possible point total and, therefore, priority ranking.

---

<sup>24</sup> Anthropogenic means: originating in human activity. (oxforddictionaries.com)

For wells screened in the Pressure 180-Foot Aquifer, priority was placed on destroying wells that would prevent further vertical migration of seawater intrusion. For example, wells in areas with a discontinuous aquitard<sup>25</sup> were ranked highly for destruction. Priority was also given to destruction of wells in areas where the Pressure 180-Foot Aquifer is not yet intruded. Wells with low chloride concentrations (<100 mg/L) were ranked highly because the integrity of the water quality in these areas can still be preserved by destroying potential locations for pumping or conduits for transport of seawater intruded groundwater. Wells in areas that were already intruded (chloride concentration >250 mg/L) were given low priority for destruction, because water quality in these locations has already deteriorated.

Wells screened in parts of the Pressure 400-Foot Aquifer that are especially vulnerable were given high priority for destruction. For example, destroying wells in locations where the Pressure 180-Foot Aquifer is intruded, but the underlying Pressure 400-Foot Aquifer is not yet intruded, was prioritized in an effort to prevent migration from the overlying, intruded, aquifer. Pressure 400-Foot Aquifer wells in locations with an aquitard present were ranked higher because, at these locations, the aquitard serves as a natural barrier that will reinforce the action of destroying the well. With regard to water quality, priority was placed on eliminating wells at the active seawater intrusion front (i.e. chloride concentrations between 100 and 250 mg/L).

In 1994, Staal, Gardner & Dunne, Inc. developed a Well Destruction Priority List for wells in the CSIP area (Appendix C). Some of the same criteria were used in this review, with the primary difference being that the prioritization described herein gives consideration to chloride concentrations and location of the well relative to the seawater intrusion front.

#### 4.3.2 Ranking

Each of the 142 wells subject to destruction per Ordinance No. 3790 was prioritized for destruction using the criteria described above. Five categories of prioritization were used (urgent, high, medium, low, and minimal) with the final rankings distributed among the categories as shown in Table 5 and Figure 17.

**Table 5 - Prioritization Categories and Well Counts for Destructions in Zone 2B**

<b>Prioritization Category</b>	<b>Number of Wells in Category</b>
Urgent	8
High	27
Medium	39
Low	45
Minimal	23
<b>TOTAL</b>	<b>142</b>

<sup>25</sup> A map of areas with discontinuities in the Pressure 180/400 Foot Aquitard, based on Kennedy/Jenks (2004), Todd (1989) and shown in Figure 12, was used to determine the degree of hydraulic separation at the well location.



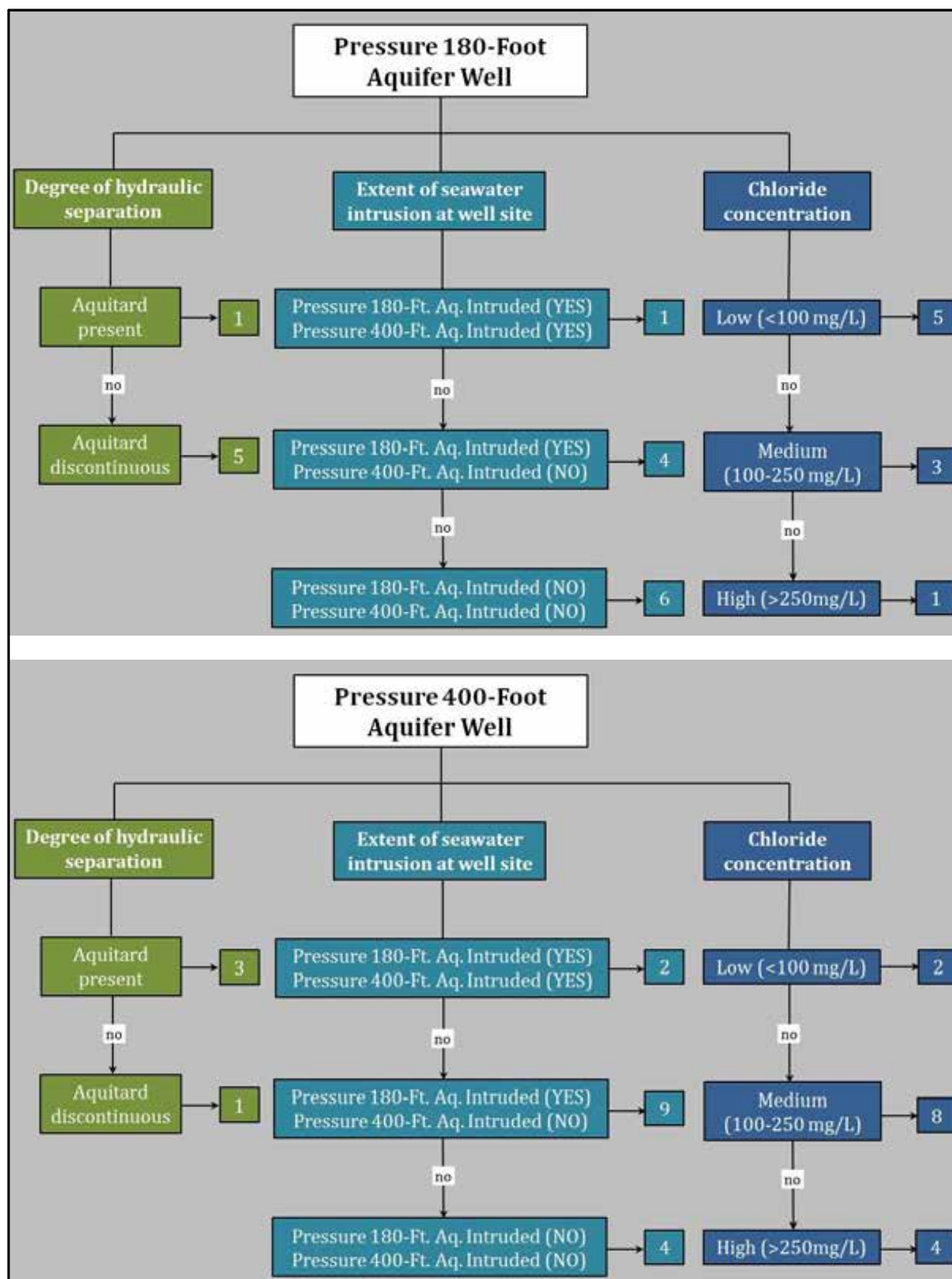


Figure 16 - Criteria and Weighting Approach for Well Destructions in Zone 2B

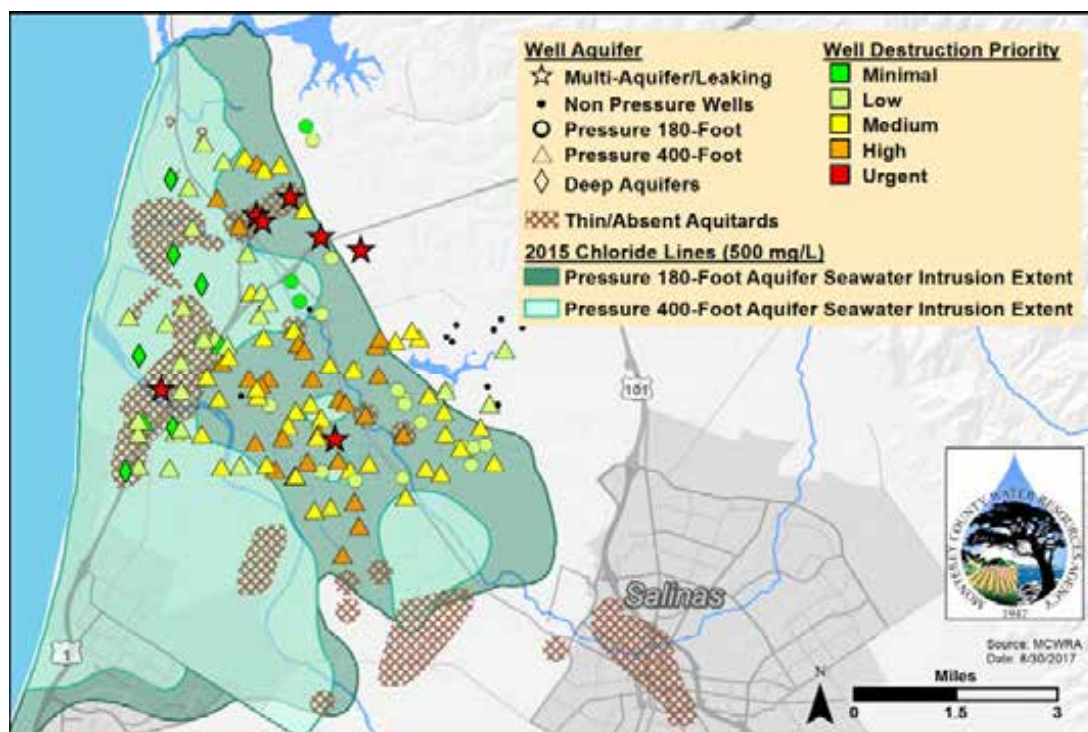


Figure 17 - Map of Wells Prioritized for Destruction in Zone 2B

## 4.4 Costs and Funding

Based on recent well destruction projects completed for the Agency, staff estimates that it will cost approximately \$50,000 per well destruction. Using this as an average number, it would cost the Agency approximately \$7,100,000 to destroy the 142 wells that have been identified in Zone 2B. If the Agency chooses to proceed with implementing this recommendation, staff suggests using a phased approach based on the well prioritization discussed previously. The cost to destroy wells under each prioritization category is shown in Table 6.

On August 4, 2016 the Agency submitted a pre-application to the State Water Resources Control Board for a grant from the Groundwater Quality Funding Program. Funds totaling \$4,500,000 were requested for the purpose of destroying wells in Zone 2B. To date, grant funding to implement this project has not been secured.

Table 6 - Well Destruction Costs by Prioritization Category

Prioritization Category	Number of Wells	Cost to Destroy Wells
Urgent	8	\$400,000
High	27	\$1,350,000
Medium	39	\$1,950,000
Low	45	\$2,250,000
Minimal	23	\$1,150,000
<b>TOTAL</b>	<b>142</b>	<b>\$7,100,000</b>

# Section 5 – Deep Aquifers of the 180/400 Foot Aquifer Subbasin

## 5.1 Recommendations

The following recommendations are intended to cease activities that have a strong likelihood of increasing vertical migration of seawater-intruded groundwater into the Deep Aquifers of the 180/400 Foot Aquifer Subbasin:

5. An immediate moratorium on groundwater extractions from new wells within the entirety of the Deep Aquifers of the 180/400 Foot Aquifer Subbasin until such time as an investigation of the Deep Aquifers is completed and data pertaining to the hydraulic properties and long-term viability of the Deep Aquifers are available for knowledge-based water resource planning and decision making.
  - a. Monitoring wells, public agency wells, municipal water supply wells, wells for which a construction permit has already been issued, and well repairs should be considered for exemption from this recommendation.
  - b. The moratorium should include a prohibition of:
    - i. Replacement wells, unless it can be demonstrated that the installation of such a well will not result in further expansion of the seawater intrusion front; and,
    - ii. Deepening of wells from overlying aquifers into the Deep Aquifers, deepening of wells within the Deep Aquifers, and other activities that would expand the length, depth, or capacity of an existing well.
6. Initiate and diligently proceed with an investigation to determine the long-term viability of the Deep Aquifers.

## 5.2 Background and Discussion

### 5.2.1 Nomenclature

As defined by the California Department of Water Resources, the Salinas Valley Groundwater Basin is comprised of eight subbasins, one of which is called the 180/400 Foot Aquifer. The extent of the 180/400 Foot Aquifer Subbasin approximately coincides with the area referred to by the Agency as the Pressure Subarea.

Within the 180/400 Foot Aquifer subbasin, there are multiple water-bearing units (aquifers) interspersed with confining clay layers (aquitards) that, generally speaking, result in zones that are hydraulically separated from one another. The deepest of these aquifers underlies the Pressure 400-Foot Aquifer and has, historically, been referred to as the “800-Foot Aquifer,” “900-Foot Aquifer,” “1000-Foot Aquifer,” “1500-Foot Aquifer,” “Pressure Deep Aquifer”, “deep zone,” and “deep aquifer” (Feeney and Rosenberg, 2003 and Kennedy/Jenks, 2004). For the remainder of this report, the term “Deep Aquifers” will be used to refer to the water-bearing zones in the 180/400 Foot Aquifer Subbasin underlying the Pressure 400-Foot Aquifer.

Historically, a set of terms has been used to refer to aquifer units in the Salinas Valley, despite the fact that the terminology is not necessarily consistent with geologic depositional units. For example, the Paso Robles Formation, which is derived from sediments that were shed from the uplifting Santa Lucia and La Panza Ranges, is associated in the Pressure 180/400 Foot Aquifer Subbasin with both the lower portion of the Pressure 400-Foot Aquifer and the upper portion of the Deep Aquifers.

### **5.2.2 Geology and Hydrostratigraphy of the Deep Aquifers**

The Deep Aquifers of the Pressure Subarea are confined by an aquitard that can be several hundred feet thick (Kennedy/Jenks, 2004).

Studies of the deepest hydrostratigraphic unit of the 180/400 Foot Aquifer Subbasin, historically referred to as the Pressure Deep Aquifer, indicate that it actually consists of two units which, at least near the coast, are hydraulically isolated from one another. The uppermost unit in the Deep Aquifers consists of continental deposits of the Paso Robles formation while the lower unit of the Deep Aquifers is associated with the marine Purisima Formation (Feeney and Rosenberg, 2003). The Purisima Formation has been mapped as being exposed on the southwestern side of the Monterey submarine canyon (Hanson et al., 2002).

Geologic cross sections created by Feeney and Rosenberg (2003) in the vicinity of Marina illustrate the relationship of these units and have been included as Appendix D. The formations comprising the Deep Aquifers are underlain by the minimally- to non-water bearing Monterey shale, an unnamed sandstone, and granitic basement.

### **5.2.3 Spatial Extent of the Deep Aquifers**

Information on the Deep Aquifers is scant and what data exist are concentrated largely near the coast, where the most wells have been drilled into the Deep Aquifers (Figure 18). The Deep Aquifers have been mapped at locations as far inland as the south-southeast edge of the city of Salinas (Kennedy/Jenks, 2004). However, the geologic units that comprise the Deep Aquifers – the Paso Robles and Purisima formations – are present throughout the 180/400 Foot Aquifer Subarea. Formations comprising the Deep Aquifers occur closer to the surface with increasing distance toward the southern Salinas Valley, i.e. with the transition into the Forebay Subarea (Brown and Caldwell, 2015).

## 5.2.4 Wells in the Deep Aquifers

The use of the Deep Aquifers for groundwater production has been driven by the need to drill deeper in order to avoid seawater intrusion, with wells being installed to subsequently deeper elevations with fresh-water-bearing materials (Feeney and Rosenberg, 2003). Most available hydrogeologic data on the Deep Aquifers have been obtained through well drilling activities and related well or aquifer testing rather than through an intentional aquifer-wide study. Wells of all types have been installed in the Deep Aquifers, including production wells for agricultural purposes; domestic, industrial, and municipal water supply wells; and monitoring wells.

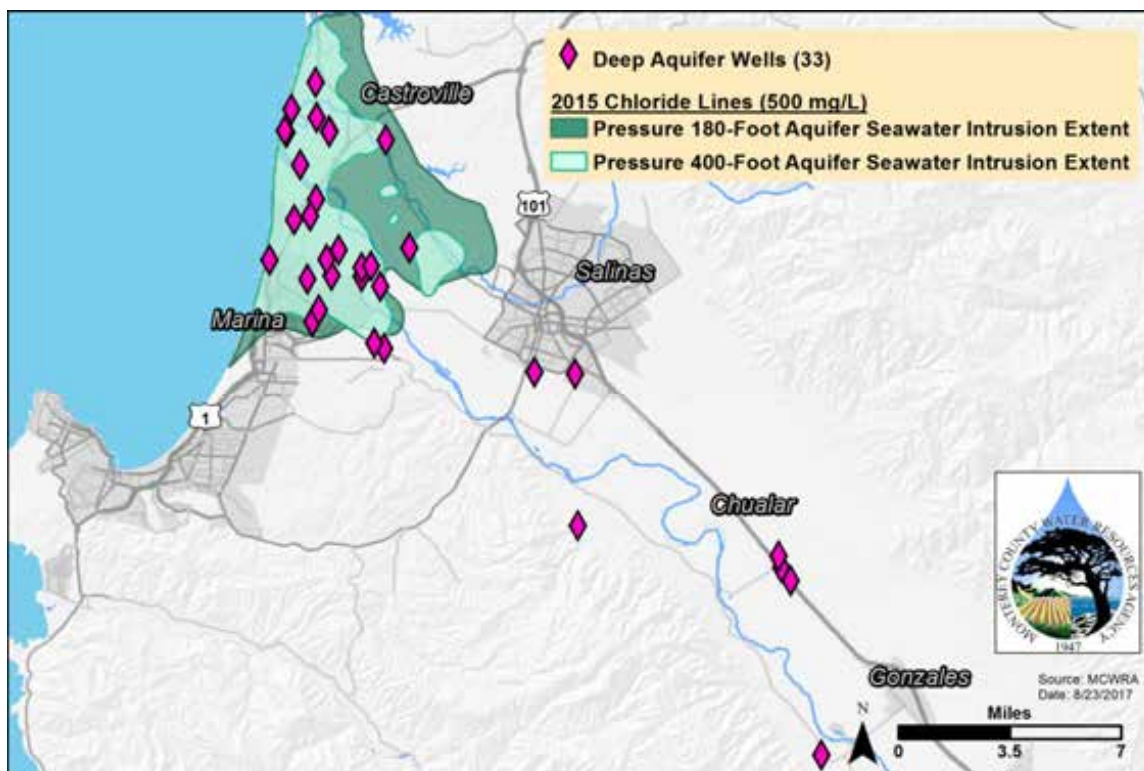


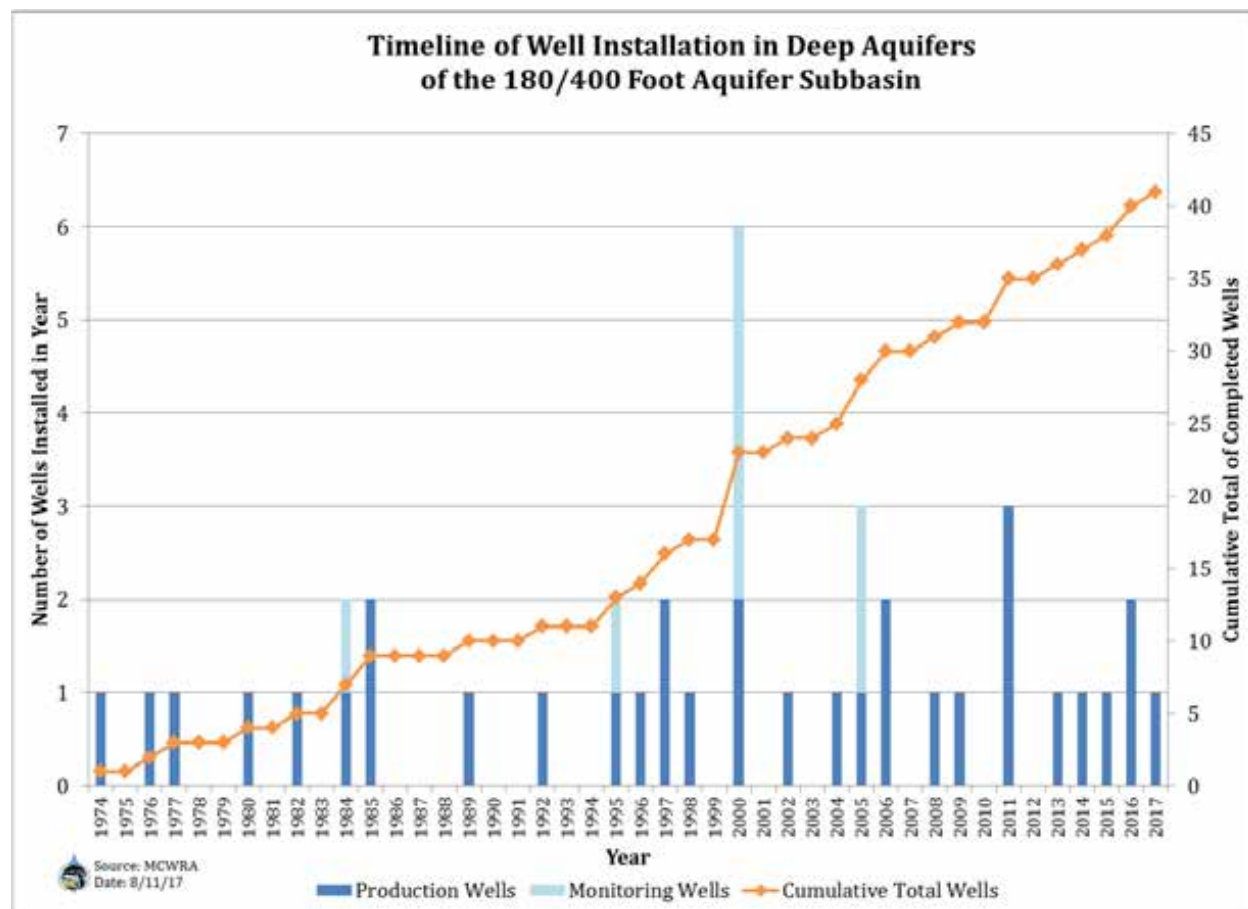
Figure 18- Wells in the Deep Aquifers

## 5.2.5 Well Installation History in the Deep Aquifers

The first production well in the Deep Aquifers was installed in 1974. As of August 1, 2017, a total of 41 wells have been installed in the Deep Aquifers: 33 production wells and 8 monitoring wells (Figure 19). One of the production wells was destroyed in 2004, so 40 wells remain in the Deep Aquifers at present. Of the 32 existing production wells, 18 are agricultural wells, 7 are municipal wells, 3 are residential wells, 3 are industrial wells, and one has an unknown usage.

Well Completion Reports for wells in the Deep Aquifers are provided in Appendix E and a table detailing installation dates, depths, and well types for the Deep Aquifers can be found in Appendix F.

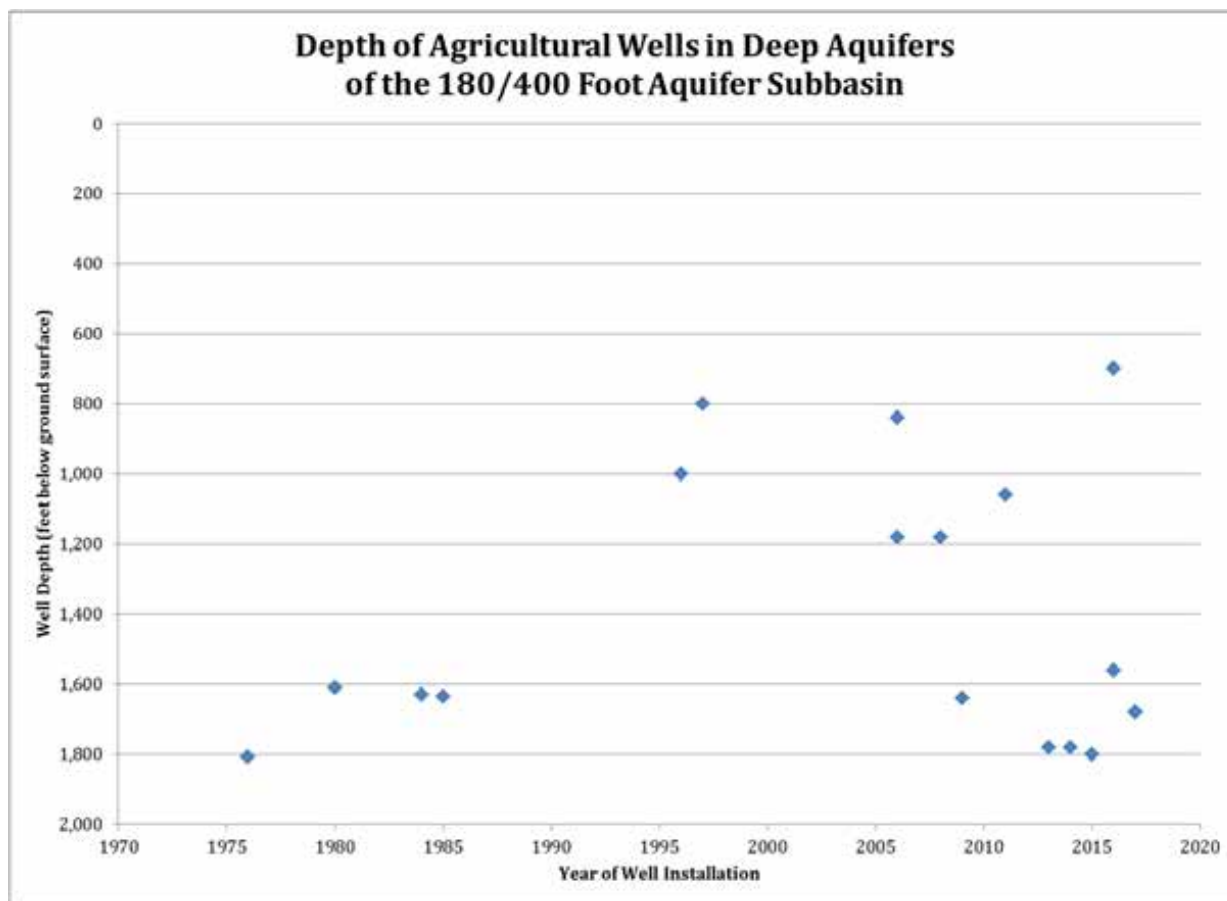




**Figure 19 - Timeline of Well Installation in Deep Aquifers of the 180/400 Foot Aquifer Subbasin**

### 5.2.6 Trends in Well Construction in the Deep Aquifers

Since 1995, wells have been installed in the Deep Aquifers with more regularity – approximately one well per year, as shown in Figure 19. Analysis of agricultural production well depths over time suggests that there is a strong correlation between the age of a well, particularly for the period from 1990 to present, and depth of the well (Figure 20). Specifically, for the period 1990 to 2017, newer agricultural production wells are likely to be deeper at a statistically significant level (P value = 0.02).



**Figure 20 - Depth of Agricultural Wells in Deep Aquifers of the 180/400 Foot Aquifer Subbasin**

### 5.2.7 Groundwater Levels in the Deep Aquifers

The Agency currently monitors groundwater levels at thirteen locations in the Deep Aquifers with varying frequency. Five of the groundwater level data collection points are monitoring wells which are equipped with continuously-recording pressure transducers, which log water levels on an hourly basis. The remaining eight groundwater level data collection points are production wells manually monitored on either a monthly (seven wells) or annual (one well) basis.

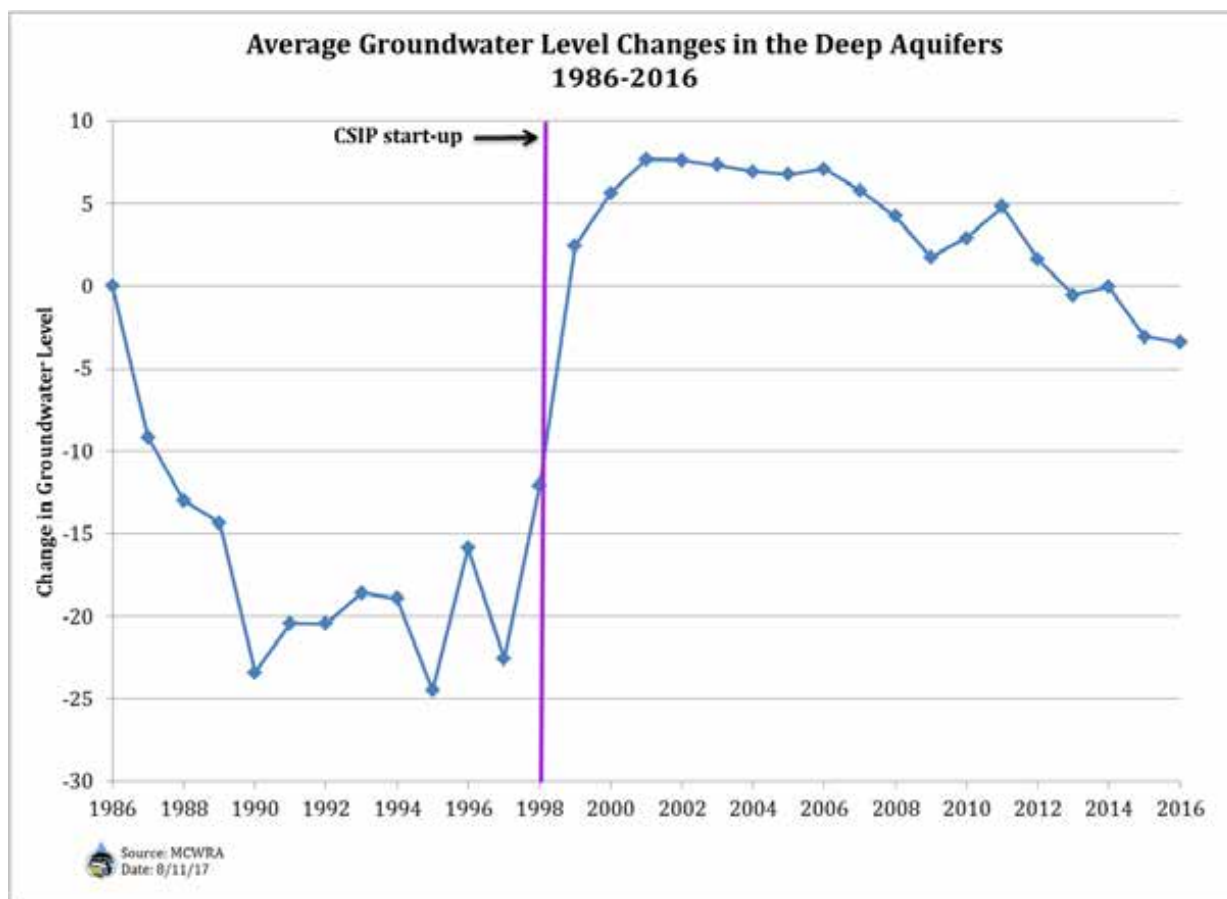
As is the case with the Pressure 180-Foot and Pressure 400-Foot aquifers, groundwater levels in the Deep Aquifers are generally below sea level and below the ground surface throughout the year. This contrasts sharply with some of the earliest groundwater level data from the Deep Aquifers, recorded shortly after construction of municipal and agricultural production wells, which document flowing artesian conditions near the coast between 1977 and 1980. The Agency began programmatic monitoring of groundwater levels in the Deep Aquifers in 1983, shortly before the last documented occurrence of flowing artesian conditions in February, 1984.

An analysis of average changes in groundwater levels from a subset of wells in the Deep Aquifers near the coast indicates that groundwater levels generally declined until the Castroville Seawater Intrusion Project (CSIP) began operations in 1998. Following startup of CSIP, groundwater levels in



the Deep Aquifers rapidly increased and then leveled off until approximately 2006, when groundwater levels began to decline once again (Figure 21).

To date, seawater intrusion has not been documented in the Deep Aquifers, even though groundwater levels in the Deep Aquifers are consistently below sea level. This lack of seawater intrusion in the Deep Aquifers may be due, at least in part, to the geologic setting (Feeney and Rosenberg, 2003).



**Figure 21 - Average Groundwater Level Changes in the Deep Aquifers (1986-2016)**

### 5.2.8 Groundwater Quality in the Deep Aquifers

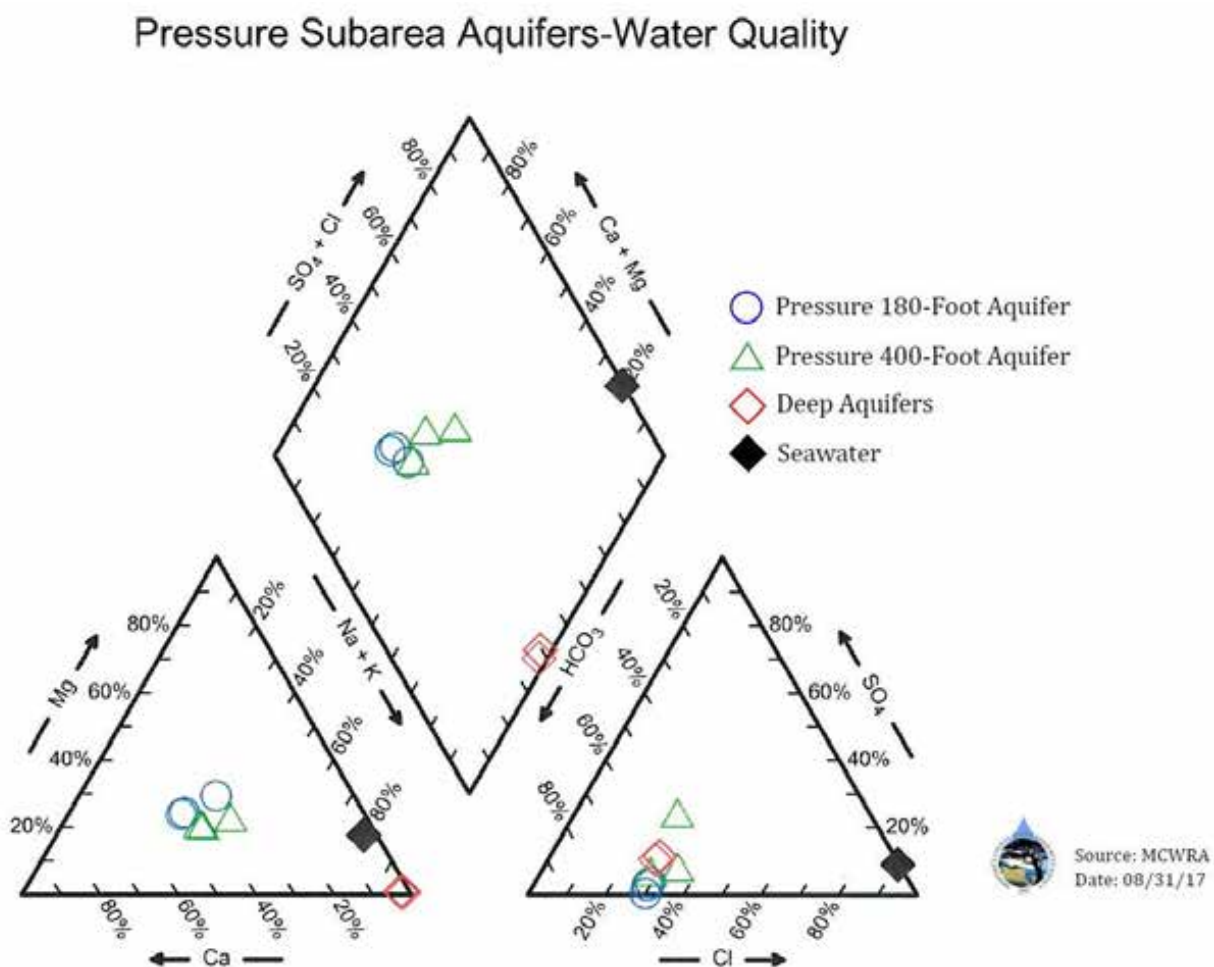
Water quality in the Deep Aquifers has been monitored by the Agency since 1976. Data are collected during two sampling events that occur annually in the summer. Samples are collected from seventeen wells in the Deep Aquifers and analyzed for major cations and anions.

Native groundwater in the Deep Aquifers has a distinct character, with a higher pH than groundwater in the overlying aquifers, relatively low calcium and high sodium concentrations, and an elevated temperature. The Piper diagram in Figure 22 illustrates the similarities in the chemical compositions of native groundwater in the Pressure 180-Foot and Pressure 400-Foot Aquifers

(green and blue symbols), and how both are distinct from the chemistry of native groundwater in the Deep Aquifers (red symbols). All three have a chemical composition that is discernable from seawater (black symbols).

The low calcium levels in water from the Deep Aquifers are illustrated on the lower left-hand triangle, where water from the Deep Aquifers plots in the extreme lower right corner of the triangle (calcium levels are in the single-digits in these samples). The alkalinity of water in all of the aquifers is similar, as demonstrated by the lower right-hand triangle on the Piper diagram that displays anion data and shows a cluster of data points from wells in all of Pressure aquifers.

While no seawater intrusion has been detected during the forty-two years that the Agency has been monitoring water quality in the Deep Aquifers, existing water quality data provides a valuable baseline for ongoing comparisons and will allow the Agency to observe changes in water quality if they occur.



**Figure 22 - Piper Diagram of Native Water Quality in Pressure Subarea Aquifers**

### 5.2.9 Extraction from Wells in the Deep Aquifers

The Agency receives data on groundwater extractions from wells in the Deep Aquifers as part of its Groundwater Extraction Management System (GEMS) program. These data, which exist from 1993 to present, indicate that groundwater pumping in the Deep Aquifers decreased for a short period following startup of CSIP in 1998 (Figure 23). However, since 2002, total annual pumping from the Deep Aquifers has been generally increasing as more wells are installed. Total annual extractions from the Deep Aquifers, for the period 1995 through 2016, range from 2,151 acre-feet (in 1999) to 8,901 acre-feet (in 2016).

Groundwater pumping from wells in the Deep Aquifers is thought to be supported primarily by leakage from the overlying aquifer system, i.e. the Pressure 180-Foot Aquifer and Pressure 400-Foot Aquifer (Feeney and Rosenberg, 2003). Some groundwater pumping is derived from depletion of groundwater storage, but hydraulic properties of the Deep Aquifers (specifically storage coefficients) suggest that while some groundwater may come from storage immediately following the onset of pumping a well, very little groundwater can be removed from storage over time. Therefore, increases in groundwater pumping in the Deep Aquifers will likely be supported by increased leakage from the overlying aquifers (Feeney and Rosenberg, 2003).

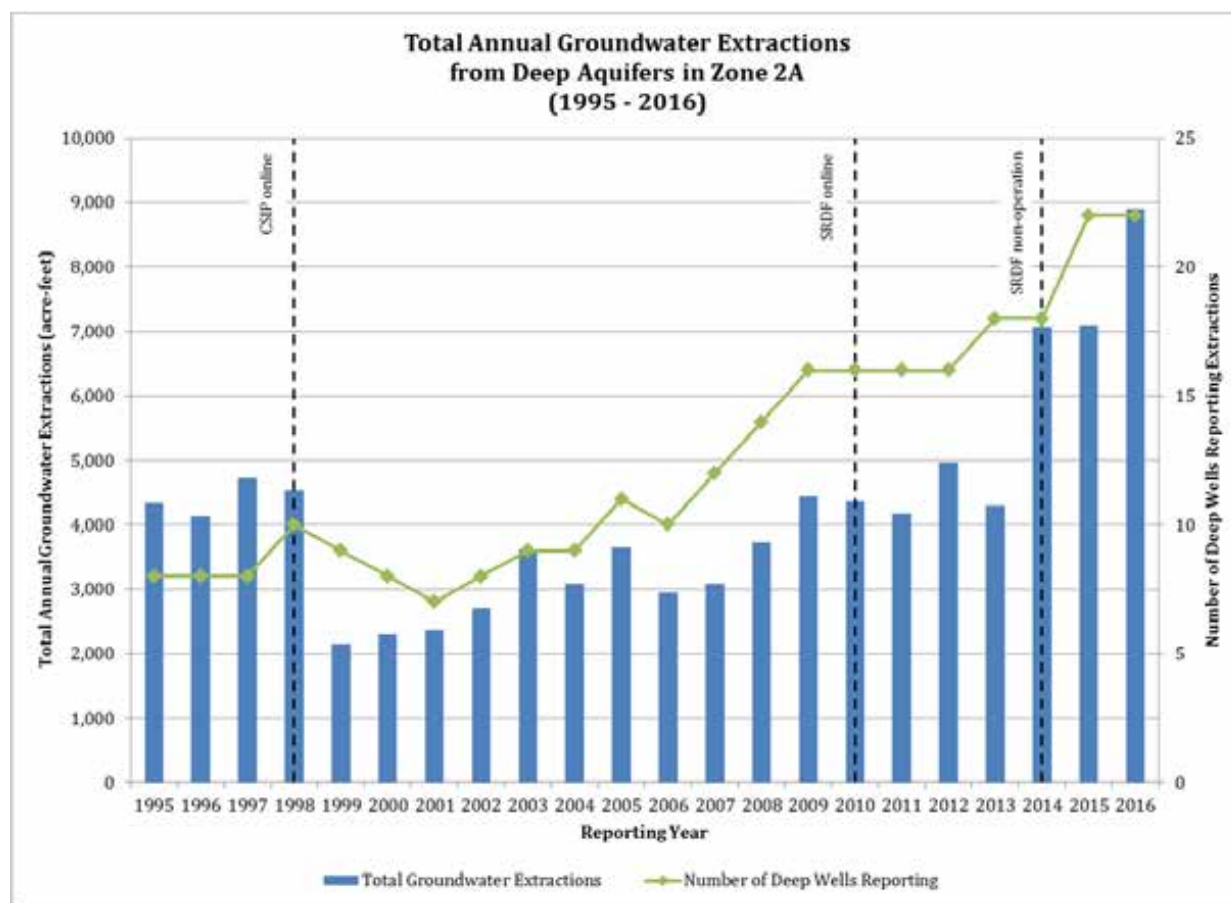


Figure 23 - Total Annual Groundwater Extractions from Deep Aquifers in Zone 2A (1995-2016)

### **5.2.10 Recharge and Storage in the Deep Aquifers**

Groundwater recharge in the Deep Aquifers is theorized to occur through three primary sources: infiltration from overlying aquifers, surface exposure of the geologic formations (outcrops), and subterranean inflow from the Forebay Aquifer Subbasin.

The Purisima Formation does not outcrop on land in Monterey County, so recharge to that layer is primarily through leakage from overlying aquifers. The other stratigraphic unit comprising the Deep Aquifers, the Paso Robles Formation, is exposed on land in Monterey County. However, even in the locations where it is exposed at the surface, precipitation is minimal (WRIME, 2003). In most places, the Paso Robles is overlain by alluvium and the Aromas Sands, which correlate with the Pressure 180-Foot and Pressure 400-Foot Aquifers. Data from aquifer tests in the Marina area suggest that groundwater extractions from both the Paso Robles and Purisima are derived primarily from leakage through the overlying aquifers.

Groundwater modeling performed using the Salinas Valley Integrated Groundwater Surface Water Model (SVIGSM) suggests that increased pumping the Deep Aquifers will lead to increased vertical flow from the overlying aquifers (WRIME, 2003).

Recharge to the Deep Aquifers from subterranean flow from the adjacent Forebay Aquifer Subbasin is theorized on the basis of groundwater levels and connectivity of geologic formations but neither a rate nor route of recharge has been studied in detail.

A range of isotope analyses were performed on water samples collected from a series of wells in the Marina area as part of a 2002 study by the U.S. Geological Survey. Analysis of oxygen and deuterium in water from monitoring wells in the Deep Aquifers suggest that, unlike the upper aquifer system (Pressure 180-Foot and Pressure 400-Foot Aquifers), water in the Deep Aquifers was not recharged under current climatic conditions. Furthermore, tritium and carbon-14 analyses of water from the Deep Aquifers indicates that it is “old” water, recharged thousands of years before present (Hanson et al., 2002).

A 1983 report by Thorup estimated that the Pressure Deep Aquifer receives 65,500 acre-feet of recharge per year, but no other estimates of a volume of recharge have been published. The same 1983 report estimated that the Deep Aquifers contained approximately 4.6 million acre-feet of usable groundwater (Feeney and Rosenberg, 2003).

### **5.2.11 Data Gaps in Knowledge of the Deep Aquifers**

In general, additional geologic and geochemical investigations are needed to determine whether, how, and to what extent the Deep Aquifers are being actively recharged (Hanson et al., 2002). As shown in Figure 18, wells in the Deep Aquifers are clustered fairly close to the coast. A more representative and areally extensive monitoring network is necessary to characterize inland portions of the Deep Aquifer. Further aquifer testing and resultant determination of hydraulic parameters of the Deep Aquifer are also needed.

## 5.3 Findings in Support of Recommendations

- WRIME (2003) and Feeney and Rosenberg (2003) suggest that the predominant source of recharge to the Deep Aquifers is leakage from the overlying Pressure 180-Foot and Pressure 400-Foot Aquifers. Both of these aquifers have extensive areas of documented seawater intrusion overlying the Deep Aquifers. Continued pumping, and especially increased pumping, in the Deep Aquifers has the potential to induce additional leakage from the impaired overlying aquifers.
- The recommendation to prohibit construction of new wells in the Area of Impact and, following the enhancement and expansion of CSIP, to cease groundwater pumping within the Pressure 400-Foot Aquifer in the Area of Impact, has the potential to result in increased pumping in the Deep Aquifers. History has shown that once well construction and/or pumping is prohibited in a given area, people are very likely to drill wells to the next deepest water-bearing zone which, in this case, would be the Deep Aquifers. The construction and pumping of more wells in the Deep Aquifers will induce further leakage from the impaired overlying aquifers (Pressure 180-Foot and Pressure 400-Foot Aquifers), potentially degrading the water quality of the Deep Aquifers.
- Isotope analysis of water from the Deep Aquifers indicates that it is not derived from recent recharge (Hanson et al., 2002). Though stored groundwater may not be the primary source of current extractions from the Deep Aquifers, continued pumping of this old water represents mining of a groundwater resource.
- Scant data exists on the hydraulic properties of the Deep Aquifers. The areal extent, quantified rates of recharge, and estimates of water available for extraction are all topics that are poorly understood when it comes to the Deep Aquifers. Investigation of these and related topics should be completed before pursuit of groundwater from the Deep Aquifers continues.

The recommendation to prohibit the construction of new wells in the Deep Aquifers is a preventative measure because, at present, seawater intrusion has not been observed in the Deep Aquifers. However, the potential for inducing additional leakage by increased groundwater pumping is a legitimate concern that has been documented by previous studies (WRIME and Feeney/Rosenberg).

Implementing the recommendation to commence an in-depth study of the Deep Aquifers represents an investment in the future of the Deep Aquifers and groundwater management of the Salinas Valley Groundwater Basin as a whole. Expanding the Agency's understanding of this groundwater resource will assist with both near-term decision making and long-term water resource planning, such as steps that could be taken to prevent groundwater mining in the Deep Aquifers. Such a study will also serve to address many questions that have been posed by the Agency's stakeholders.

## Section 6 – Agency Authority and Regulations Applicable to Implementing Recommendations

This section discusses the ordinances, regulations, and statutes that impart authority to the Agency to implement the recommendations described in this report. Table 7 summarizes the documents and indicates which documents may be considered for implementation of each recommendation.

### 6.1 Monterey County Water Resources Agency Act

Section 8 of the Monterey County Water Resources Agency Act (Agency Act) describes the objects and purposes of the act, one of which is *“...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 water supply [...].”*

Section 9 of the Agency Act, which describes the powers of the Agency, including the power to *“prevent interference with, or diminution of, [...] the natural flow of any stream or surface or subterranean supply of waters used or useful for any purpose of the Agency or of common benefit to the lands within the Agency or to its inhabitants.”* Furthermore, Section 9 grants the Agency the power to *“prevent contamination, pollution, or otherwise rendering unfit for beneficial use the surface or subsurface water used or useful in the Agency, and commence, maintain, and defend actions and proceedings to prevent any interference with those waters which endangers or damages the inhabitants, lands, or use of water in, or flowing into, the Agency.”*

Section 22 of the Agency Act allows the Board of the Agency to *“take appropriate steps to prevent or deter the further intrusion of underground seawater by establishing and defining an area and depth from which the further extraction of groundwater is prohibited”* if, following a study by the Agency, the Board determines that *“any portion of a groundwater basin underlying the Agency is threatened with the loss of a usable water supply as a result of seawater intrusion into that portion of the groundwater basin.”*

Section 22 of the Agency Act further defines the process by which the Board shall make a determination regarding the nature and extent of the threat of seawater intrusion. Finally, Section 22 provides a mechanism by which the Board, following a public hearing, may *“adopt an ordinance prohibiting the further extraction of groundwater”* from a specified area and depth. Such an ordinance would *“be effective as to any existing groundwater well extracting water from the area and depth prohibited only if there is made available to the lands served from that well a substitute surface water supply adequate to replace the water supply previously available from that well.”*

Applicable sections of the Agency Act are included in Appendix G.

## **6.2 Monterey County Code Chapter 15.08 Water Wells**

Chapter 15.08 of the Monterey County Code provides for “the construction, repair, and reconstruction of all wells [...] to the end that the groundwater of [Monterey] County will not be polluted or contaminated.” Chapter 15.08 specifies that the Health Officer, meaning the Health Officer of the County of Monterey or his authorized representative, including the Director of Environmental Health, is responsible for the issuance of permits that shall comply with the standards of the chapter (Appendix H).

Per a Delineation of Responsibility between the Division of Environmental Health (now Environmental Health Bureau) and the Monterey Flood Control & Water Conservation District (now Monterey County Water Resources Agency), the Agency has a role in the well permit review process. The Agency provides technical expertise to the Environmental Health Bureau (EHB) on aspects of the permitting process that pertain to geology and hydrogeology, among other topics, and EHB typically enacts the Agency’s recommendations in order to ensure that the standards of the Water Wells chapter are upheld.

Thus, while the Agency does not have direct authority specified in Chapter 15.08, the Agency’s recommendations are typically upheld and put into effect via this relationship with EHB and, through them, the Health Officer of Monterey County. Implementation of any moratoria related to well construction activities would likely require collaboration between the Agency, County, and EHB.

## **6.3 2010 Monterey County General Plan**

Policy PS-3.5 of the 2010 Monterey County General Plan prohibits the “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” until either a program is approved and funded to minimize or avoid expansion of seawater intrusion or the well construction is approved by the applicable water resources agency (Appendix I).

This policy has been implemented such that any area defined by the Agency as having groundwater quality where chloride levels meet or exceed the 500 mg/L threshold, i.e. where the published contour lines are drawn, is considered to be seawater intruded. As of release of the 2015 seawater intrusion contours in July 2017, the areas being defined as seawater intruded include not only the contiguous front but also the isolated areas in the Pressure 400-Foot Aquifer in advance of the contiguous seawater intrusion front.

## **6.4 Monterey County Water Resources Agency Ordinance No. 3709**

Monterey County Water Resources Agency Ordinance No. 3709, adopted in 1993, prohibits groundwater extractions from and the construction of new wells in portions of the Pressure 180-Foot Aquifer after January 1, 1995 (Appendix J). The purpose of Ordinance No. 3709 is to “reduce



the rate of seawater intrusion and allow recharge to raise groundwater levels” in portions of the Pressure 180-Foot Aquifer because of increasing demand, overdraft of the groundwater basin, and imminent threats posted by the location of the seawater intrusion front.

While Ordinance No. 3709 pertains only to the Pressure 180-Foot Aquifer, it sets a precedent for the Agency exercising the powers authorized by the Agency Act in order to prevent diminution of the water supply and to limit groundwater extractions that are determined to be harmful to the groundwater basin.

## **6.5 Monterey County Water Resources Agency Ordinance No. 3790**

As described in Section 4 of this report, Agency Ordinance No. 3790 specifies that the Agency will destroy wells in the CSIP area once (a) the Castroville Seawater Intrusion Project has established a satisfactory record of water deliveries, as determined by the Board of Directors, or (b) until at least one year after the start-up of the Castroville Seawater Intrusion Project, whichever occurs later. The cost of said well destructions shall be borne by the Agency (§1.03.05). A copy of Agency Ordinance No. 3790 is included as Appendix K.

## **6.6 Specifications for Wells in Zone 6 of the Monterey County Flood Control & Water Conservation District**

In 1988 the Monterey County Health Department, Division of Environmental Health, adopted the Specifications for Wells in Zone 6 of the Monterey County Flood Control & Water Conservation District, commonly referred to as the “Zone 6 Standards” (Appendix L). The purpose of the Zone 6 Standards is to “protect groundwater quality and prevent corrosion of the well casing caused by seawater intrusion.”

The boundary of Zone 6 does not extend completely through the Area of Impact where the Pressure 400-Foot Aquifer is overlain by the seawater intruded Pressure 180-Foot Aquifer; however, it does cover a portion of that area. The Zone 6 Standards represent an example of how there is precedent for the Health Officer enacting additional technical standards and conditions in order to ensure aquifer protection.

## **6.7 Sustainable Groundwater Management Act (SGMA)**

The Sustainable Groundwater Management Act (SGMA), which is comprised of three legislative bills, was signed on September 16, 2014 by Governor Brown. It establishes a definition of “sustainable groundwater management”; requires that a Groundwater Sustainability Plan be adopted for the most important groundwater basins in California; establishes a timetable for adoption of Groundwater Sustainability Plans; empowers local agencies to manage basins sustainably; establishes basic requirements for Groundwater Sustainability Plans; and provides for a limited state role (DWR, 2017).

The Agency is one of eight members of a joint powers authority that has filed with the California Department of Water Resources to form the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA). As described in its Groundwater Sustainability Agency (GSA) formation notice, the SVBGSA would be responsible for implementing the policies of the Sustainable Groundwater Management Act (SGMA) in the majority of the Salinas Valley Groundwater Basin, with the exception of the adjudicated Seaside Basin and some portions of the 180/400 Foot Aquifer Subbasin, Monterey Subbasin, and Forebay Aquifer Subbasin.<sup>26</sup> Among others, responsibilities of the SVBGSA would include managing groundwater within the Salinas Valley Groundwater Basin to avoid undesirable results such as significant and unreasonable seawater intrusion, land subsidence, chronic lowering of groundwater levels, and reduction in groundwater storage (Appendix M).<sup>27</sup>

The implementation of SGMA by a GSA in the Salinas Valley Groundwater Basin does not relieve the Agency of its responsibility to manage the groundwater basin as described in the Agency Act. Rather, the Agency now has an opportunity to optimize management of water resources alongside the GSA.

**Table 7 - Summary of Ordinances, Regulations, and Statutes Applicable to the Recommendations in this Report**

Recommendations	Ordinances, Regulations, and Statutes						SGMA
	Agency Act	MCC 15.08 Water Wells	2010 General Plan	Ord. No. 3709	Ord. No. 3790	Zone 6 Specs.	
1. Moratorium on new well construction in Pressure 400-Foot Aquifer	✓	✓	✓			✓	✓
2. Enhancement and Expansion of CSIP	✓						✓
3. Termination of pumping in Area of Impact	✓			✓			✓
4. Destroy wells in Agency Zone 2B	✓	✓			✓	✓	✓
5. Moratorium on new well construction in Deep Aquifers	✓			✓		✓	✓
6. Investigation of Deep Aquifers	✓						✓

<sup>26</sup> The Marina Coast Water District has filed a GSA formation notice with DWR to form a Groundwater Sustainability Agency that would manage a portion of the 180/400 Foot Aquifer and Monterey Subbasins. The Arroyo Seco Groundwater Sustainability Agency has submitted a formation notice to DWR to manage portions of the Forebay Aquifer Subbasin.

<sup>27</sup> Sustainable Groundwater Management Act, Chapter 2, 10721.

## Section 7 – Summary

Staff makes the following recommendations with the aim to slow or halt seawater intrusion, and impacts related thereto, in the Salinas Valley Groundwater Basin:

1. An immediate moratorium on groundwater extractions from new wells<sup>28</sup> in the Pressure 400-Foot Aquifer<sup>29</sup> within an identified Area of Impact<sup>30</sup>, except for the following use categories:
  - a. Wells operating under the auspices of the Castroville Seawater Intrusion Project; and,
  - b. Monitoring wells owned and maintained by the Agency or other water management agencies.
2. Enhancement and expansion of the Castroville Seawater Intrusion Project (CSIP) Service Area. The expansion should include, at a minimum, lands served by wells currently extracting groundwater within the Area of Impact.
3. Following expansion of the CSIP Service Area, termination of all pumping from existing wells within the Area of Impact, except for the following use categories:
  - a. Municipal water supply wells;
  - b. Wells operating under the auspices of the Castroville Seawater Intrusion Project; and,
  - c. Monitoring wells owned and maintained by the Agency or other water management agencies.
4. Initiate and diligently proceed with destruction of wells in Agency Zone 2B, in accordance with Agency Ordinance No. 3790, to protect the Salinas Valley Groundwater Basin against further seawater intrusion.
5. An immediate moratorium on groundwater extractions from new wells within the entirety of the Deep Aquifers of the 180/400 Foot Aquifer Subbasin until such time as an investigation of the Deep Aquifers is completed and data pertaining to the hydraulic properties and long-term viability of the Deep Aquifers are available for knowledge-based water resource planning and decision making.

---

<sup>28</sup> “New well” is not intended to include (a) any well for which a construction permit has been issued by the Monterey County Health Department or (b) any well for which drilling or construction activities have commenced in accordance with a well construction permit issued by the Monterey County Health Department.

<sup>29</sup> Aquifer means: a water-bearing or saturated formation that is capable of serving as a groundwater reservoir supplying enough water to satisfy a particular demand, as in a body of rock that is sufficiently permeable to conduct groundwater and to yield economically significant quantities of water to wells and springs (Poehls and Smith, 2009).

<sup>30</sup> See Section 1.4 for a description of the Area of Impact. The Area of Impact is also depicted in Figure 4.

- a. Monitoring wells, public agency wells, municipal water supply wells, wells for which a construction permit has already been issued, and well repairs should be considered for exemption from this recommendation.
  - b. The moratorium should include a prohibition of:
    - i. Replacement wells, unless it can be demonstrated that the installation of such a well will not result in further expansion of the seawater intrusion front; and,
    - ii. Deepening of wells from overlying aquifers into the Deep Aquifers, deepening of wells within the Deep Aquifers, and other activities that would expand the length, depth, or capacity of an existing well.
6. Initiate and diligently proceed with an investigation to determine the hydraulic properties and long-term viability of the Deep Aquifers.

The timeline for implementing these recommendations is variable as is the degree of financial impact between each. Furthermore, implementation of these recommendations will require close consultation with the County Counsel and, depending on the actions pursued, additional work by Agency staff and cooperation with RMA-Planning staff to ensure compliance with CEQA and other applicable procedures and policies. Some of the recommendations, such as a moratorium<sup>31</sup> relating to the well ordinance, might require implementation under the Government Code and coordination between Agency and County staff, and the Board of Supervisors of the Monterey County Water Resources Agency and Board of Supervisors of Monterey County.

While these recommendations can be implemented individually or in any combination, there is a significant degree of inter-dependence between the six recommendations. As discussed in this report, implementing some of the recommendations without implementing others could lead to irreversible negative impacts to aquifers of the Salinas Valley Groundwater Basin. Current groundwater level and chloride concentration trends suggest that without proactive steps, the continued viability of the Pressure 400-Foot Aquifer in and near the Area of Impact is endangered.

---

<sup>31</sup> Certain moratoria may have consequences for a “taking” where the moratorium deprives an owner of all reasonable economic use of the owner’s property. Whether there is a taking is an issue that would require further review and analysis on a case-by-case basis for each affected property.

## Section 8 – References

2010 Monterey County General Plan. October 2010.

Brown and Caldwell. January 2015. State of the Salinas River Groundwater Basin.

California Department of Water Resources. 2003. California's Groundwater: Bulletin 118 – Update 2003.

California Department of Water Resources. 2017. Sustainable Groundwater Management. Accessed at <http://www.water.ca.gov/groundwater/sgm/> on 07 September 2017.

Feeney, M. B. and L.I. Rosenberg. 2003. *Technical Memorandum – Deep Aquifer Investigation – Hydrogeologic Data Inventory, Review, Interpretation and Implications*. 40 pp.

Greene, H.G. 1990. Regional Tectonics and Structural Evolution of the Monterey Bay Region, Central California. USGS Publications Warehouse. Available at <http://pubs.er.usgs.gov/publication/70118030>

Hansen, W.R., ed., 1991, Suggestions to authors of the reports of the United States Geological Survey (7<sup>th</sup> ed.): Washington, D.C., U.S. Geological Survey, 289 p.

Hanson, R.T., Rhett R. Everett, Mark W. Newhouse, Steven M. Crawford, M. Isabel Pimentel, and Gregory Smith. 2002. Geohydrology of a Deep-Aquifer System Monitoring-Well Site at Marina, Monterey County, California. U.S. Geological Survey. Water Resources Investigations Report 02-4003.

Harden, Deborah R. 2004. California Geology, Second Edition.

Harding ESE. 2001. *Final Report Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina Salinas Valley, California*.

Kennedy/Jenks Consultants. May 2004. Final Report – Hydrostratigraphic Analysis of the Northern Salinas Valley.

Lopez, R. 2006. Physical Geology – Pt. Lobos Pre-Trip Exercise.  
[http://instruct.westvalley.edu/lopez/geo\\_1a/pt\\_lobos\\_pretrip\\_ex.htm](http://instruct.westvalley.edu/lopez/geo_1a/pt_lobos_pretrip_ex.htm)

Monterey County Code. 1988. Chapter 15.08 Water Wells.

Monterey County Flood Control & Water Conservation District. 1960. *Salinas Valley Geologic Investigation*.

Monterey County Health Department, Division of Environmental Health. 1988. *Specifications for Wells in Zone 6 of the Monterey County Flood Control and Water Conservation District*.

Monterey County Water Resources Agency. 1993. *Ordinance No. 3709: An ordinance of the Monterey County Water Resources Agency prohibiting groundwater extractions and the drilling of new groundwater extraction facilities in certain portions of the Pressure 180 foot aquifer after January 1, 1995.*

Monterey County Water Resources Agency. 1994. *Ordinance No. 3790: An Ordinance of the Monterey County Water Resources Agency Establishing Regulations for the Classification, Operation, Maintenance and Destruction of Groundwater Wells in MCWRA Zone 2B, to Protect the Salinas Valley Groundwater Basin Against Further Seawater Intrusion.*

Oxford Dictionaries. Accessed on 06 September 2017 at  
<https://en.oxforddictionaries.com/definition/anthropogenic>

Poehls, D.J. and G.J. Smith. 2009. *Encyclopedic Dictionary of Hydrogeology.*

Rosenberg, L. 2001. *Geologic Resources and Constraints, Monterey County, California*

Staal, Gardner & Dunne Inc. 1994. *Castroville Seawater Intrusion Project; Preliminary Well Destruction Priority List.*

State of California, Department of Public Works, Division of Water Resources (DWR). 1946. *Bulletin No. 52. Salinas Basin Investigation.*

State of California, Department of Public Works, Division of Water Resources (DWR). 1973. *Sea Water Intrusion Lower Salinas Valley.*

Thorup, Richard R. 1976. *Report on Castroville Irrigation Project Deep Test Hole and Freshwater Bearing Strata Below the Pressure 400-Foot Aquifer, Salinas Valley, CA.*

Thorup, R. R. 1983. *Hydrogeologic Report on the Deep Aquifer, Salinas Valley, Monterey County, California.* Unpublished report to Monterey County Board of Supervisors, 40 pp.

Todd, David Keith. 1989. *Initial Assessment of Seawater Intrusion by Well Leakage into the Pressure 400-Foot Aquifer, Castroville Area.*

Todd, David Keith, 1989. *Sources of Saline Intrusion in the Pressure 400-Foot Aquifer, Castroville Area, California.*

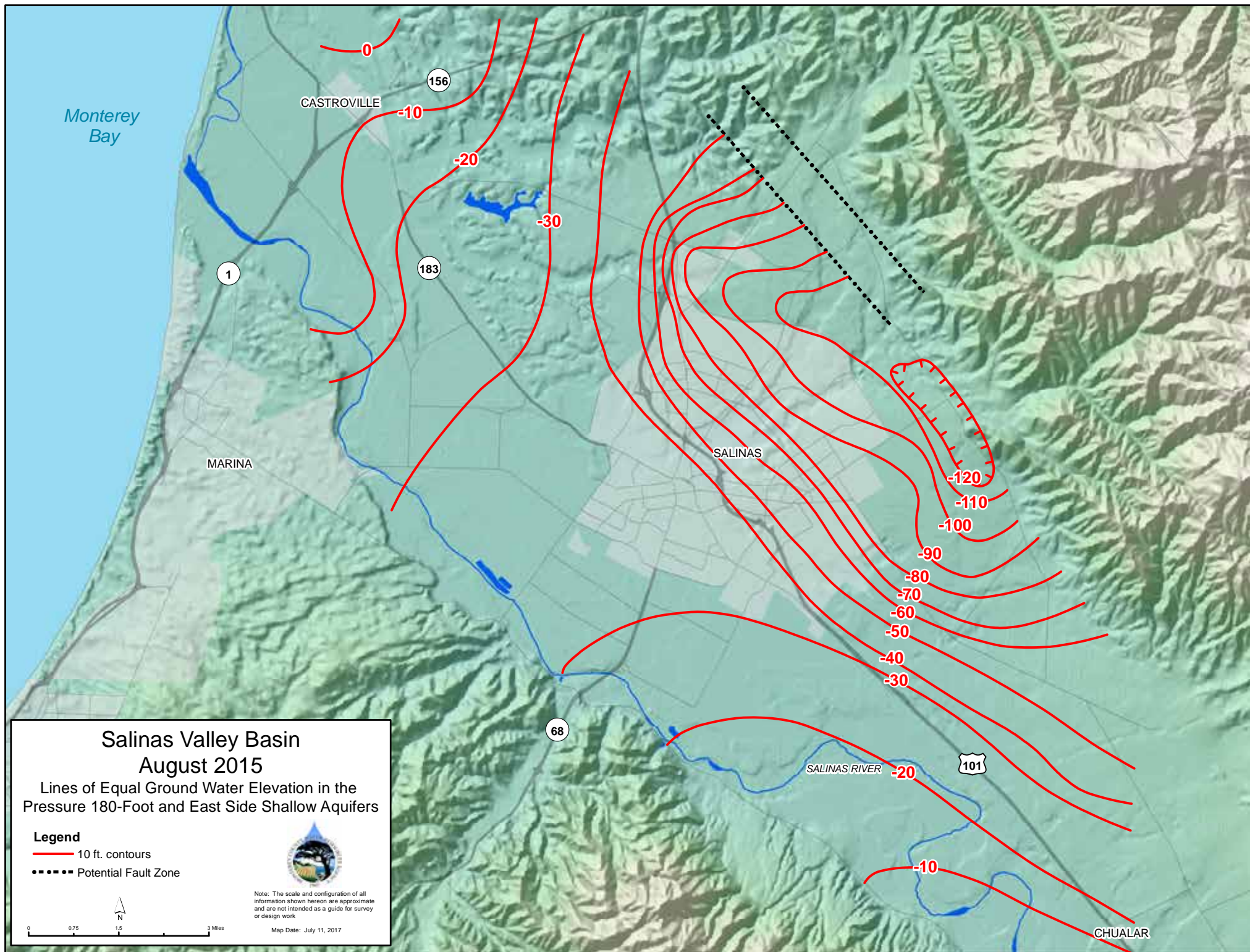
U.S. Department of Agriculture, Natural Resources Conservation Service. *National soil survey handbook*, title 430-VI.  
[http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054242) (accessed 22 August 2017).

WRIME. 2003. *Marina Coast Water District Deep Aquifer Investigative Study.*

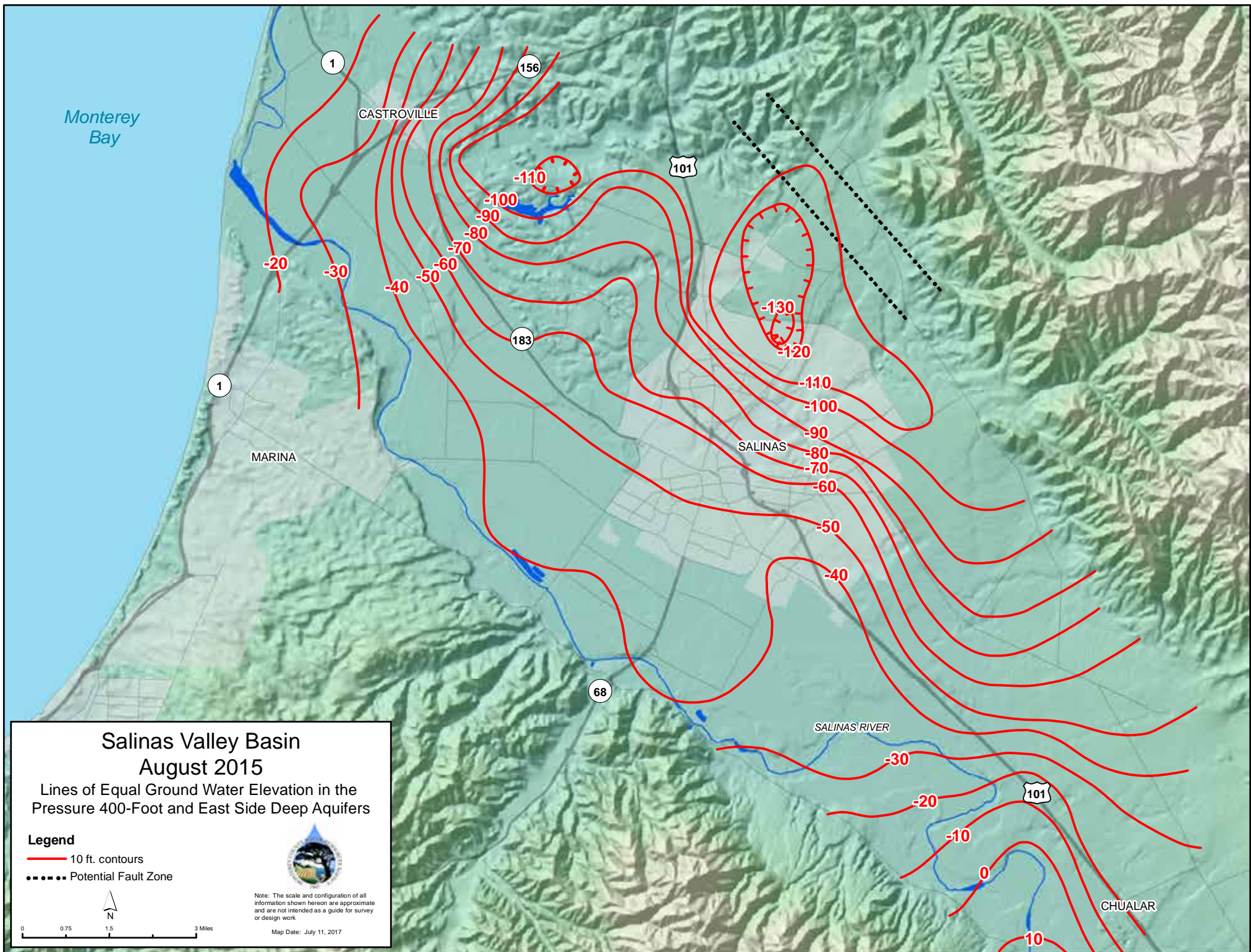
## **APPENDIX A**

### **2015 GROUNDWATER ELEVATION CONTOUR MAPS**











# Salinas Valley Basin Fall 2015

Lines of Equal Ground Water Elevation in the  
Pressure 180-Foot, East Side Shallow,  
Forebay and Upper Valley Aquifers

## Legend

- 10 ft. contours
- Potential Fault Zone



Note: The scale and configuration of all  
information shown hereon are approximate  
and are not intended as a guide for survey  
or design work.

Map Date: July 11, 2017

Monterey  
Bay

CASTROVILLE

MARINA

SALINAS

GONZALES

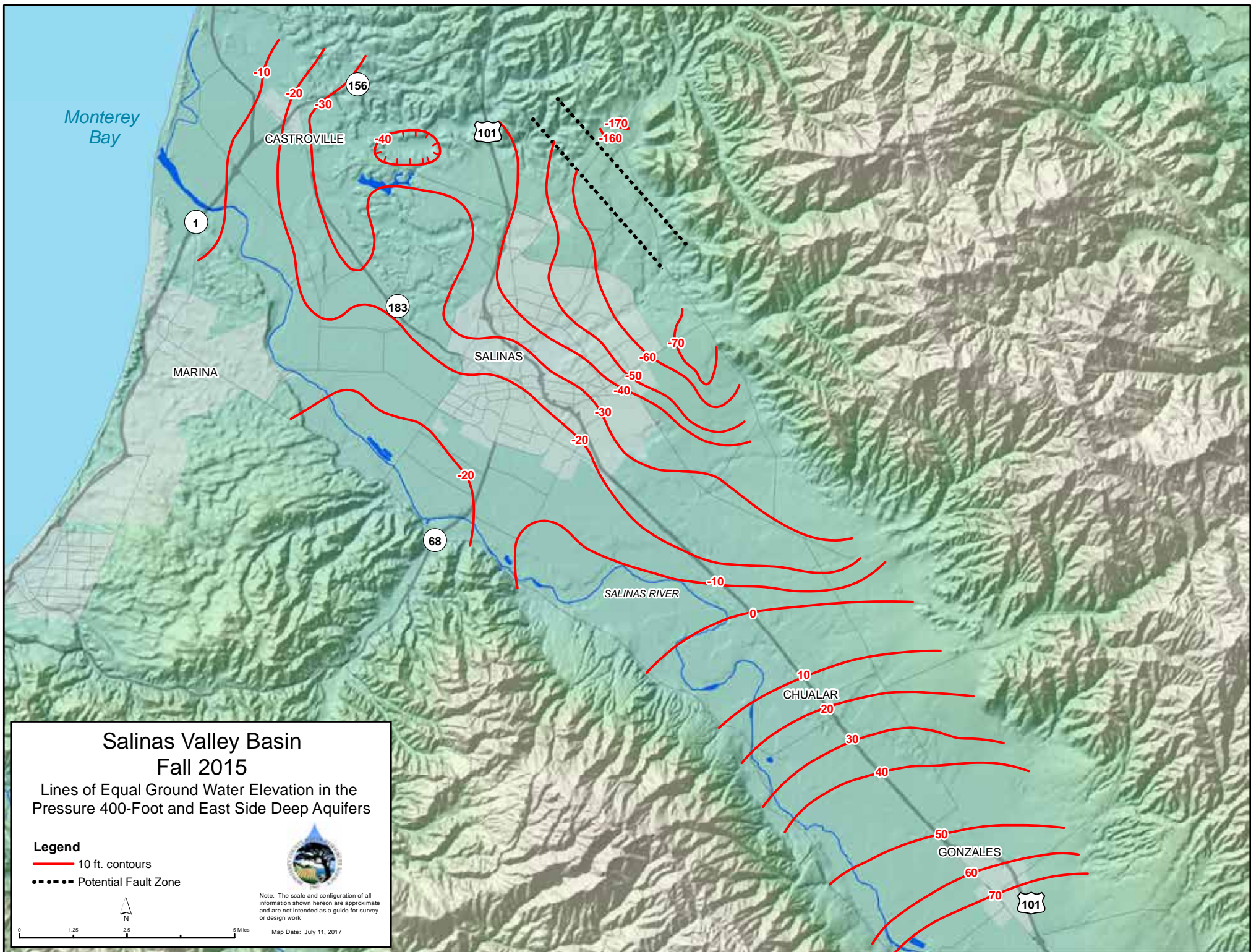
GREENFIELD

SOLEDAD

KING  
CITY

SAN ARDO





This page intentionally left blank.

## **APPENDIX B**

### **MONTEREY COUNTY WATER RECYCLING PROJECTS AND SALINAS RIVER DIVERSION FACILITY WATER PRODUCTION**

**Monterey County Water Recycling Projects (MCWRP) & Salinas River Diversion Facility (SRDF) Water Production (Acre Feet)**

Source	FY 98-99	FY 99-00	FY 00-01	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY15-16	FY16-17	FY17-18
CSPF-Wells	772	1,318	1,234	1,535	1,363	1,821	1,565	1,507	1,424	1,517	1,590	1,699	267	316	214	98	1,303	1,351	1,412	578
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,231
SVRP-Recycled	1,114	1,870	1,886	1,879	1,900	1,898	1,957	1,906	1,931	1,957	1,943	1,837	1,889	1,869	1,834	1,786	2,073	1,842	1,941	1,768
CSPF-Wells	748	899	774	1,105	1,073	1,283	1,145	770	1,103	1,115	969	1,107	272	568	311	263	1,025	1,105	911	Aug-17
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	1,118	1,772	1,843	1,944	1,877	1,889	1,954	1,838	1,925	1,927	1,906	1,839	1,902	1,873	1,847	1,803	2,033	1,785	1,704	0
CSPF-Wells	226	368	517	417	793	561	727	337	342	380	545	509	191	419	135	248	435	482	445	Sep-17
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	989	1,398	1,460	1,505	1,435	1,750	1,821	1,689	1,782	1,616	1,683	1,594	1,821	1,617	1,734	1,725	1,837	1,687	1,782	0
CSPF-Wells	309	370	450	164	162	174	183	115	172	125	140	119	20	54	16	165	102	38	228	Oct-17
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	432	1,017	475	1,276	1,316	1,371	862	1,241	1,509	1,129	1,378	465	1,006	733	1,168	1,548	1,407	1,217	578	0
CSPF-Wells	77	82	230	11	183	134	171	330	90	692	35	575	246	238	72	35	303	213	325	Nov-17
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	32	153	0	260	184	149	0	209	342	0	730	0	179	224	731	1,127	18	57	0	0
CSPF-Wells	72	215	397	10	107	40	150	85	119	445	29	194	69	723	44	730	38	199	211	Dec-17
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	0	0	0	0	0	0	0	0	0	0	289	0	0	0	0	88	0	0	0	0
CSPF-Wells	169	202	189	151	130	179	83	109	687	91	485	100	333	1,067	253	490	516	96	62	Jan-18
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CSPF-Wells	52	43	128	358	345	121	280	583	252	171	235	143	100	162	334	9	115	520	102	Feb-18
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	58	0	385	32	32	1	0	0	154	173	112	0	580	1,031	692	351	1,013	56	0	0
CSPF-Wells	138	651	529	233	473	455	241	124	459	520	408	529	154	211	218	214	411	395	580	Mar-18
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	35	11	422	791	1,184	1,121	0	1099	1,602	1,602	676	49	450	929	1,561	902	1,542	289	125	0
CSPF-Wells	601	678	587	564	190	878	482	195	496	1,513	1,054	143	544	80	239	240	446	391	325	Apr-18
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	586	1,136	1,332	1,763	1,381	1,848	740	328	1642	1,806	1,702	839	1,650	1,044	1,679	1,431	1,556	1,640	857	0
CSPF-Wells	313	439	531	446	535	810	388	249	417	939	822	150	284	125	239	1,067	696	831	614	May-18
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	1,561	1,283	1,805	1,770	1,722	1,933	1,770	1,751	1,907	1,914	1,717	1,737	1,694	1,745	1,799	1,912	1,758	1,770	1,770	0
CSPF-Wells	743	1,051	1,359	1,256	1,435	1,653	1,402	1,394	1,523	1,726	1,391	570	428	276	363	1,261	1,066	1,299	307	Jun-18
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVRP-Recycled	1,615	1,793	1,877	1,664	1,808	1,913	1,833	1,903	1,874	1,797	1,750	1,838	1,713	1,764	1,677	1,940	1,761	1,855	1,559	0
Totals	FY 98-99	FY 99-00	FY 00-01	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18
CSPF-Wells	4,220	6,316	6,925	6,250	6,789	8,109	6,817	5,798	7,084	9,234	7,703	5,838	2,908	4,239	5,838	4,820	6,455	6,921	5,522	578
SRDF-River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,231
SVRP-Recycled	7,562	10,433	11,100	13,237	12,839	13,873	10,937	10,865	14,165	13,921	13,886	10,198	12,910	12,829	14,723	15,853	15,030	12,198	10,316	1,768

Total acre-feet	11,782	16,749	18,025	19,487	19,628	21,982	17,754	16,663	21,249	23,155	21,589	17,355	19,992	20,446	22,275	23,822	21,485	19,120	17,363	3,577
% Wells	36%	38%	38%	32%	35%	37%	38%	35%	33%	40%	36%	34%	15%	21%	11%	20%	30%	36%	32%	16%
% River	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	17%	23%	13%	0%	0%	9%	34%
% Recycled	64%	62%	62%	68%	65%	63%	62%	65%	67%	60%	64%	59%	65%	63%	66%	67%	70%	64%	59%	49%



## **APPENDIX C**

### **CASTROVILLE SEAWATER INTRUSION PROJECT; PRELIMINARY WELL DESTRUCTION PRIORITY LIST FROM STAAL, GARDNER & DUNNE (1994)**



MONTGOMERY WATSON

RECEIVED  
MAY 13 1994  
WATER RESOURCES  
AGENCY

May 11, 1994

Mr. Dan Barry  
Monterey County Water Resources Agency  
P.O.Box 930  
Salinas, CA 93902

Subject: Castroville Seawater Intrusion Project  
Well Destruction Priority List  
File: 2631.0191/3.1.2

Dear Mr. Barry:

Transmitted with this letter is a letter prepared by Staal, Gardner and Dunne that gives a suggested sequence to be used for destruction of wells within the Castroville Seawater Intrusion Project service area. This information is not critical at this time, but it will become important once the project is complete. It was one of the tasks in our subcontract with Staal, Gardner and Dunne. This sequence is based on the best information available at this time. It should be taken as a flexible guide that is updated as new information becomes available.

Sincerely,

Glen Grant  
Project Engineer

GG:ap

enclosure

cc: Lyndel Melton  
Glen Grant

Montgomery Watson  
355 Lennon Lane  
Walnut Creek, California 94598-2427

May 6, 1994

Project No. 93-71-2450

Attention: Mr. Glen Grant  
Project Engineer

Subject: Castroville Seawater Intrusion Project; Preliminary Well Destruction Priority List

Dear Mr. Grant:

This letter summarizes and documents the criteria utilized in the development of the attached Well Destruction Priority List for wells in the Castroville Seawater Intrusion Project area. The list is based on available data on well completion schedules, construction methods, and water quality derived mainly from the updated well inventory.

Wells not included on the list are those wells used in any of the Supplemental Wells List alternatives (1A, 1B, 2, or 3), those being documented as sealed, and domestic wells. The updated well inventory is based on the well inventory developed by Cleath/Mann Associates (1991), which was updated by SGD to include available data on wells constructed since the original inventory was developed, and pump test and water quality data made available as a result of the Supplemental Wells assessment. Wells that were not considered viable for the Supplemental Wells system were not field checked. Therefore, the Well Destruction Priority List relies largely on the accuracy and thoroughness of the data contained in the original well inventory. Thus, additional field checking may be required prior to initiating a well destruction program.

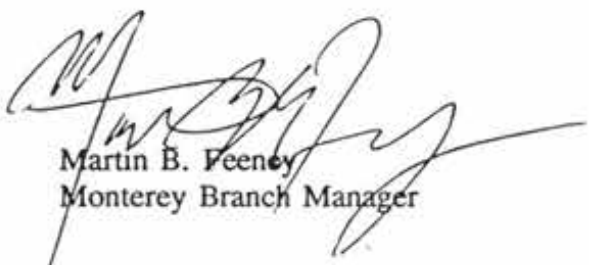
For purposes of budgetary forecasting, an average destruction cost of about \$15,000 per well can be assumed. Based on the Well Destruction Priority List, 14 wells in the project area are known to be completed in more than one aquifer and should be destroyed as soon as possible. Based on water quality data, an additional four wells are suspected interaquifer leakers, which should also be destroyed as soon as possible. Therefore, short-term well destruction costs on the order of \$279,000 can be anticipated. The remaining wells that do not represent immediate threats to the aquifer system can be destroyed later. A summary of the number of wells that fall into the respective destruction priority categories is as follows:

Destruction Priority	Description	Number of Wells
1	Wells completed in more than one aquifer	14
2	Wells suspected of interaquifer leakage based on water quality data	4
3	Wells of unknown completion (design)	63
4	Wells constructed by rotary methods with inadequate interaquifer seals	6
5	Wells of cable tool construction perforated in the 400-foot aquifer	29
6	Wells of rotary construction with adequate seals	16
7	Wells completed only in the Shallow or P-180-foot aquifers	15

We appreciate the opportunity to be of service. If you have any questions or comments, please do not hesitate to call.

Sincerely,

STAAL, GARDNER & DUNNE, INC.

  
Martin B. Feeney  
Monterey Branch Manager

MBF:gs

Attachment: Well Destruction Priority List

# WELL DESTRUCTION PRIORITY LIST1

05-May-94

DESTRUCTION PRIORITY	WELL REF	WELL NUM	YEAR	AQUIFER	DRILL METHOD	PERF RNG	SEAL DEPTH
1	Wells Completed in More Than One Aquifer						
	208-1	13S/02E-27M1	1976	P180/400	Rotary	208-628	
	216-1	13S/02E-27Q	1983	P180/400	Reverse	246-591	
	20-1	13S/02E-28B1	1960	P180/400	Rotary	123-640	
	285-1	13S/02E-28E1	1990	P180/400	Reverse	270-540	240
	284-1	13S/02E-28M2	1986	P400/Deep	Reverse	310-760	300
	230-1	13S/02E-36J1	1961	P180/400	Cable	207-533	
	ND-2	14S/02E-01T50	1976	P180/400	Cable	242-580	52
	63-1	14S/02E-07B50	1991	P400/Deep	Reverse	310-580	310
	70-3	14S/02E-07L50	1988	P400/Deep	Rotary	330-610	300
	157-1	14S/02E-11G1	1985	P180/400	Rotary	105-335	
	265-1	14S/02E-12N1	1968	SHW/P180	No Log	90-180	
	264-1	14S/02E-12Na	1973	SHW/P180	Cable	96-290	
	126-1	14S/02E-14M	1977	P180/400	Reverse	221-311	
	78-1	14S/02E-17B2	1947	P180/400	No Log	202-505	
2	Wells Suspected Of Interaquifer Leakage						
	128-1	14S/02E-10P50	1978	P400	Reverse	330-624	320
	158-1	14S/02E-10R2	1948	P400	No Log		
	158-2	14S/02E-11M	1948	P400	No Log		
	112-1	14S/02E-15P1	1965	P400	No Log	416-555	
3	Wells Of Unknown Completion (Design)						
	205-1	13S/02E-16R	1971	No Log	No Log		
	9-1	13S/02E-19H1	0	No Log	No Log	228-328	
	10-1	13S/02E-19R1		No Log	No Log		
	7-1	13S/02E-20J1	1963	P400	No Log		
	5-2	13S/02E-20M2	1949	P400	Not Given	362-530	
	5-3	13S/02E-20P2	1950	P400	Not Given	373-553	
	206-1	13S/02E-21H	1940	No Log	No Log		
	12-1	13S/02E-21N1	1950	P400	Not Given	369-550	
	12-2	13S/02E-21P1	1958	P400	No Log		

DESTRUCTION PRIORITY	WELL REF	WELL NUM	YEAR	AQUIFER	DRILL METHOD	PERF RNG	SEAL DEPTH
	214-1	13S/02E-27N	1969	No Log	No Log		
	207-1	13S/02E-28H	1975	P400	No Log	390-655	
	18-1	13S/02E-29C2	1950	P400	Not Given	354-550	
	18-2	13S/02E-29C4	1947	P400	Not Given	488-644	
	22-1	13S/02E-29F2	1955	P400	Not Given	347-539	
	24-1	13S/02E-29F4	1960	P400	No Log		
	25-1	13S/02E-29J1	1957	P400	No Log	350-600	
	23-1	13S/02E-30H1	1949	P400	Not Given	320-550	
	39-1	13S/02E-31D2	1945	P400	Not Given	358-538	
	57-1	13S/02E-31N2	1947	P400	Not Given	324-529	
	58-1	13S/02E-31P1	1945	P400	Not Given	335-441	
	35-1	13S/02E-32A2	1958	P400	No Log	300-600	
	33-1	13S/02E-32C1	1949	P400	Not Given	312-562	
	32-1	13S/02E-32F		No Log	No Log	600	
	37-1	13S/02E-32J3	1962	P400	Not Given	324-576	
	56-1	13S/02E-32N1	1949	P400	Not Given	369-601	
	279-1	13S/02E-33G		No Log	No Log		
	140C-1	13S/02E-33G		No Log	No Log		
	139-1	13S/02E-33J		P400	No Log		
	140-1	13S/02E-33R1	1942	No Log	No Log		
	219-1	13S/02E-34J	1915	No Log	No Log	0	
	220-1	13S/02E-35N	1945	No Log	No Log		
	226-2	14S/02E-02B	1963	EastSide	Rotary	252-588	
	154-1	14S/02E-02D		NA	Cable		
	152-1	14S/02E-02M1		No Log	No Log		
	143-1	14S/02E-03F1	1952	P180	No Log		
	147-1	14S/02E-03H2		No Log	No Log		
	149-1	14S/02E-03K1		No Log	No Log		
	151-1	14S/02E-03R1		No Log	No Log		
	46-1	14S/02E-04B1	1973	P400	Not Given	390-487	
	133-1	14S/02E-04K1	1966	P400	Not Given	400-610	
	56-2	14S/02E-05C2	1953	P400	Not Given	446-522	
	52-1	14S/02E-06B1	1958	P400	No Log		
	61-2	14S/02E-06J3	1948	P400	Not Given	375-550	

DESTRUCTION PRIORITY	WELL REF	WELL NUM	YEAR	AQUIFER	DRILL METHOD	PERF RNG	SEAL DEPTH
	70-1	14S/02E-07F2	1949	NA	Not Given	371-612	
	65-1	14S/02E-07K1		P400	No Log	422-344	
	82-1	14S/02E-08L1	1961	P400	No Log	300-500	
	123-1	14S/02E-09C2	1945	P400	No Log		
	132-3	14S/02E-09H	1972	P400	Not Given	378-485	
	98-2	14S/02E-09H?		No Log	No Log		
	98-1	14S/02E-09H2	1968	P400	No Log		
	155-2	14S/02E-11D	1943	No Log	No Log		
	272-b	14S/02E-11H		No Log	No Log		
	ND-8	14S/02E-12B1	1947	P400	Unknown	315-580	
	256-1	14S/02E-12C	1950	P400	No Log		
	262-1	14S/02E-12E1	1948	EastSide	cable ?	535-600	
	ND-9	14S/02E-12H1	1947	NA	Cable		
	126-2	14S/02E-15G	1965	P400	Not Given	302-566	
	126-3	14S/02E-15Q3	1976	No Log	No Log		
	121-1	14S/02E-16C	1967	P400	Not Given	350-602	
	80-1	14S/02E-17A2	1979	P400	Not Given	351-505	
	105-1	14S/02E-21J1		No Log	No Log		
	2-2	NONE	1941	P180	No Log		
	2-1	NONE	1942	No Log	No Log		

#### 4 Wells Costructed By Rotary Methods With Inadequate Interaquifer Seals

231-1	14S/02E-01F	1963	EastSide	Rotary	588	0
262-2	14S/02E-12L	1978	P400	Rotary	435-580	50
ND-10	14S/02E-12T50	1978	P400	Rotary	435-580	50
114-1	14S/02E-16H1	1976	P400	Reverse	449-599	40
74-1	14S/02E-18C1	1976	P400	Rotary	330-598	0
72-1	14S/02E-18E1	1974	Deep	Rotary	666-834	300

#### 5 Wells Of Cable Tool Construction Perforated In The 400-foot Aquifer

ND-11	13S/02E-19A3	1960	P400	Cable	250-500	250
206-2	13S/02E-22D	1977	P400	Cable	470-570	
214-2	13S/02E-27P1	1969	P400	Cable	412-572	
28-1	13S/02E-29M2	1968	P400	Cable	410-566	



DESTRUCTION PRIORITY	WELL REF	WELL NUM	YEAR	AQUIFER	DRILL METHOD	PERF RNG	SEAL DEPTH
	ND-13	13S/02E-30Q2	1968	P400	Cable	335-554	335
	ND-15	13S/02E-31J3	1962	P400	Cable	529-565	0
	ND-16	13S/02E-32Q3	1959	P400	Cable	517-633	0
	44-1	13S/02E-33N3	1966	P400	Cable	395-547	
	ND-4	14S/02E-01T51	1979	P400	Cable	400-460	52
	44-2	14S/02E-04E2	1963	P400	Cable	414-549	
	95-1	14S/02E-04N3	1963	P400	Cable	400-656	
	54-1	14S/02E-05F4	1954	P400	Cable	406-534	
	56-3	14S/02E-05F6	1974	P400	Cable	451-592	
	55-1	14S/02E-05G2	1959	P400	Cable	446-556	
	55-2	14S/02E-05G3	1974	P400	Cable	452-508	
	91-1	14S/02E-05K1	1955	P400	Cable	442-473	
	55-3	14S/02E-05K2	1960	P400	Cable	417-587	
	87-1	14S/02E-05P2	1955	P400	Cable	464-588	
	94-1	14S/02E-05R3	1964	P400	Cable	385-648	
	86-1	14S/02E-08A1	1957	P400	Cable	400-506	
	86-2	14S/02E-08C3	1955	P400	Cable	395-540	
	82-2	14S/02E-08M2	1961	P400	Cable	314-456	
	123-2	14S/02E-09D1	1961	P400	Cable	401-478	
	120-1	14S/02E-09K	1967	P400	Cable	360-614	
	122-1	14S/02E-09L2	1956	P400	Cable	400-609	
	122-2	14S/02E-09N1	1963	P400	Cable	412-627	
	129-2	14S/02E-10M2	1965	P400	Cable	330-545	
	111-1	14S/02E-15N	1971	P400	Cable	309-464	
	118-1	14S/02E-16C2	1971	P400	Cable	394-488	

6

#### Wells Of Rotary Construction With Adequate Seals

15-1	13S/02E-19Q3	1980	Deep_S	Reverse	1280-1550	560
17-1	13S/02E-29D3	1960	P400	Rotary	432-632	412
ND-12	13S/02E-30J1	1974	P400	Rotary	402-602	350
28-2	13S/02E-31A2	1985	Deep	Rotary	850-1600	850
30-1	13S/02E-31G4	1962	P400	Rotary	252-610	252
ND-14	13S/02E-31G5	1972	P400	Rotary	427-611	400
41-2	13S/02E-32M2	1984	Deep	Rotary	780-1590	780

DESTRUCTION PRIORITY	WELL REF	WELL NUM	YEAR	AQUIFER	DRILL METHOD	PERF RNG	SEAL DEPTH
	36-1	13S/02E-33M50	1966	P400	Rotary	314-590	313
	45-1	13S/02E-33N1	1967	P400	Rotary	338-602	325
	ND-6	14S/02E-02H50	1991	P400	Rotary	330-630	260
	132-2	14S/02E-04R2	1965	P400	Rotary	302-566	300
	64-1	14S/02E-06L1	1976	Deep	Rotary	880-1540	800
	60-2	14S/02E-07A1	1974	P400	Rotary	390-600	365
	76-1	14S/02E-07J2	1979	P400	Reverse	396-564	380
	70-2	14S/02E-07L4	1983	P400	Reverse	360-560	330
	125-1	14S/02E-15K1	1979	P400	Reverse	300-600	300

7

#### Wells Completed Only In The Shallow Or 180-foot Aquifers

21-1	13S/02E-29H1	1961	SHALLOW	Cable	48-103	
217-2	13S/02E-34G	1942	P180	No Log		
217-1	13S/02E-34Ga	1942	P180	No Log		
132-1	14S/02E-04R1	1968	P180	Not Given	148-196	
127-1	14S/02E-10R1		P180	No Log		
ND-7	14S/02E-11C1	1990	P180	Cable	165-220	50
155-1	14S/02E-11D1	1946	P180	Not Given		
272-a	14S/02E-11J	1945	P180	No Log		
263-1	14S/02E-12L1	1951	SHALLOW	No Log		
268-1	14S/02E-12Q1	1938	P180	Not Given		
267-1	14S/02E-13D	1987	P180	No Log	141-153	
273-a	14S/02E-14B50	1972	P180	Rotary	180-262	
273-b	14S/02E-14E1	1980	P180	Cable	165-340	
121-2	14S/02E-16E2	1954	P180	Cable	156-198	
106-1	14S/02E-22F1		P180	No Log		

## CSIP\_WEL

DEST	WELL	WELL	YEAR	AQC	DRILL	PERF	SEAL	DESCRIPTION
PRIORITY	REF	NUM	INSTALL		METH	RNG	DPYH	
1	208-1	13S/02E-27M01	1976	P180/400	Rotary	208-628	N/A	Wells Completed In 180-foot And Underlying Aquifer(s)
1	216-1	13S/02E-27Q02	1983	P180/400	Reverse	246-591	N/A	Wells Completed In 180-foot And Underlying Aquifer(s)
DOM/IRR	20-1	13S/02E-28B01	1960	P180/400	Rotary	123-640	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
1	21-2	13S/02E-28E01	1990	P180/400	Reverse	270-540	240	Wells Completed In 180-foot And Underlying Aquifer(s)
1	207-1	13S/02E-28H50	1975	P180/400	Rotary	193-643	N/A	Wells Completed In 180-foot And Underlying Aquifer(s)
9	229-1	13S/02E-36J01	1961	Eastside	Cable	207-533	N/A	Wells Completed In Eastside Aquifer
DOM/IRR	264-2	14S/02E-01G50	1974	Eastside	Cable	225-580	52	Wells Utilized For Both Irrigation And Domestic Water Supply
1	157-1	14S/02E-11G02	1985	P180/400	Rotary	105-335	N/A	Wells Completed In 180-foot And Underlying Aquifer(s)
1	78-1	14S/02E-17B02	1947	P180/400	No Log	202-605	N/A	Wells Completed In 180-foot And Underlying Aquifer(s)
DOM/IRR	142-1	13S/02E-34N01	N/A	SHW/P180	Cable	96-106	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
DOM/IRR	154-1	14S/02E-02E02	N/A	NA	Cable	N/A	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
2	128-1	14S/02E-10P02	1978	P400	Reverse	330-624	320	Wells Suspected Of Interaquifer Leakage
2	112-1	14S/02E-15P01	1965	P400	Cable	416-555	N/A	Wells Suspected Of Interaquifer Leakage
3	205-1	13S/02E-16R00	1971	No Log	No Log	N/A	N/A	Wells Of Unknown Completion (Design)
3	206-1	13S/02E-21H00	1940	No Log	No Log	N/A	N/A	Wells Of Unknown Completion (Design)
3	214-1	13S/02E-27N00	1989	No Log	No Log	N/A	N/A	Wells Of Unknown Completion (Design)
3	155-2	14S/02E-11D03	1943	No Log	No Log	N/A	N/A	Wells Of Unknown Completion (Design)
3	272-b	14S/02E-11H02	N/A	No Log	No Log	N/A	N/A	Wells Of Unknown Completion (Design)
3A	7-1	13S/02E-20J01	1963	P400	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3A	13-1	13S/02E-21P01	1958	P400	Rotary	350-620	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3A	288-1	13S/02E-28L01	1932	P-180	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3A	25-1	13S/02E-29J01	1957	P400	No Log	350-600	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3A	35-1	13S/02E-32A02	1958	P400	No Log	300-600	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3A	139-1	13S/02E-33J00	N/A	P400	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3A	140-1	13S/02E-33R01	1942	P180	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3A	65-1	14S/02E-07K01	N/A	P400	No Log	344-422	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3A	82-1	14S/02E-08L01	1961	P400	Rotary	300-500	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3A	123-1	14S/02E-09C02	1945	P400	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
6	98-1	14S/02E-09C03	1972	P400	Cable	339-485	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
3A	105-1	14S/02E-21J01	N/A	P180	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
3B	5-2	13S/02E-20M02	1949	P400	Not Given	362-530	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3B	12-1	13S/02E-21N01	1950	P400	Not Given	369-550	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3B	22-1	13S/02E-29F02	1856	P400	Not Given	347-539	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3B	57-1	13S/02E-31N02	1947	P400	Not Given	324-529	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3B	37-1	13S/02E-32J03	1962	P400	Not Given	324-576	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3B	46-1	14S/02E-04B01	1973	P400	Not Given	390-487	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3B	61-2	14S/02E-06J03	1948	P400	Not Given	375-550	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3B	132-3	14S/02E-09H02	1972	P400	Not Given	378-485	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3B	256-1	14S/02E-12B01	1947	P400	Unknown	315-580	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3B	121-1	14S/02E-16C51	1967	P400	Not Given	350-602	N/A	Wells Of Known Completion, But Construction Method Is Unknown
4	56-1	14S/02E-05C03	1988	P-400	Rotary	310-575	74	Wells Constructed By Rotary Methods With Inadequate Interaquifer Seals

## CSIP\_WEL

DEST	WELL	WELL	YEAR	AQC	DRILL	PERF	SEAL	DESCRIPTION
4	262-2	14S/02E-12L02	1978	P400	Rotary	435-580	50	Wells Constructed By Rotary Methods With Inadequate Interquifer Seals
4	114-1	14S/02E-16H01	1976	P400	Reverse	449-599	40	Wells Constructed By Rotary Methods With Inadequate Interquifer Seals
4	74-1	14S/02E-18C01	1976	P400	Rotary	330-598	0	Wells Constructed By Rotary Methods With Inadequate Interquifer Seals
5	284-1	13S/02E-28M02	1986	P400/Deep	Reverse	310-760	300	Wells Completed In Unintruded Area Of 400-foot Aquifer And Underlying Aquifer(s)
5	63-1	14S/02E-07B50	1990	P400/Deep	Reverse	310-580	310	Wells Completed In Unintruded Area Of 400-foot Aquifer And Underlying Aquifer(s)
5	70-3	14S/02E-07L05	1988	P400/Deep	Rotary	330-610	300	Wells Completed In Unintruded Area Of 400-foot Aquifer And Underlying Aquifer(s)
6	216-1	13S/02E-27P01	1969	P400	Cable	412-572	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	44-1	13S/02E-33N03	1966	P400	Cable	395-547	352	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	135-1	14S/02E-03M02	1975	P400	Cable	400-570	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	44-2	14S/02E-04E02	1963	P400	Cable	414-549	354	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	135-2	14S/02E-04H01	1973	P400	Cable	418-487	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	95-1	14S/02E-04N03	1963	P400	Cable	400-656	306	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	54-1	14S/02E-05F04	1954	P400	Cable	406-634	330	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
DOM/IRR	58-3	14S/02E-05F06	1974	P400	Cable	451-592	52	Wells Utilized For Both Irrigation And Domestic Water Supply
6	55-2	14S/02E-05G03	1974	P400	Cable	452-608	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
DOM/IRR	91-1	14S/02E-05K01	1955	P400	Cable	442-473	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
6	55-3	14S/02E-05K02	1960	P400	Cable	417-587	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	87-1	14S/02E-05P02	1965	P400	Cable	464-588	308	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	94-1	14S/02E-05R03	1964	P400	Cable	395-548	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	86-1	14S/02E-08A01	1957	P400	Cable	400-506	300	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	86-2	14S/02E-08C03	1955	P400	Cable	395-540	300	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	82-2	14S/02E-08M02	1961	P400	Cable	314-456	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	123-2	14S/02E-09D03	1961	P400	Cable	401-478	300	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	120-1	14S/02E-09K02	1967	P400	Cable	360-614	340	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	122-1	14S/02E-09L02	1966	P400	Cable	400-609	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	122-2	14S/02E-09N01	1963	P400	Cable	412-627	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	129-1	14S/02E-10F50	1976	P400	Cable	372-670	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
DOM/IRR	129-2	14S/02E-10M02	1965	P400	Cable	330-545	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
6	111-1	14S/02E-15N51	1971	P400	Cable	309-464	60	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	119-1	14S/02E-16A02	1973	P400	Cable	430-618	48	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	118-1	14S/02E-16C50	1971	P400	Cable	394-488	60	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
DOM/IRR	80-1	14S/02E-17A02	1979	P400	Cable	351-505	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
DOM/IRR	15-1	13S/02E-19Q03	1980	Deep S	Reverse	1280-1550	560	Wells Utilized For Both Irrigation And Domestic Water Supply
7	28-2	13S/02E-31A02	1985	Deep	Rotary	850-1600	850	Wells Of Rotary Construction With Adequate Interquifer Seals
7	41-2	13S/02E-32M02	1984	Deep	Rotary	780-1590	780	Wells Of Rotary Construction With Adequate Interquifer Seals
7	36-1	13S/02E-33M50	1966	P400	Rotary	314-590	313	Wells Of Rotary Construction With Adequate Interquifer Seals
7	45-1	13S/02E-33N04	1967	P400	Rotary	336-602	325	Wells Of Rotary Construction With Adequate Interquifer Seals
9	283-1	14S/02E-02H50	1991	Eastside	Rotary	330-630	260	Wells Completed In Eastside Aquifer
7	149-2	14S/02E-03K02	1981	P400	Reverse	336-559	300	Wells Of Rotary Construction With Adequate Interquifer Seals
7	132-2	14S/02E-04R02	1985	P400	Rotary	302-566	300	Wells Of Rotary Construction With Adequate Interquifer Seals
7	64-1	14S/02E-06L01	1976	Deep	Rotary	880-1540	800	Wells Of Rotary Construction With Adequate Interquifer Seals
7	60-2	14S/02E-07A01	1974	P400	Rotary	390-600	385	Wells Of Rotary Construction With Adequate Interquifer Seals



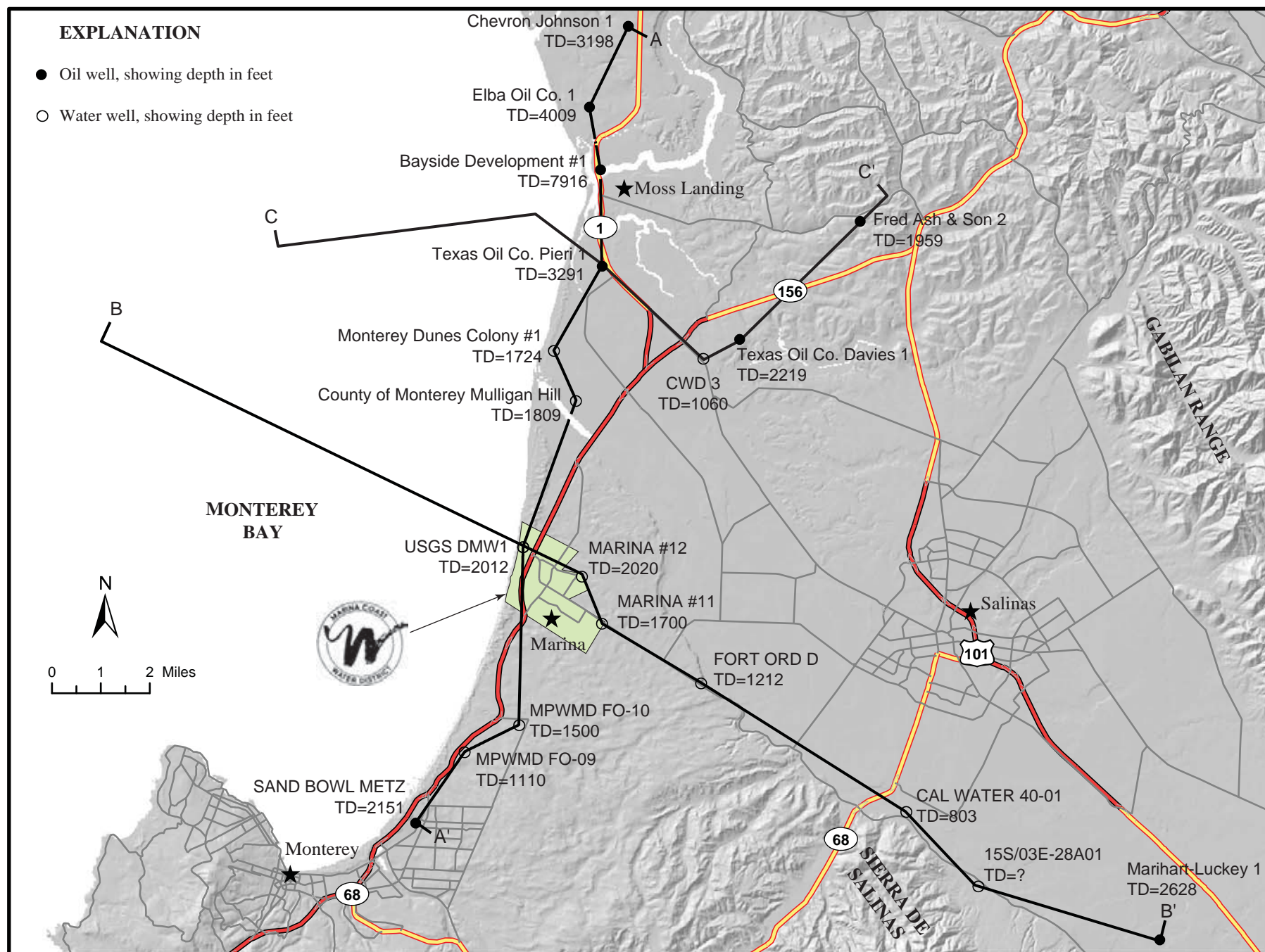
## CSIP\_WEL

DEST	WELL	WELL	YEAR	AQC	DRILL	PERF	SEAL	DESCRIPTION
7	70-2	14S/02E-07L04	1983	P400	Reverse	360-560	330	Wells Of Rotary Construction With Adequate Interquifer Seals
7	131-1	14S/02E-10C01	1974	P400	Rotary	378-554	340	Wells Of Rotary Construction With Adequate Interquifer Seals
7	299-1	14S/02E-18A01	1986	P-400	Reverse	380-570	350	Wells Of Rotary Construction With Adequate Interquifer Seals
8	166-3	14S/02E-11C01	1990	P180	Cable	165-220	50	Wells Completed Only In The Shallow Or 180-foot Aquifer(s)
DOM/IRR	155-1	14S/02E-11D01	1946	P180	Not Given	N/A	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
8	272-a	14S/02E-11J00	1945	P180	No Log	N/A	N/A	Wells Completed Only In The Shallow Or 180-foot Aquifer(s)
DOM/IRR	265-1	14S/02E-12N01	1968	SHW/P180	No Log	90-180	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
8	264-1	14S/02E-12N02	1973	SHW/P180	Cable	96-290	N/A	Wells Completed Only In The Shallow Or 180-foot Aquifer(s)
DOM/IRR	268-1	14S/02E-12Q01	1938	P180	Not Given	N/A	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
8	267-1	14S/02E-13D01	1987	P180	No Log	141-163	N/A	Wells Completed Only In The Shallow Or 180-foot Aquifer(s)
8	273-a	14S/02E-14A02	1972	P180	Rotary	180-262	N/A	Wells Completed Only In The Shallow Or 180-foot Aquifer(s)
9	232-1	14S/02E-01F50	1963	EastSide	Rotary	252-588	N/A	Wells Completed In Eastside Aquifer
SUPP	230-2	14S/02E-01A01	1992	Eastside	Cable	552-826	52	CSIP Supplemental Wells
SUPP	231-2	14S/02E-01C01	1981	EastSide	Reverse	350-591	300	CSIP Supplemental Wells
SUPP	258-2	14S/02E-01F50	1983	EastSide	Reverse	200-510	N/A	CSIP Supplemental Wells
SUPP	222-1	14S/02E-02C03	1987	P400	Rotary	393-832	380	CSIP Supplemental Wells
SUPP	148-1	14S/02E-03H01	1986	P400	Rotary	350-800	300	CSIP Supplemental Wells
SUPP	152-2	14S/02E-03R02	1992	P400	Cable	552-826	52	CSIP Supplemental Wells
7	95-1	14S/02E-04P50	1989	P400	Reverse	450-710	400	Wells Of Rotary Construction With Adequate Interquifer Seals
SUPP	130-1	14S/02E-10E02	1978	P400	Rotary	298-860	298	CSIP Supplemental Wells
SUPP	159-1	14S/02E-10H01	1985	P400	Cable	439-540	410	CSIP Supplemental Wells
SUPP	100-1	14S/02E-10N61	1991	P400	Cable	416-558	300	CSIP Supplemental Wells
SUPP	167-2	14S/02E-11B01	1992	P400	Cable	466-546	62	CSIP Supplemental Wells
SUPP	158-3	14S/02E-11M03	1990	P400	Rotary	400-660	380	CSIP Supplemental Wells
6	268-1	14S/02E-12N61	1989	P400	Cable	502-597	52	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
SUPP	273-3	14S/02E-14A01	N/A			N/A	N/A	CSIP Supplemental Wells
SUPP	125-4	14S/02E-14L03	1990	P400	Reverse	382-612	350	CSIP Supplemental Wells
SUPP	127-2	14S/02E-15A01	1978	P400	Cable	386-608	N/A	CSIP Supplemental Wells
SUPP	102-1	14S/02E-15B01	1982	P400	Cable	337-620	52	CSIP Supplemental Wells
SUPP	101-1	14S/02E-15C02	1978	P400	Reverse	328-660	320	CSIP Supplemental Wells
SUPP	124-1	14S/02E-22B01	1991	P400	Rotary	410-670	385	CSIP Supplemental Wells
SUPP	106-2	14S/02E-22L01	1991	P400	Rotary	420-680	400	CSIP Supplemental Wells
SUPP	95-3	NEW WELL						CSIP Supplemental Wells
SUPP	98-2	NEW WELL						CSIP Supplemental Wells
SUPP	122-3	NEW WELL						CSIP Supplemental Wells
SUPP	226-1	14S/02E-02A02	1987	Eastside	Rotary	360-810	340	CSIP Supplemental Wells

## **APPENDIX D**

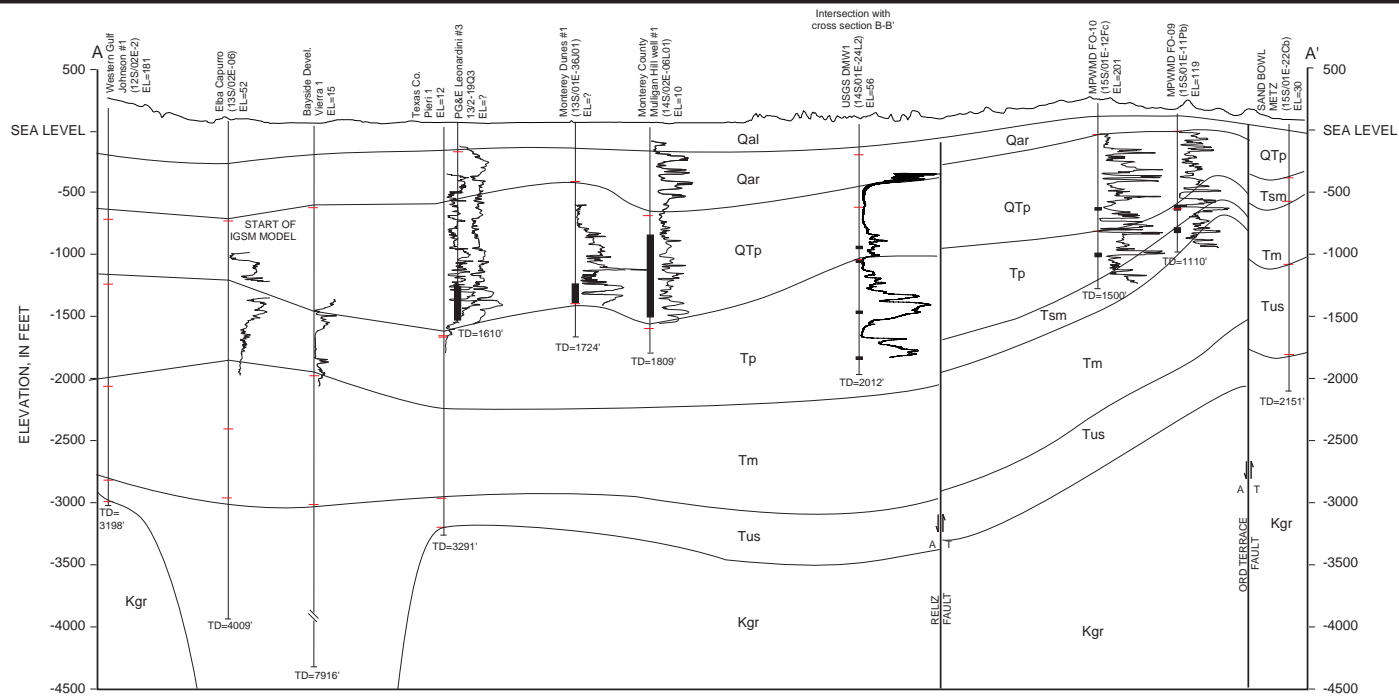
### **GEOLOGIC CROSS SECTIONS FROM FEENEY AND ROSENBERG (2003)**

Figure 3. Cross section location map

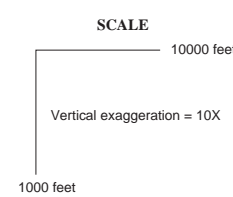
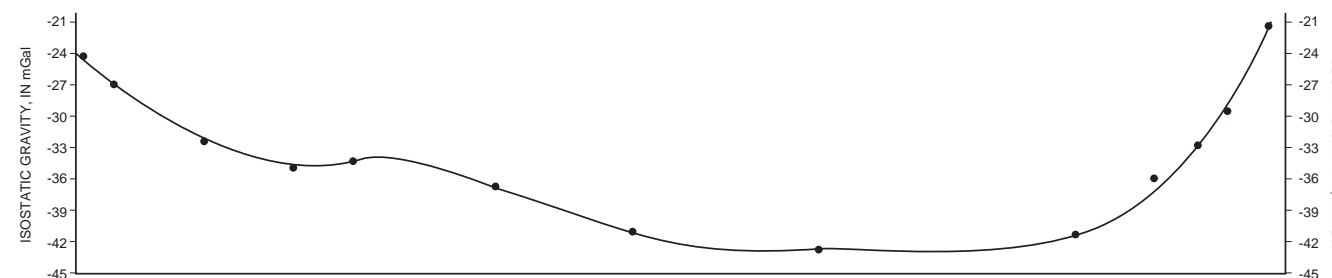
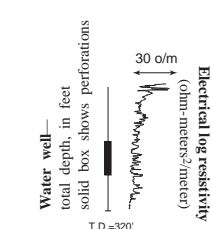


Base: USGS 30-meter National Elevation Dataset (2001)





- EXPLANATION**
- Qal Alluvium (Holocene)
  - Qar Aromas Sand (Pleistocene)
  - QTp Paso Robles Formation (Pleistocene-Pliocene?)
  - Tp Purissima Formation (Pliocene)
  - Tsm Santa Margarita Sandstone (late Miocene)
  - Tm Monterey Formation (middle Miocene)
  - Tus Unnamed sandstone (middle Miocene)
  - Kgr Granitic rocks (late Cretaceous)
  - Fault
  - Contact



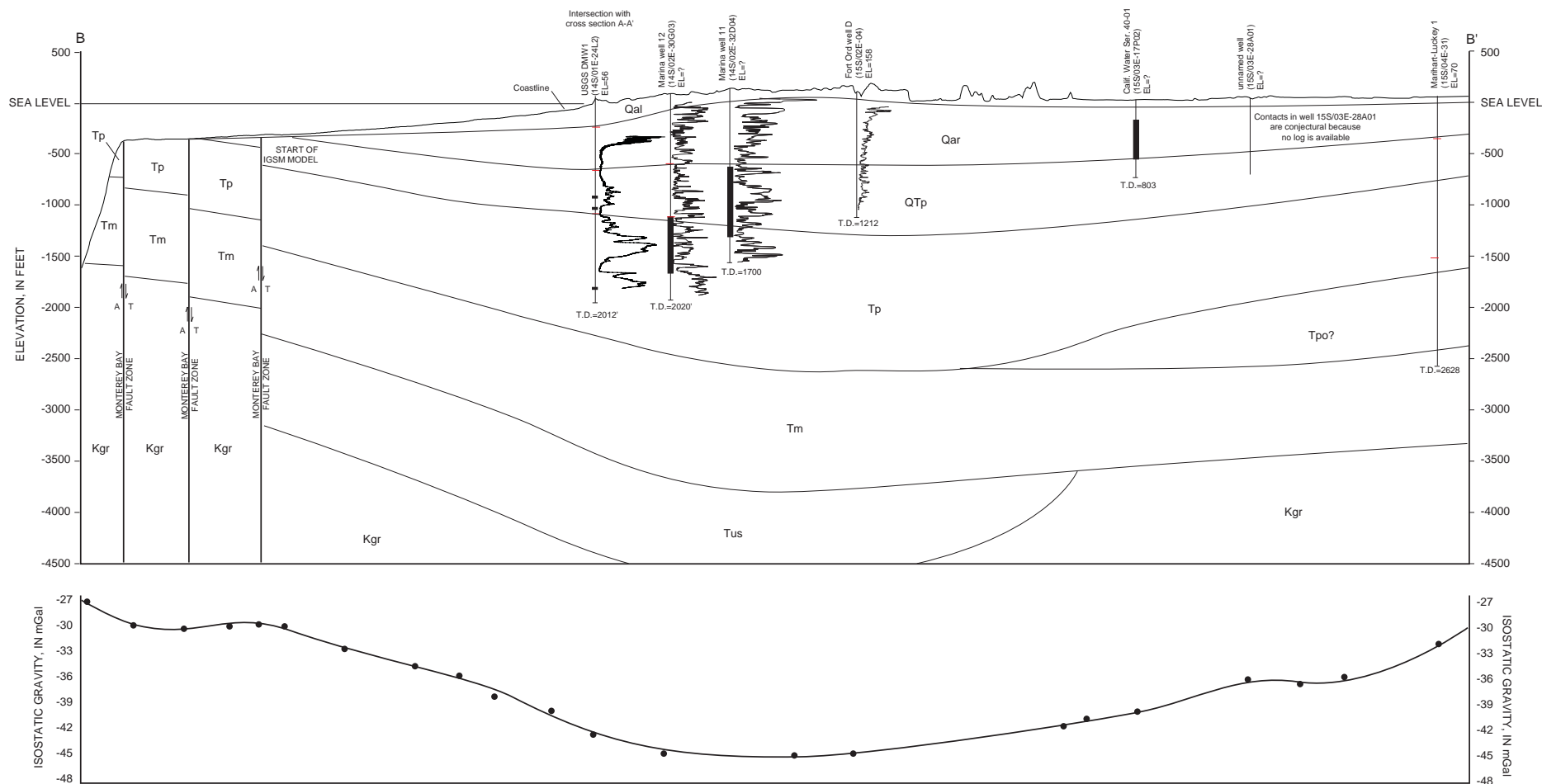
**SOURCES OF DATA**

Geologic data compiled from published mapping (Hanson and others, 2002; Wagner and others, 2002; Rosenberg, 2001), oil well logs (CDOG files), unpublished scout reports (Gribi, E.A., Thorup, R.R.), unpublished micro-paleontology reports (Chevron, undated; Ingle, J.C., 1989; McDougall, K., 2001), water well logs (MCWRA, MCWD, and MPWMD files).

Gravity data from USGS published mapping (Langenheim and others, 2002).

Topography from USGS National Elevation Dataset (30-m resolution). Bathymetry from Degnan and others, 2001 (30-m resolution)

GEOLOGIC CROSS SECTION A—A'		
For: Marina Coast Water District		
DEEP AQUIFER INVESTIGATIVE REPORT		
March 2003	Lew Rosenberg, CEG 1777 Martin Feeney, CHG 145	Figure 4



#### SOURCES OF DATA

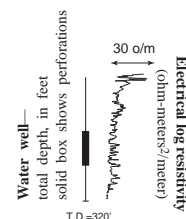
Geologic data compiled from published mapping (Hanson and others, 2002; Wagner and others, 2002; Rosenberg, 2001), oil well logs (CDOG files), unpublished scout reports (Gribi, E.A., Thorup, R.R.), unpublished micro-paleontology reports (Chevron, undated; Ingle, J.C., 1989; McDougall, K., 2001), water well logs (MCWRA, MCWD, and MPWMD files).

Gravity data from USGS published mapping (Langenheim and others, 2002).

Topography from USGS National Elevation Dataset (30-m resolution).  
Bathymetry from Degnan and others, 2001 (30-m resolution)

#### EXPLANATION

Qal	Alluvium (Holocene)
Qar	Aromas Sand (Pleistocene)
QTp	Paso Robles Formation (Pleistocene-Pliocene?)
Tp	Purisima Formation (Pliocene)
Tpo	Pancho Rico Formation (Pliocene)
Tm	Monterey Formation (middle Miocene)
Tus	Unnamed sandstone (middle Miocene)
Kgr	Granitic rocks (late Cretaceous)
—	Fault
—	Contact



#### SCALE

10000 feet

Vertical exaggeration = 10X

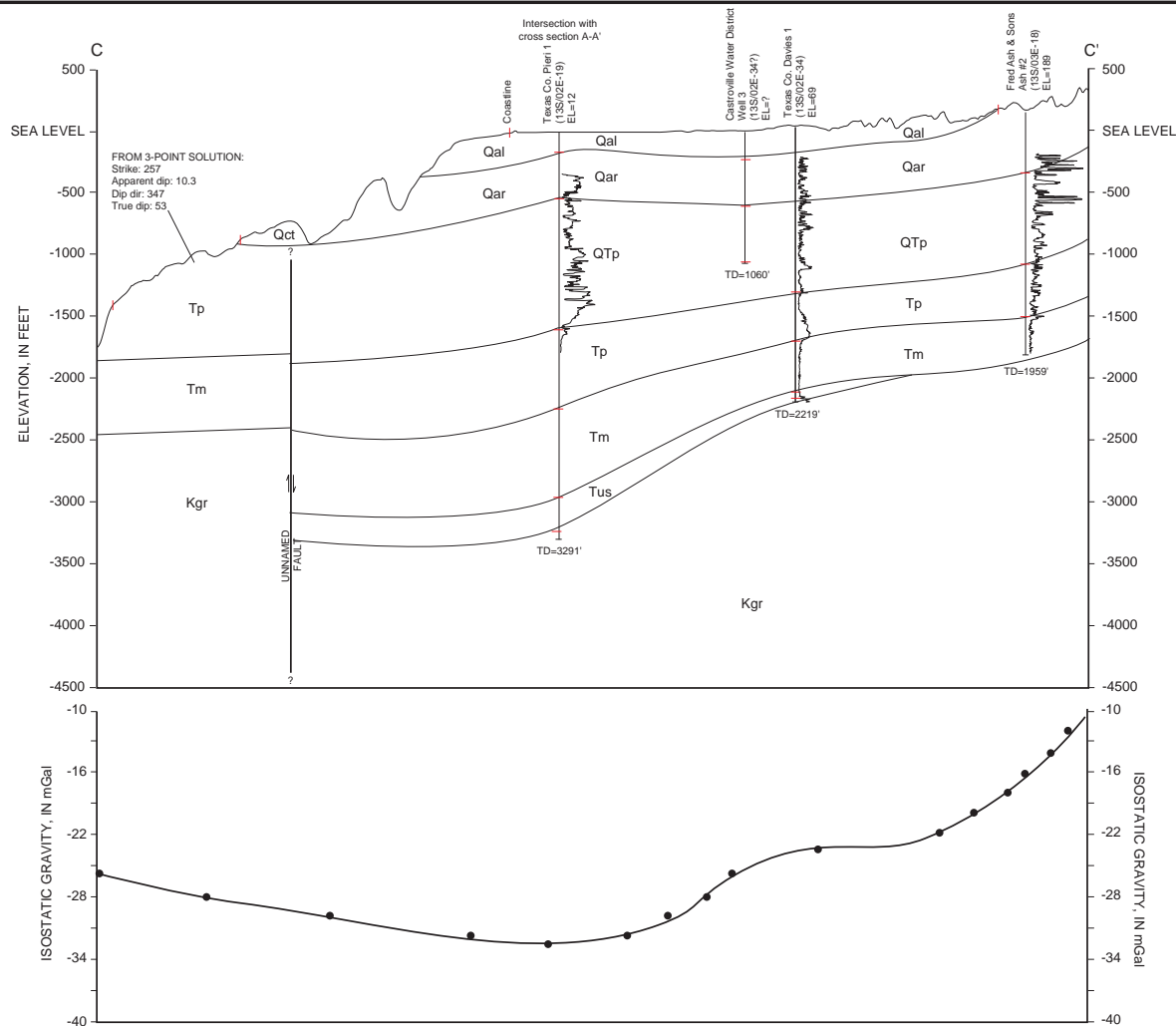
1000 feet

#### GEOLOGIC CROSS SECTION B—B'

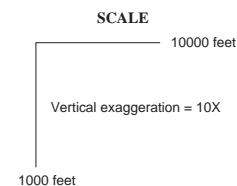
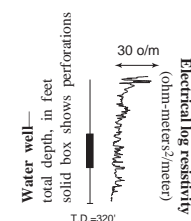
For: Marina Coast Water District

#### DEEP AQUIFER INVESTIGATIVE REPORT

March 2003	Lew Rosenberg, CEG 1777 Martin Feeney, CHG 145	Figure 5
------------	---	----------



EXPLANATION	
Qal	Alluvium (Holocene)
Qct	Submarine canyon terrace (Pleistocene)
Qar	Aromas Sand (Pleistocene)
Qtp	Paso Robles Formation (Pleistocene-Pliocene?)
Tp	Purisima Formation (Pliocene)
Tsm	Santa Margarita Sandstone (late Miocene)
Tm	Monterey Formation (middle Miocene)
Tus	Unnamed sandstone (middle Miocene)
Kgr	Granitic rocks (late Cretaceous)
—	Fault--inferred and queried
—	Contact



#### SOURCES OF DATA

Geologic data compiled from published mapping (Hanson and others, 2002; Wagner and others, 2002; Rosenberg, 2001), oil well logs (CDOG files), unpublished scout reports (Gribi, E.A., Thorup, R.R.), unpublished micro-paleontology reports (Chevron, undated; Ingle, J.C., 1989; McDougall, K., 2001), water well logs (MCWRA, MCWD, and MPWMD files).

Gravity data from USGS published mapping (Langenheim and others, 2002).

Topography from USGS National Elevation Dataset (30-m resolution). Bathymetry from Degnan and others, 2001 (30-m resolution)

#### GEOLOGIC CROSS SECTION C—C'

For: Marina Coast Water District

#### DEEP AQUIFER INVESTIGATIVE REPORT

March 2003	Lew Rosenberg, CEG 1777 Martin Feeney, CHG 145	Figure 6
------------	---	----------

This page intentionally left blank.

## **APPENDIX E**

### **WELL COMPLETION REPORTS FOR WELLS IN THE DEEP AQUIFERS**

Page 1 of 1 South Well Refer to Instruction Pamphlet  
 Owner's Well No. (Replacement Well No. 3) No. 473553  
 Date Work Began 1-17-92, Ended 1-20-92  
 Local Permit Agency Monterey County Dept. of Health  
 Permit No. W 6576 Permit Date 1-6-92

## - WELL OWNER

DELL OWNER		
<div style="background-color: black; height: 40px; width: 100%;"></div>		
City	State	Zip

WELL LOCATION

Address 195 Monterey Dunes Way

City Castroville

County Monterey

APN Book 229 Page 041 Parcel 04

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Latitude \_\_\_\_\_ NORTH Longitude \_\_\_\_\_ WEST

DEG.	MIN.	SEC.	LOCATION SKETCH	DEG.	MIN.	SEC.	ACTIVITY ( $\angle$ )
			NORTH				

NEW WELL  
MODIFICATION/REPAIR  
\_\_\_\_\_ Deepen  
\_\_\_\_\_ Other (Specify) \_\_\_\_\_

(SEE ATTACHED)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

WEST	EAST	PLANNED USE(S)
		MONITORING

\_\_\_\_\_ SOUTH \_\_\_\_\_

*Illustrate or Describe Distance of Well from Landmarks*

WATER SUPPLY

☒ Domestic

\_\_\_\_\_ Public

\_\_\_\_\_ Irrigation

\_\_\_\_\_ Industrial

\_\_\_\_\_ "TEST WELL"

\_\_\_\_\_ CATHODIC PROTECTION

\_\_\_\_\_ OTHER (Specify)

DRILLING METHOD Reverse Rotary FLUID

WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 42 (Ft.) & DATE MEASURED 2-6-92

ESTIMATED YIELD\* 150 (GPM) & TEST TYPE Cont. flow

TEST LENGTH 72 (Hrs.) TOTAL DRAWDOWN 33 (Ft.)

\* May not be representative of a well's long-term yield

TOTAL DEPTH OF BORING 1430 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1393 (Feet)

DEPTH FROM SURFACE		BORE-HOLE DIA. (Inches)	CASING(S)						DEPTH FROM SURFACE		ANNULAR MATERIAL							
			TYPE (✓)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)			GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE					
Ft.	to	Ft.	BLANK	SCREEN	CON- DUCTOR	FILL PIPE									Ft.	to	Ft.	CE- MENT (✓)
0		80	36			x		steel	30			0		1250	x			
0		310	26			x		"	20			1250		1255		x		
0		300	18	x				"	8			1255		1400				8 x 16
300		1323	"	x				"	6									
1323		1383	"		x			"	6	.040								
1383		1393	"	x				"	6									

## ATTACHMENTS (✓)

- ☒ Geologic Log
- ☒ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☒ Other vicinity map

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

### CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Layne-Western Company  
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P.O. Box 1326, Woodland, CA 95776

ADDRESS	CITY	STATE	ZIP
1101 BOX 1520, HOOGHORN, OH 43170			

Signed Kenneth W. Woot 11-5-93 510011  
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE CHARGED P.C. SERVICE AGREEMENT

DWH 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

135/2E-30N1  
135/1E-25R1

SAMPLE LOG - WELL NO. 3

<u>Interval (Feet)</u>	<u>Description</u>
0 - 50	Sand (driller's description)
50 - 80	Clay (driller's description)
80 - 90	Clay, silty, some fine sand
90 - 110	Same, less silt
110 - 120	Same, increasing silt
120 - 140	Clay, black, with some coarse sand, and fine gravel, well rounded to angular
140 - 150	Clay, silty, black, with 20% sand
150 - 160	Gravel and sand, with some clay, gravel is sub- to well-rounded.
160 - 170	Clay, black, with slight amount of sand and gravel
170 - 190	Gravel, coarse, with up to 30% sand, well- rounded to angular
190 - 200	Gravel, decreasing grain size from above, subrounded to angular
200 - 210	Sand, very coarse, angular, with some gravel
210 - 220	Sand and gravel, 50% mixture, sand is fine grained, with minor clay
220 - 240	Sandy clay, brown, sand is fine grained
240 - 260	Silty clay, brown, with minor sand
260 - 270	Sandy clay, with some cemented fine- grained sand (sandstone)
270 - 280	Sand, medium to coarse grained, cemented, (sandstone), brown
280 - 290	Sandy clay, sand is fine grained, clay is brown
290 - 300	Sand, coarse grained, with some gravel, sub- to well rounded

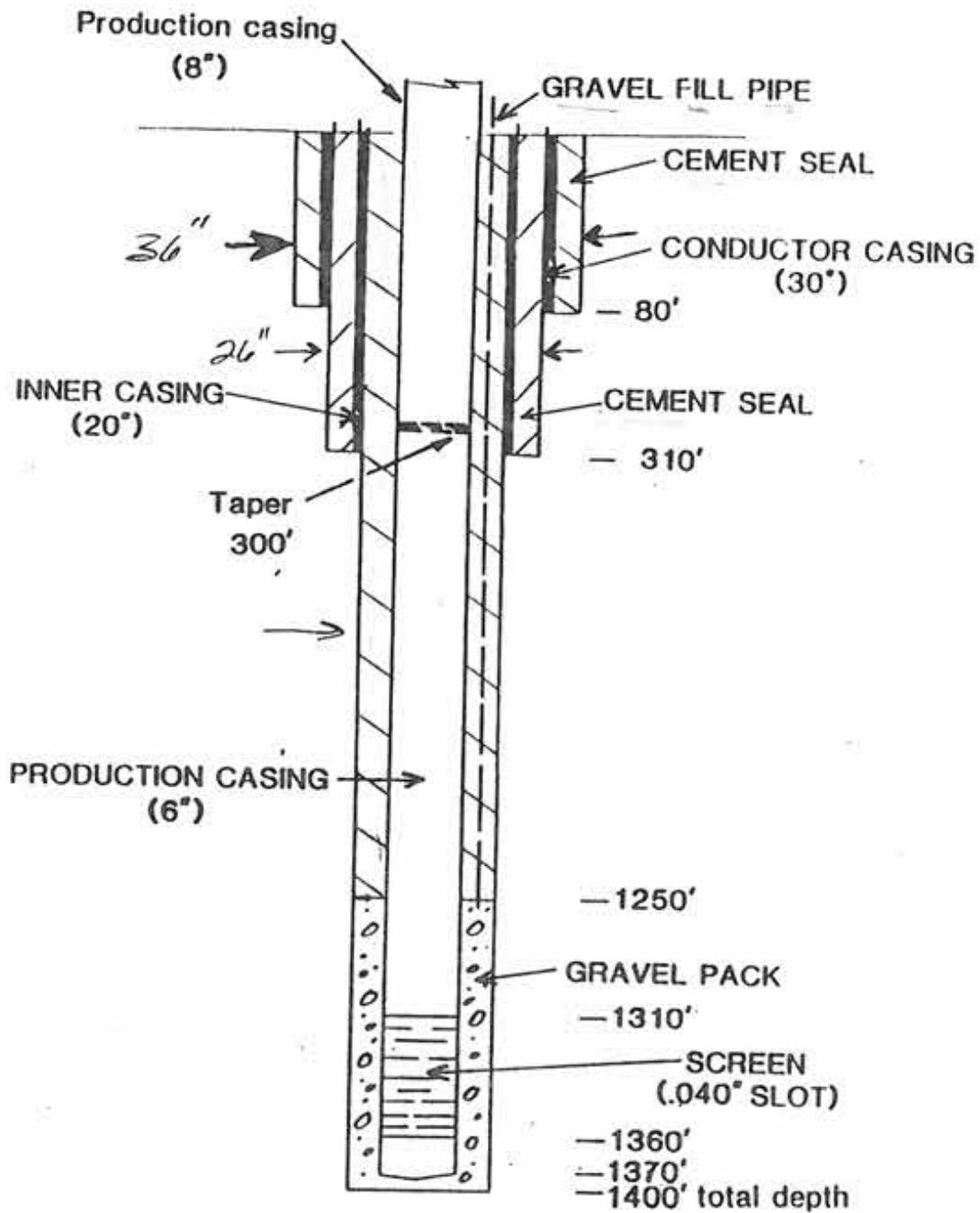
FIGURE A-1



<u>Interval (Feet)</u>	<u>Description</u>
300 - 310	Clay, with less than 10% sand, brown
310 - 350	Sand, very fine grained, generally cemented (sandstone), light brown
350 - 360	Sand, very fine grained, light brown to gray color
360 - 370	Silt and siltstone, light brown color with minor fine sand
370 - 380	Gravel, subrounded, with some sand and silt
380 - 400	Clay, black, with some minor sand
400 - 440	Gravel, subrounded, with some very coarse sand
440 - 460	Gravel, clayey, with minor silt and sand
460 - 470	Gravel with some coarse sand
470 - 480	Gravel, clayey, light brown to tan
480 - 490	Gravel, subrounded, minor sand
490 - 500	Sand, fine grained and cemented, minor gravel, brown
500 - 520	Silty clay, brown, with minor sand
520 - 530	Sand, very fine grained, clayey
530 - 550	Gravel, clayey
550 - 570	Gravel, angular to subrounded
570 - 580	Clay, silty, brown
580 - 600	Sand, very fine grained, slightly cemented, slightly clayey
600 - 620	Silty clay, brown
620 - 660	Silty sand grading to sandy silt, sand grains angular, brown
660 - 680	Clay, silty, black, with organic matter (plant remains)
680 - 710	Clay, silty, with some fine sand

<u>Interval (Feet)</u>	<u>Description</u>
710 - 740	Clay, silty, grading to clayey silt, black
740 - 770	Clay, with very fine sand, brown
770 - 780	Clay, brown, with some dark organic matter
780 - 790	Clay, sandy, grading to a clayey sand, sand is fine to medium grained
790 - 800	Clay, silty, brown
800 - 850	Clay with trace of fine, angular sand, black
850 - 870	Clay, trace of fine sand, with organic (plant) material
870 - 890	Clay, with fine subrounded sand, black
890 - 910	Sand, fine grained, clayey, grading to clayey sand, some organic matter, black to brown
910 - 950	Clay, silty, black
950 - 960	Clay, silty, with trace of sand
960 - 980	Sand, very coarse, grading to fine gravel, well rounded, with shell fragments, trace of black silty clay
980 - 1000	Clay, silty, organic, with trace of fine gravel
1000 - 1030	Clay, silty, with organic material (plant remains)
1030 - 1040	Sand, fine grained, cemented, gray, with some black clay
1040 - 1070	Silty clay, with trace of fine gravel, black, with organic matter
1070 - 1080	Silty clay, black
1080 - 1100	Silty clay, black, with some shell fragments and organic matter
1100 - 1120	Silty clay, black, with trace of fine sand

<u>Interval (Feet)</u>	<u>Description</u>
1128 (core)	Sand, fine grained, gray
1130 (core)	Sand, slightly silty, very fine grained, gray
1168 (core)	Sand, medium to coarse grained, subrounded grains, gray
1170 (core)	Sand, very fine to coarse grained
1182 (core)	Sand, silty, very fine to coarse grained, gray
1200 - 1230	Clay, silty, black to gray
1230 - 1240	Sand, clayey, grading to sandy clay fine to very fine grained, black to gray
1240 - 1260	Silty clay, black
1260 - 1280	Silty clay with trace of fine silty sand, shell fragments, gray to black
1280 - 1320	Sand, fine to medium grained, gray, clayey, with abundant shell fragments and organic material (plant remains)
1320 - 1340	Sand, very fine grained, black to gray, with some black clay
1340 - 1350	Sand, very fine grained, with abundant shell fragments and organic matter
1350 - 1370	Sand, very fine grained, well rounded, gray, with some clay and shell fragments
1370 - 1380	Sand, very fine grained, as above, increasing silt and clay, gray to black
1380 - 1400	Silty clay, black
1400 - 1410	Sand, very fine grained, with some black clay and organic matter (plant material)
1410 - 1420	Sand, very fine grained, with some shell fragments



REVISED CASING DIAGRAM

REPLACEMENT WELL

not to scale



**GEOCONSULTANTS, INC.**

Geotechnical Consultants  
Geology • Ground Water

G827-01A

1450 Koff Circle, Suite 114  
San Jose, California 95112

ORIGINAL  
File with DWR

STATE OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do Not Fill In

No 141774

Well No 1351E-36J1  
Other Well No

(1) OWNER:

Name  
Address

(2) LOCATION OF WELL:

County Monterey  
Approx. 500 yds. No. of  
mouth of Salinas River  
100 yds. East of Monterey Bay

(3) TYPE OF WORK (check):

New Well ☐ Deepening ☒ Reconditioning ☐ Destroying ☐

If destruction, describe material and procedure in Item 11

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐  
Irrigation ☐ Test Well ☐ Other ☐

(5) EQUIPMENT:

Rotary ☒  
Cable ☐  
Other ☐

(6) CASING INSTALLED:

STEEL: OTHER:  
SINGLE ☒ DOUBLE ☐

If gravel packed

From ft.	To ft.	Diam. in.	Gage on Wall	Diameter of Bore in.	From ft.	To ft.
0	320	7"		18"	1080	1488
320	1488	6"				

Size of end of well ring

Size of gravel: #2 Aquarium

Material: Welded

(7) PERFORATIONS OR SCREEN:

Type of perforation or name of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
1298	1448	6	72	3/32 Full Flo. Stain- less steel

(8) CONSTRUCTION:

Is a surface sanitary seal provided? Yes ☒ No ☐ To what depth 1080 ft

Was the screen sealed against pollution? Yes ☒ No ☐ If yes, note depth of seal

From 0 ft. to 1080 ft.

From ft. to ft.

Method of sealing: Concrete & gravel shut

(9) WATER LEVELS:

Depth at which water was first found, if known

Standing level before perforating, if known

Standing level after perforating and developing

(10) WELL TESTS:

Was pump test made? Yes ☐ No ☐ If yes, by whom?

Gal./min. with ft. drawdown after hrs.

Temperature of water: Was a chemical analysis made? Yes ☐ No ☐

Was electric log made of well? Yes ☒ No ☐ If yes, attach copy

(11) WELL LOG:

Depth 1724 ft. Depth of completed well 1488 ft.

Notes: Depth, diameter, character, size of material, and structure

0 - 648 Original well  
648' - 749' Sand  
749' - 766' Gray clay, sand  
766' - 797' Clay & sand  
797' - 828' Gray clay sand  
828' - 859' " " "  
859' - 890' " " "  
890' - 921' " " "  
921' - 952' Sand & Gray clay  
952' - 983' Sand & clay  
983' - 1019' Gray clay sand  
1019' - 1050' Blue clay sand  
1050' - 1081' Blue clay  
1081' - 1112' Blue clay  
1112' - 1143' Blue clay (Sea shell)  
1143' - 1174' Blue clay, sand strks  
1174' - 1205' Blue clay  
1205' - 1236' Blue clay  
1236' - 1267' Blue clay  
1267' - 1298' " "  
1298' - 1329' Clay & sand  
1329' - 1360' Clay & sand  
1360' - 1391' Clay & sand  
1391' - 1421' Clay & sand  
1421' - 1456' Clay & sand  
1456' - 1479' Blue clay & sand  
1479' - 1502' " " " "  
1502' - 1571' " " " "  
1571' - 1594' " " " "  
1594' - 1617' " " " "  
1617' - 1640' " " " "  
1640' - 1663' " " " "  
1663' - 1689' " " " "  
1689' - 1704' " " " "  
1704' - 1724' " " " "

Work started 1/18 19 77 Completed 2/14 19 77

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME SALINAS PUMP CO.

(Person, firm, or corporation) (Typed or printed)

Address 1128 Madison KRA Lane

Salinas, Ca. 93901

[SIGNED] *Carson Thornton*

(Well Driller)

License No. 273053 Dated 2/16 19 77

SKETCH LOCATION OF WELL ON REVERSE SIDE



RECEIVED

F.C. #22681

MAR 29 2004

ORIGINAL  
File with DWR

RESOURCE PROTECTION

STATE OF CALIFORNIA  
WELL COMPLETION REPORT

Refer to Instruction Pamphlet

Page 1 of 2

Owner's Well No. #4

No. e011049 - ?

Date Work Began 01/24/04, Ended 03/10/04

Local Permit Agency Monterey Dunes Health Dept.

Permit No. 03-01231

Permit Date 11/18/03

DWR USE ONLY - DO NOT FILL IN

STATE WELL NO./STATION NO. 135/01E-36J02

LATITUDE 135/01E-36J02

LONGITUDE 135/01E-36J02

APN/TRS/OTHER

## GEOLOGIC LOG

ORIENTATION (°) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)

DEPTH FROM SURFACE

FL to FL

DRILLING METHOD Direct Rotary FLUID Bentonite

DESCRIPTION

Describe material, grain size, color, etc.

0	80	Fine to coarse sand
80	90	Fine to coarse sand w/blue clay
90	100	Fine to med. sand
100	123	Fine to med. sand w/clay lenses
123	143	Blue clay w/fine to med. sand
143	154	Blue clay w/fine to coarse sand and gravel
154	165	Fine to coarse sand w/gravel and rock
165	187	Fine to med. sand & cobbles with clay lenses
187	197	Fine to med. sand
197	219	Fine to coarse sand
219	250	Fine to coarse sand & gravel
250	304	Fine to coarse sand & cobbles
304	314	Fine to coarse sand w/clay and cobbles
314	355	Fine to coarse sand w/90% clay
355	366	Fine to coarse sand w/clay
366	387	Fine to med. sand w/clay lenses
387	408	Fine to med. sand w/50% clay
408	418	Fine to coarse sand
418	440	Fine to coarse sand & gravel
440	455	Fine to coarse sand w/40% clay
455	461	Fine to coarse sand & gravel with 50% clay
461	485	Fine to coarse sand & gravel
485	505	Fine to coarse sand
505	556	Fine to coarse sand & gravel
556	577	Fine to coarse sand w/red clay

TOTAL DEPTH OF BORING: 1422 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1364 (Feet)

WELL OWNER PRESSURE-DEEPWELL LOCATION  
Address 195 Monterey Dunes WayCity CastrovilleCounty MontereyAPN Book 229 Page 041 Parcel 004Township Range Section 004Latitude DEG. MIN. SEC. Longitude DEG. MIN. SEC. WEST

## LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Acre, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (°)

☒ NEW WELL

MODIFICATION/REPAIR

☐ Deepen  
☐ Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (°)

WATER SUPPLY

☐ Domestic ☐ Public  
☐ Irrigation ☐ Industrial

MONITORING

☐ TEST WELL

CATHODIC PROTECTION

☐ HEAT EXCHANGE☐ DIRECT PUSH☐ INJECTION☐ VAPOR EXTRACTION☐ SPARGING☐ REMEDIATION☐ OTHER (SPECIFY)

## WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER N/A (FL) BELOW SURFACEDEPTH OF STATIC WATER LEVEL 13 (FL) & DATE MEASURED 03/04/04ESTIMATED YIELD 200 (GPM) & TEST TYPE PumpTEST LENGTH 24 (Hrs.) TOTAL DRAWDOWN 42 (FL)

\* May not be representative of a well's long-term yield. 24 hour Test

24 hour Test																	
DEPTH FROM SURFACE		BORE-HOLE DIA. (Inches)	CASING (S)						DEPTH FROM SURFACE		ANNULAR MATERIAL						
			TYPE ( )			MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS			SLOT SIZE IF ANY (Inches)	TYPE					
FL	to	FL	BLANK	SCREEN	CON- DUCTOR				FILL PIPE					FL	to	FL	CE- MENT ( )
0	60	36			X		A53B	29.260	.375		0	60	X				10 sack
0	321	28			X		A53B	19.260	.375		0	321	X				10 sack
+2	1221	18	X				A53B	8"	.322		0	1220	X				Neat cem.
1221	1301	18	X				304ss	8"	.322		1220	1370			X		8x16
1301	1361	18		X			304ss	8"	XXHD	.040							
1361	1364	18	X				304ss	8"	.322								
ATTACHMENTS ( )										CERTIFICATION STATEMENT							

## ATTACHMENTS (°)

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☒ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☒ Other Site map

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Rottman Drilling Co.

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 46471 N Division, Lancaster, CA 93535SIGNED Larry W. Rottman, President

CITY

STATE

ZIP

DATE SIGNED 03/19/04C-57 LICENSE NUMBER 316599

Copy to WR

ORIGINAL  
File with DWR

Page 2 of 2

Owner's Well No. #4

No. e011049

Date Work Began 01/24/04, Ended 03/10/04

Local Permit Agency Monterey Dunes Health Dept.

Permit No. 03-01231 Permit Date 11/18/03

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction Pamphlet

DWR USE ONLY - DO NOT FILL IN

135/01/EI-316J/02

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

135/01/EI-316J/02

APN/TRS/OTHER

**GEOLOGIC LOG**

ORIENTATION ( ) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)

DRILLING METHOD Direct Rotary FLUID Bentonite

DEPTH FROM SURFACE

FL to FL

Describe material, grain size, color, etc.

577	610	Fine to coarse sand, rock & clay
610	620	Fine to coarse sand
620	630	Fine to coarse sand & gravel
630	650	Fine to coarse sand & gravel with clay lenses
650	661	Fine to med. sand with clay
661	681	Fine sand with clay
681	693	Fine sand & gravel w/clay lenses
693	725	80% Silty clay w/20% hard sand
725	737	90% Hard silty clay & sand lenses
737	767	90% Hard silty clay w/sand rock lenses
767	791	95% Hard packed clay - cemented
791	820	Brown silty clay (hard packed)
820	882	Grayish brown clay w/blue stricks
882	945	Clay with rock
945	1011	Clay w/fine sand & silt
1011	1105	20% Clay w/fine to med. sand
1105	1170	Fine sand and silt
1170	1190	Clay w/fine sand, silt & rock
1190	1230	Fine sand, silt & rock
1230	1270	Clay with fine sand
1270	1290	Silt & clay
1290	1365	Fine sand
1365	1391	Clay w/fine sand lenses
1391	1422	Fine sand

TOTAL DEPTH OF BORING: 1422 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1364 (Feet)

**WELL OWNER**

WELL LOCATION

Address 195 Monterey Dunes Way

City Castroville

County Monterey

APN Book 229 Page 041 Parcel 004

Township Range Section

Latitude North Longitude West

LOCATION SKETCH

ACTIVITY ( )

☒ NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES ( )

WATER SUPPLY

Domestic Public

Irrigation Industrial

MONITORING

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 12 (FL) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 13 (FL) & DATE MEASURED 03/02/04

ESTIMATED YIELD 500 (GPM) & TEST TYPE Pump

TEST LENGTH 4 (Hrs.) TOTAL DRAWDOWN 102 (FL)

\* May not be representative of a well's long-term yield. (Step Test)

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING (S)					DEPTH FROM SURFACE			ANNULAR MATERIAL					
				TYPE ( )			MATERIAL / GRADE	INTERNAL DIAMETER (Inches)				GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE			
FL	to	FL	BLANK	SCREEN	CORROSION-RESISTANT FILL PIPE									FL	to	FL	CE- MENT ( )
0	60	36			X		A53B	29.260	.375		0	60		X			10 sack
0	321	28			X		A53B	19.260	.375		0	321		X			10 sack
+2	1221	18	X				A53B	8"	.322		0	1220		X			Neat cem.
1221	1301	18	X				304ss	8"	.322		1220	1370				X	8x16
1301	1361	18		X			304ss	8"	XXHD	.040							
1361	1364	18	X				304ss	8"	.322								

**ATTACHMENTS ( )**

Geologic Log

Well Construction Diagram

☒ Geophysical Log(s)

Soil/Water Chemical Analyses

Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Rottman Drilling Co.

(PERSON, FIRM OR CORPORATION) (TYPED OR PRINTED)

46471 N Division, Lancaster, CA 93535

ADDRESS CITY STATE ZIP

Signed [Signature] 03/19/04 316599

WELL DRILLER AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER





Owner's Copy

STATE OF CALIFORNIA

THE RESOURCES AGENCY

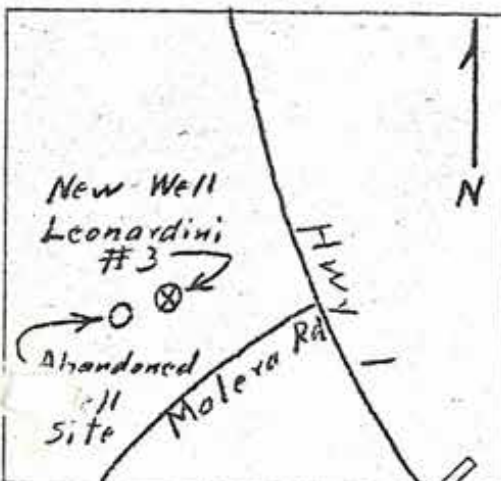
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do not fill in

No. 071658

Intent No. \_\_\_\_\_  
License Permit No. or Date **W-2612**State Well No. **135/2E-1903**  
Other Well No. **900 FT AQ**

(2) LOCATION OF WELL (See instructions):  
County **Monterey** Owner's Well Number **#3**  
Well address if different from above \_\_\_\_\_  
Township **13S** Range **2E** Section \_\_\_\_\_  
Distance from cities, roads, railroads, fences, etc. **0.25 mile west of Jct. of Molera Rd. & Hwy. 1, 200' ENE of Leonardini #2.**



## (3) TYPE OF WORK:

New Well ☒ Deepening ☐  
Reconstruction ☐  
Reconditioning ☐  
Horizontal Well ☐  
Destruction ☐ (Describe destruction materials and procedures in Item 12)

## (4) PROPOSED USE:

Domestic ☐  
Irrigation ☒  
Industrial ☐  
Test Well ☐  
Stock ☐  
Municipal ☐  
Other ☐

(12) WELL LOG: Total depth **1610** ft. Depth of completed well **1562** ft.  
from ft. to ft. Formation (Describe by color, character, size or material)

0	-	12	Clay
12	-	22	Sandy Clay
22	-	36	Sand & Gravel
36	-	39	Yellow Clay
39	-	60	Fine Sand w/ Rock
60	-	70	Blue Sandy Clay
70	-	83	Blue Clay
83	-	131	Sand Gravel & Rock
131	-	220	Yellow & Blue Clay
220	-	315	Rock & Clay Shale
315	-	412	Blue Sandy Clay
412	-	433	Sand w/ Clay
433	-	975	Blue Sandy Clay
975	-	1095	Sand Gravel & Rock
1095	-	1142	Blue Sandy Clay
1142	-	1155	Clay Blue
1155	-	1170	Sand & Shale
1170	-	1195	Blue Clay
1195	-	1247	Sand & Blue Clay
1247	-	1295	Blue Clay
1295	-	1308	Sand & Blue Clay
1308	-	1317	Sandy Blue Clay
1317	-	1380	Sand, Shale, Blue Clay
1380	-	1395	Sandy Blue Clay
1395	-	1475	Sand, Shale, Rock
1475	-	1488	Sandy Blue Clay
1488	-	1500	Sand & Clay
1500	-	1519	Fine Sand & Clay
1519	-	1610	Fine Sandy Clay

POOR DESCRIPTION  
ELECTRIC LOG SHOWS MUCH MORE VARIATION

## (5) EQUIPMENT:

Rotary ☐ Reverse ☒  
Cable ☐ Air ☐  
Other ☐ Bucket ☐

## (6) GRAVEL PACK:

Yes ☒ No ☐ Size **12 x 20**  
Diameter of bore **28"**  
Packed from **1190'** to **1610'**

## (7) CASING INSTALLED:

Steel ☒ Plastic ☐ Concrete ☐

## (8) PERFORATIONS:

Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Cage or Wall	From ft.	To ft.	Slot size
0	566	16	5/16"	1220	1250	3/32"
566	1220	12	1/4"	1200	1580	
1250	1262	12	1/4"			

## (9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth **170** ft.  
Were strata sealed against pollution? Yes ☒ No ☐ Interval \_\_\_\_\_ ft.  
Method of sealing **Concrete 550' to 600' & 1080' to 1190'**

## (10) WATER LEVELS:

Depth of first water, if known **18'** ft.  
Standing level after well completion **+1.5' AGL** ft.

## (11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? **Luhdorff**  
Type of test Pump ☒ Bailor ☐ Air lift ☐  
Depth to water at start of test **+1.5** ft. At end of test **233.8** ft.  
\_\_\_\_\_ gal/min after **24** hours Water temperature **92°F**  
Chemical analysis made? Yes ☒ No ☐ If yes, by whom? **P.G. & E.**  
Was electric log made? Yes ☒ No ☐ If yes, attach copy to this report

Work started **10 Feb. 1980** Completed **2 May 1980**

## WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED **Robert L. Vincent** (Well Driller)  
NAME **E.E. Luhdorff Co./Div. of Layne-Western Co., Inc**  
(Person, firm, or corporation) (Typed or printed)  
Address **P.O. Box 1326, 275 Co. Rd. 98**  
City **Woodland, CA** Zip **95695**  
License No. **334205** Date of this report **5-20-80**



ORIGINAL

File with DWR

STATE OF CALIFORNIA

THE RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

135/2E-31A2 2

Do not fill in

No. 064000

of Intent No.

Well Permit No. or Date 3628

State Well No.

Other Well No.

## 2) LOCATION OF WELL (See instructions):

County Monterey

Well address if different from above

Township Castroville

Range

Section

Distance from cities, roads, railroads, fences, etc.

## (3) TYPE OF WORK:

New Well ☒ Deepening ☐Reconstruction ☐Reconditioning ☐Horizontal Well ☐Destruction ☐ (Describe destruction materials and procedures in Item 12)

## (4) PROPOSED USE:

Domestic ☐Irrigation ☒Industrial ☐Test Well ☐Stock ☐Municipal ☐Other ☐

## WELL LOCATION SKETCH

## 5) EQUIPMENT:

Rotary ☒ Reverse ☐Able ☐ Air ☐Other ☐ Bucket ☐

## (6) GRAVEL PACK:

Yes ☒ No ☐ Size 6X12, 8X16

Diameter of bore 26

Packed from 850 to 1600 ft.

## 7) CASING INSTALLED:

Steel ☒ Plastic ☐ Concrete ☐

## (8) PERFORATIONS:

Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	400	16	3/8	850	1600	332
400	1600	12	5/16			

## 9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 850 ft.Were strata sealed against pollution? Yes ☒ No ☐ Interval 0-850 ft.

Method of sealing Concrete

## 10) WATER LEVELS:

Depth of first water, if known 4' ft.

Standing level after well completion 26' ft.

## 11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? Salinas PumpType of test Pump ☒ Bailer ☐ Air lift ☐

Depth to water at start of test 26' ft.

At end of test 26' ft.

Rate 3000 gal/min after 48 hours

Water temperature warm

Local analysis made? Yes ☐ No ☐ If yes, by whom?Was electric log made? Yes ☒ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth 1635 ft. Depth of completed well 1600 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	3	Black top soil
3	8	Sandy yellow clay
8	40	brown clay
40	79	soft blue caly
79	95	fine sand
95	121	soft blue clay & sand
121	142	fine sand
142	190	coarse sand & pea gravel
190	235	yellow clay & sand
235	338	red sand
338	343	yellow clay
343	408	med coarse sand
408	430	coarse sand
430	490	gravel, coarse sand
490	578	gravel & coarse sand, sktYel cly
578	584	yellow clay
584	645	coarse sand colored
645	656	coarse sand & red clay
656	705	coarse sand, yellow & gravel
705	790	sandy yellow & blue clay
790	894	yellow clay skts blue clay
894	950	yellow clay & some blue & wht
950	982	clay, skts sand
982	1030	Blue & yellow clay
1030	1092	blue clay & yellow & brn
1092	1114	Blue clay & fine blk sand
1114	1180	coarse sand & fine sand
1180	1270	blk fine sand & blue clay
1270	1312	blue clay & fine sand, sm gravel
1312	1334	blue clay & blk sand
1334	1422	blk sand & blue clay, sm gravel
1422	1450	blue clay & blk sand
1450	1532	red coarse sand
1532	1635	blk sand & blue clay
		blue & wht clay & blk sand

Work started 5/21/85, Completed 9/30/85

## WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED Carson Hunter (Well Driller)

NAME Salinas Pump Co.

(Person, firm, or corporation) (Typed or printed)

Address 324 Kings St.

City Salinas, Ca. Zip 93905

License No. 273053 Date of this report 9/25/85

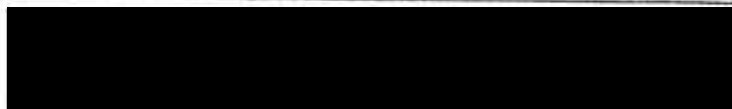
TRIPLICATE  
Owner's Copy

STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do not fill in  
No. 176635

Intent No. \_\_\_\_\_  
Well No. or Date \_\_\_\_\_

State Well No. 135/2E-32E5  
Other Well No. \_\_\_\_\_



1) LOCATION OF WELL (See instructions):  
County Monterey County Owner's Well Number \_\_\_\_\_  
Well address if different from above \_\_\_\_\_  
Township 13S Range 2E Section 32E  
Distance from cities, roads, railroads, fences, etc. \_\_\_\_\_  
1 mile northwest of Molera Rd., 1/2 mile north  
east in field

(3) TYPE OF WORK:  
New Well ☒ Deepening ☐  
Reconstruction ☐  
Reconditioning ☐  
Horizontal Well ☐  
Destruction ☐ (Describe destruction materials and procedures in Item 12)  
(4) PROPOSED USE:  
Domestic ☐  
Irrigation ☐  
Industrial ☐  
Test Well ☐  
Stock ☐  
Municipal ☐  
Other Observation

WELL LOCATION SKETCH

5) EQUIPMENT:  
Drillary ☒ direct Reverse ☐  
Pump ☐ Air ☐  
Bucket ☐  
(6) GRAVEL PACK:  
Yes ☒ No ☐  
Size Monterey sand 16  
Diameter of bore 15"  
Packed from \_\_\_\_\_ to \_\_\_\_\_ ft.

7) CASING INSTALLED:  
Steel ☒ Plastic ☐ Concrete ☐  
(8) PERFORATIONS: 6 5/8X1/4  
Type of perforation or size of screen well

From ft.	To ft.	Dia. in.	Cage or Wall	From ft.	To ft.	Slot size
0-	120	8-3/16		775	1585	050-065
20	123	8-6" reducer				
23	775	6"				

9) WELL SEAL: casing cont; 1585' - 1605' Plain  
Is surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 755 ft.  
Were strata sealed against pollution? Yes ☐ No ☐ Interval \_\_\_\_\_ ft.  
Method of sealing Cement

10) WATER LEVELS:  
Depth of first water, if known \_\_\_\_\_ ft.  
Standing level after well completion \_\_\_\_\_ ft.

11) WELL TESTS:  
Was well test made? Yes ☐ No ☐ If yes, by whom? \_\_\_\_\_  
Type of test Pump ☐ Bailor ☐ Air lift ☐  
Depth to water at start of test \_\_\_\_\_ ft. At end of test \_\_\_\_\_ ft.  
Flow rate \_\_\_\_\_ gal/min after \_\_\_\_\_ hours Water temperature \_\_\_\_\_  
Analysis made? Yes ☐ No ☐ If yes, by whom? \_\_\_\_\_  
Electric log made? Yes ☐ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth <u>1650</u> ft. Depth of completed well <u>1605</u> ft.		
from ft.	to ft.	Formation (Describe by color, character, size or material)
-0-	4	Black top soil
4	60	Sandy brown clay
60	70	Clay
70	90	Sand
90	115	Clay
115	140	Gravel & Sand
140	150	Clay
150	180	Sand
180	245	Sandy clay
245	290	Gravel (large) & sand mix
290	310	Clay
310	340	Sand & Gravel
340	410	Sandy clay
410	425	Sand & Gravel
425	440	Clay
440	485	Sand & Gravel
485	585	Sandy clay
585	595	Sand
595	780	Clay with sand streaks
780	800	Sand
800	960	Clay with occasional sand streaks
960	975	Sand
975	1105	Clay
1105	1115	Sand (cemented)
1115	1430	Clay with some sand streaks
1430	1460	Sand
1460	1470	Clay
1470	1530	Sand
1530	1540	Clay
1540	1570	Sand
1570	1650	Clay

Work started 8-10 1984 Completed 10-15 1984

WELL DRILLER'S STATEMENT:  
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.  
Signed \_\_\_\_\_ (Well Driller)  
NAME EATON DRILLING CO  
(Person, firm, or corporation) (Typed or printed)  
Address P.O. BOX 975  
City WOODLAND, CA. Zip 95695  
License No. 133783 C57 Date of this report 11-15-84



ORIGINAL

File with DWR

No. of Intent No. \_\_\_\_\_

L. Permit No. or Date \_\_\_\_\_

STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

CAVGL/MRRP

900'A.

Do not fill in

No. 225551

State Well No. 135/2E-32M2

Other Well No. \_\_\_\_\_

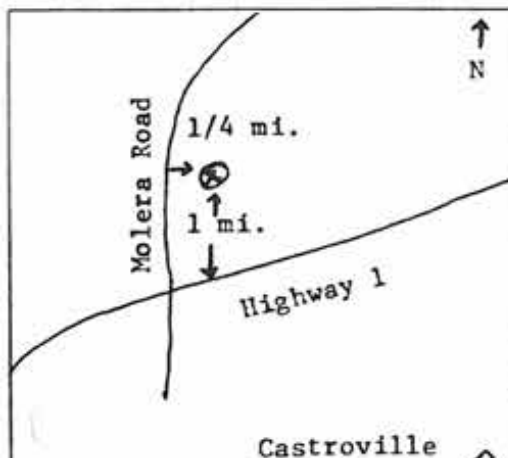
## (2) LOCATION OF WELL (See instructions):

County Monterey Owner's Well Number \_\_\_\_\_

Well address if different from above \_\_\_\_\_

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Distance from cities, roads, railroads, fences, etc. \_\_\_\_\_



WELL LOCATION SKETCH

## (3) TYPE OF WORK:

New Well ☒ Deepening ☐Reconstruction ☐Reconditioning ☐Horizontal Well ☐Destruction ☐ (Describe destruction materials and procedures in Item 12)

## (4) PROPOSED USE:

Domestic ☐Irrigation ☒Industrial ☐Test Well ☐Stock ☐Municipal ☐Other ☐

## (5) EQUIPMENT:

Rotary ☒ Reverse ☐Cable ☐ Air ☐Other ☐ Bucket ☐

## (6) GRAVEL PACK:

Yes ☒ No ☐ Size 24

Diameter of bore \_\_\_\_\_

Packed from 790 to 1630

## (7) CASING INSTALLED:

Steel ☐ Plastic ☐ Concrete ☐

From ft. To ft. Dia. in. Gauge or Wall

0 400 16 5/16

400 780 12 "

1590 1610 12 "

## (8) PERFORATIONS:

Type of perforation or size of screen

From ft. To ft. Size

780 1590 .060

## (9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 780' ft.Were strata sealed against pollution? Yes ☐ No ☐ Interval \_\_\_\_\_ ft.Method of sealing cement grout

## (10) WATER LEVELS:

Depth of first water, if known \_\_\_\_\_ ft.

Standing level after well completion 19' ft.

## (11) WELL TESTS:

Was well test made? Yes ☐ No ☐ If yes, by whom? \_\_\_\_\_Type of test Pump ☐ Bailor ☐ Air lift ☐From \_\_\_\_\_ to water at start of test 19 ft. At end of test 190 ft.Discharge 2260 gal/min after 3 hours Water temperature \_\_\_\_\_Chemical analysis made? Yes ☐ No ☒ If yes, by whom? \_\_\_\_\_Was electric log made? Yes ☒ No ☐ If yes, attach copy to this report(12) WELL LOG: Total depth \_\_\_\_\_ ft. Depth of completed well \_\_\_\_\_ ft.  
from ft. to ft. Formation (Describe by color, character, size or material)

0 - 75 Blue

75 - 90 Sand &amp; gravel

90 - 115 Blue Clay

115 - 120 Sand

120 - 124 Wood

124 - 145 Sand &amp; gravel

145 - 154 Blue clay

154 - 211 Sand &amp; gravel &amp; boulders

211 - 260 Clay -- brown, hard

260 - 289 Brown sandy clay

289 - 295 Cemented cobbles &amp; sand

295 - 308 Sticky tan &amp; gray clay

308 - 321 Sandy brown clay with some gravel

321 - 337 Blue clay &amp; shale, some br. clay

337 - 342 Cemented sand &amp; gravel

342 - 350 Brown sandy clay

350 - 362 Brown sticky clay

362 - 405 Brown sandy clay

405 - 490 Coarse sand

490 - 441 Sticky gray clay

441 - 540 Sand &amp; gravel, streaks white clay

540 - 570 Clay &amp; small gravel

570 - 620 Coarse sand

620 - 665 Reddish brown sandy clay

665 - 740 Tan &amp; gray sticky clay

740 - 760 Blue clay

760 - 765 Sticky gray clay

765 - 780 Tan clay

780 - 800 Sand &amp; gravel

800 - 847 Tan clay

847 - 962 Blue clay

962 - 980 Sand &amp; gravel

980 - 1020 Blue clay

1020 - 1050 Streaks of sand, gravel &amp; bl. clay

1050 - 1068 Sand &amp; gravel

1068 - 1102 Blue clay

1102 - 1150 Hard cemented sand &amp; gravel

1150 - 1160 Blue sandy clay

Work started \_\_\_\_\_ 19 \_\_\_\_\_ Completed \_\_\_\_\_ 19 \_\_\_\_\_

## WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signed Reginald E. Gutman (Well Driller)NAME Cofferdam Unwatering Corporation

(Person, firm, or corporation) (Typed or printed)

Address 3362 Fitzgerald RoadCity Rancho Cordova, California Zip 95670License No. 292555 Date of this report 12-5-84



No. 225552

State Well No. 135/2E-32M2

Other Well No.

If Intent No.

Permit No. or Date

WNER: Name

(12) WELL LOG: Total depth \_\_\_\_\_ ft. Depth of completed well \_\_\_\_\_ ft.

Address

from ft. to ft. Formation (Describe by color, character, size or material)

City \_\_\_\_\_ Zip \_\_\_\_\_

(2) LOCATION OF WELL (See instructions):

County \_\_\_\_\_ Owner's Well Number \_\_\_\_\_

Well address if different from above \_\_\_\_\_

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Distance from cities, roads, railroads, fences, etc. \_\_\_\_\_

## (3) TYPE OF WORK:

New Well ☐ Deepening ☐Reconstruction ☐Reconditioning ☐Horizontal Well ☐Destruction ☐ (Describe destruction materials and procedures in Item 12)

## (4) PROPOSED USE:

Domestic ☐Irrigation ☐Industrial ☐Test Well ☐Stock ☐Municipal ☐Other ☐

## WELL LOCATION SKETCH

## 5) EQUIPMENT:

Rotary ☐ Reverse ☐Table ☐ Air ☐Other ☐ Bucket ☐

## (6) GRAVEL PACK:

Yes ☐ No ☐ Size \_\_\_\_\_

Diameter of bore \_\_\_\_\_

Packed from \_\_\_\_\_ to \_\_\_\_\_

## 7) CASING INSTALLED:

Steel ☐ Plastic ☐ Concrete ☐

## (8) PERFORATIONS:

Type of perforation or size of screen \_\_\_\_\_

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size

## 9) WELL SEAL:

Was surface sanitary seal provided? Yes ☐ No ☐ If yes, to depth \_\_\_\_\_ ft.Were strata sealed against pollution? Yes ☐ No ☐ Interval \_\_\_\_\_ ft.

Method of sealing \_\_\_\_\_

## 10) WATER LEVELS:

Depth of first water, if known \_\_\_\_\_ ft.

Standing level after well completion \_\_\_\_\_ ft.

## 11) WELL TESTS:

Was well test made? Yes ☐ No ☐ If yes, by whom? \_\_\_\_\_Type of test Pump ☐ Baller ☐ Air lift ☐

To water at start of test \_\_\_\_\_ ft. At end of test \_\_\_\_\_ ft.

Rate \_\_\_\_\_ gal/min after \_\_\_\_\_ hours Water temperature \_\_\_\_\_

1. Chemical analysis made? Yes ☐ No ☐ If yes, by whom? \_\_\_\_\_2. Electric log made? Yes ☐ No ☐ If yes, attach copy to this report

3. IF ADDITIONAL SPACE IS NEEDED. USE NEXT CONSECUTIVELY NUMBERED FORM

Work started \_\_\_\_\_ 19\_\_\_\_ Completed \_\_\_\_\_ 19\_\_\_\_

## WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signed \_\_\_\_\_ (Well Driller)

NAME \_\_\_\_\_ (Person, firm, or corporation) (Typed or printed)

Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

License No. \_\_\_\_\_ Date of this report \_\_\_\_\_



ORIGINAL

File with DWR

STATE OF CALIFORNIA

THE RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do not fill in

No. 232071

State Well No. 13/02-34M  
Other Well No. 135/2E-34M

Permit No. or Date W-2189

(1) OWNER: N

Address

City

(2) LOCATION OF WELL (See instructions):

County Monterey

Owner's Well Number 30-262-05

Well address if different from above

Township Range Section

Distance from cities, roads, railroads, fences, etc.

Corner of Railroad Ave &amp; Hwy 183

## (3) TYPE OF WORK:

New Well ☒ Deepening ☐Reconstruction ☐Reconditioning ☐Horizontal Well ☐Destruction ☐ (Describe destruction materials and procedures in Item 12)

## (4) PROPOSED USE:

Domestic ☐Irrigation ☐Industrial ☐Test Well ☐Stock ☐Municipal ☐Other ☐(12) WELL LOG: Total depth 645 ft. Depth of completed well 630 ft.  
from ft. to ft. Formation (Describe by color, character, size or material)

0 - 5 Clay

5 - 80 Sand

80 - 85 Blue Clay &amp; Shells

85 - 115 Coarse Sand

115 - 175 Coarse Sand &amp; Clay

175 - 325 Coarse Sand

325 - 370 Coarse Sand &amp; Gray Clay

370 - 490 Gravel

490 - 505 Gravel &amp; Clay

505 - 535 Brown Clay

535 - 565 Gravel

565 - 580 Clay

580 - 595 Sand

595 - 625 Sand, Gravel &amp; Clay

625 - 645 Sand &amp; Clay

Test Hole Portion Continued

645 - 655 Sand

655 - 670 Blue Clay &amp; Coarse Sand

670 - 685 Clay &amp; Gravel

685 - 715 Brown Clay

715 - 735 Gravel &amp; Clay

735 - 760 Brown Clay

760 - 880 Blue Clay &amp; Gravel

880 - 910 Blue Clay &amp; Sand

910 - 955 Sandy Clay

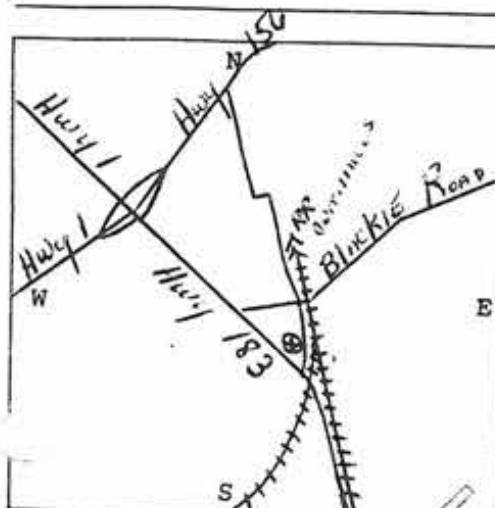
955 - 965 Hard Sandstone

965 - 970 Blue Clay &amp; Sand

970 - 985 Brown &amp; Blue Sand

985 - 1000 Brown Clay, Hard Rock &amp; Sand

1000 - 1060 Brown Sandy Clay &amp; Hard Rock



WELL LOCATION SKETCH

## (5) EQUIPMENT:

Rotary ☒Reverse ☒Cable ☐Air ☐Other ☐Bucket ☐

## (7) CASING INSTALLED:

Steel ☒Plastic ☐Concrete ☐

## (6) GRAVEL PACK:

Yes ☒No ☐

Size #8 Sand

Diameter of bore 28"

Packed from 350 to 630 ft.

## (8) PERFORATIONS:

Stainless Steel Type 304

Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage of Wall	From ft.	To ft.	Slot size
0	60	30	.281			
0	370	16	.312	370	450	.50
450	510	16	.312	570	570	.50
570	590	16	.312	590	610	.50
610	630	16	.312			

## (9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 60 ft.Were struts sealed against pollution? Yes ☒ No ☐ Interval 0-350 ft.

Method of sealing Pumped Grout Seal

## (10) WATER LEVELS:

Depth of first water, if known ft.

Standing level after well completion ft.

## (11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? Maggiora BrosType of test Pump ☒ Bailer ☐ Air lift ☐

See Attached Report

Depth to water at start of test ft. At end of test ft.

Flow rate gal/min after hours Water temperature

Flow analysis made? Yes ☒ No ☐ If yes, by whom? Soil ControlElectric log made? Yes ☒ No ☐ If yes, attach copy to this report

Work started 6-28 1982 Completed 7-9 1982

## WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED [Signature] (Well Driller)

NAME Maggiora Bros. Drilling, Inc.

(Person, firm, or corporation) (Typed or printed)

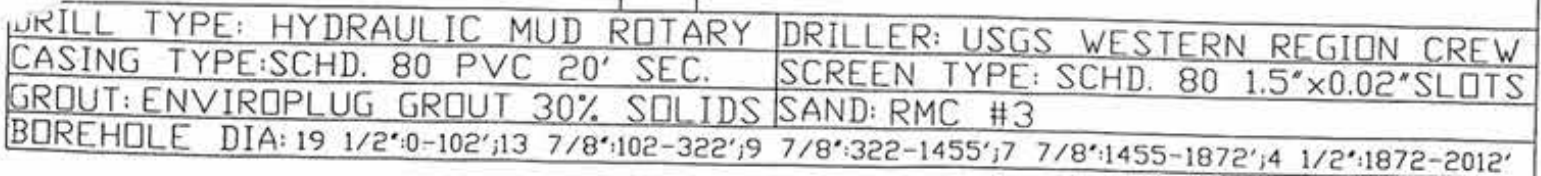
Address 595 Airport Boulevard

City Watsonville, CA Zip 95076

License No. C-57-249957 Date of this report Sept. 29, 1982



OWNER:





DWR USE ONLY - DO NOT FILL IN

14S/01E-24L03

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

14S/01E-24L03

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION ( $\angle$ )			X		VERTICAL		HORIZONTAL		ANGLE		(SPECIFY)	
DEPTH FROM SURFACE			DRILLING METHOD		Hydraulic Mud Rotary		FLUID		Bentonite Mud		DESCRIPTION	
Ft. to Ft.			Describe material, grain size, color, etc.									
0	90		Dune sand, coarse to very coarse with some finer snads									
90	170		Gravelly sand, C to VC sand and gravels									
170	190		Clayey VF sand with silt									
190	230		Gravelly sand, C to VC sand and gravels									
230	270		Sandy clayey silt									
270	330		Gravelly sand, C to VC sand and gravels with some silt									
330	380		Sandy clayey silt									
380	440		Sand, C to VC									
440	540		Sands, fine sand with silt and medium to VC sand									
540	570		Clayey VF sand with silt									
570	630		Partially cemented sands									
630	660		Silt									
660	680		Granulas of fine cemented sands									
680	700		Gravally VC sands									
700	900		Silty clays and shales									
900	970		Interbedded silts, clays and fine sands									
970	1040		Silty clays with shell fragments									
1040	1080		Sandy silt									
1080	1120		Shale with some clays and shell fragments									
1120	1370		Interbedded silts, clays and fine sands									
1370	1700		Shales/Clays									
1700	1800		Bedded sands, VC to fine sand, some partially cemented									
1800	1820		Gravelly, silty clay									
1820	1880		Gravels and shale fragments									
1880	2000		Shale fragments									
2000	core		Very fine sands									
TOTAL DEPTH OF BORING			2012 (Feet)									
TOTAL DEPTH OF COMPLETED WELL			1420 (Feet)									

WELL OWNER [REDACTED]

Address [REDACTED] Reservation Road

City Marina

County Monterey

APN Book [REDACTED] Page [REDACTED] Parcel [REDACTED]

Township 14S Range 01E Section 24K

Latitude 36 41 57 NORTH Longitude 121 48 28 WEST

DEG. MIN. SEC. DEG. MIN. SEC.

LOCATION SKETCH

(NOT TO SCALE)

Marina State Beach

Reservation Rd.

Highway 1

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY ( )

X NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES ( )

WATER SUPPLY

Domestic Public

Irrigation Industrial

MONITORING X

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL (Ft.) & DATE MEASURED

ESTIMATED YIELD \* (GPM) & TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)		CASING (S)					DEPTH FROM SURFACE			ANNULAR MATERIAL			
Ft. to Ft.					TYPE ( )					Ft. to Ft.			TYPE			
					BLANK	SCREEN	CON. DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	CE-MENT ( )	BEN-TONITE ( )	FILL ( )	FILTER PACK (TYPE/SIZE)
0'	1455'	9.88"														
1455'	1872'	7.88"														
1872'	2012'	4.5"														
0	1410				X				PVC		schd 80				X	RMC#3, coarse aqr.
1410	1420					X			PVC	2"	schd 80	0.020 x 1.2			X	RMC#3, coarse aqr.
					X				PVC		schd 80			X	X	RMC#3, coarse aqr.
																RMC #3
														X		

ATTACHMENTS ( )

- X Geologic Log
- X Well Construction Diagram
- X Geophysical Log(s)
- X Soil/Water Chemical Analyses
- X Other On File @ USGS San Diego

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME United States Geological Survey (858) 637-9005  
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

5735 Kearny Villa Rd, Suite O

San Diego

CA

92123

ADDRESS

CITY

STATE

ZIP

Signed

6/23/00

WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED

C-57 LICENSE NUMBER

14S/01E-24L03

14S/01E-24L03

SITE I.D.: 3641571214828

COMPLETION DATE: 6/8/2000

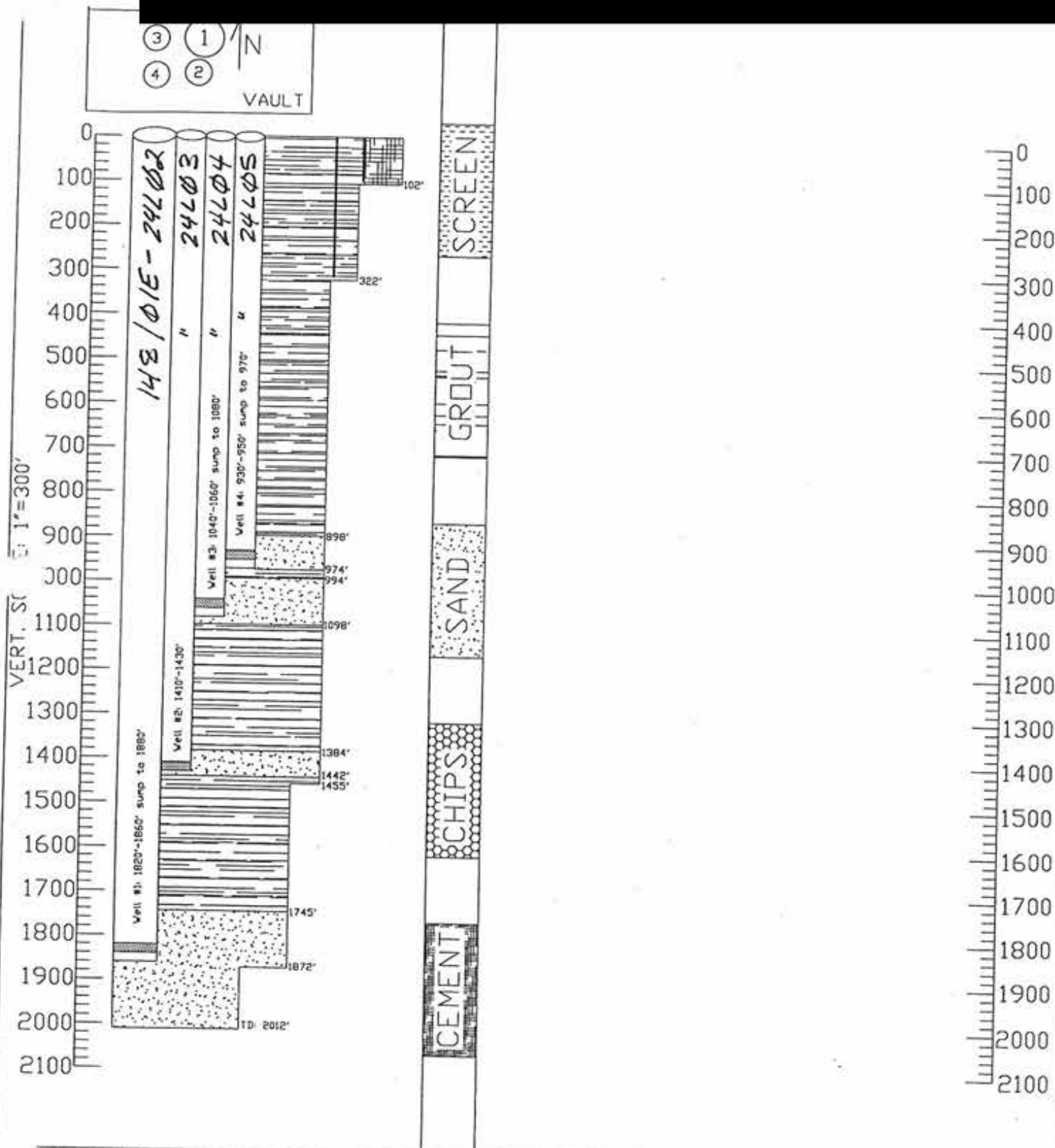
STATION NAME: 14S/01E-24K

TOTAL DEPTH: 2012'

USGS SITE: [REDACTED]

WELL FINISH: VAULT

OWNER: [REDACTED]



DRILL TYPE: HYDRAULIC MUD ROTARY	DRILLER: USGS WESTERN REGION CREW
CASING TYPE: SCHD. 80 PVC 20' SEC.	SCREEN TYPE: SCHD. 80 1.5"x0.02" SLOTS
GROUT: ENVIROPLUG GROUT 30% SOLIDS	SAND: RMC #3
BOREHOLE DIA: 19 1/2": 0-102'; 13 7/8": 102-322'; 9 7/8": 322-1455'; 7 7/8": 1455-1872'; 4 1/2": 1872-2012'	





SITE I.D.: 3641571214828

14S/01E-24L04  
COMPLETION DATE: 6/8/2000

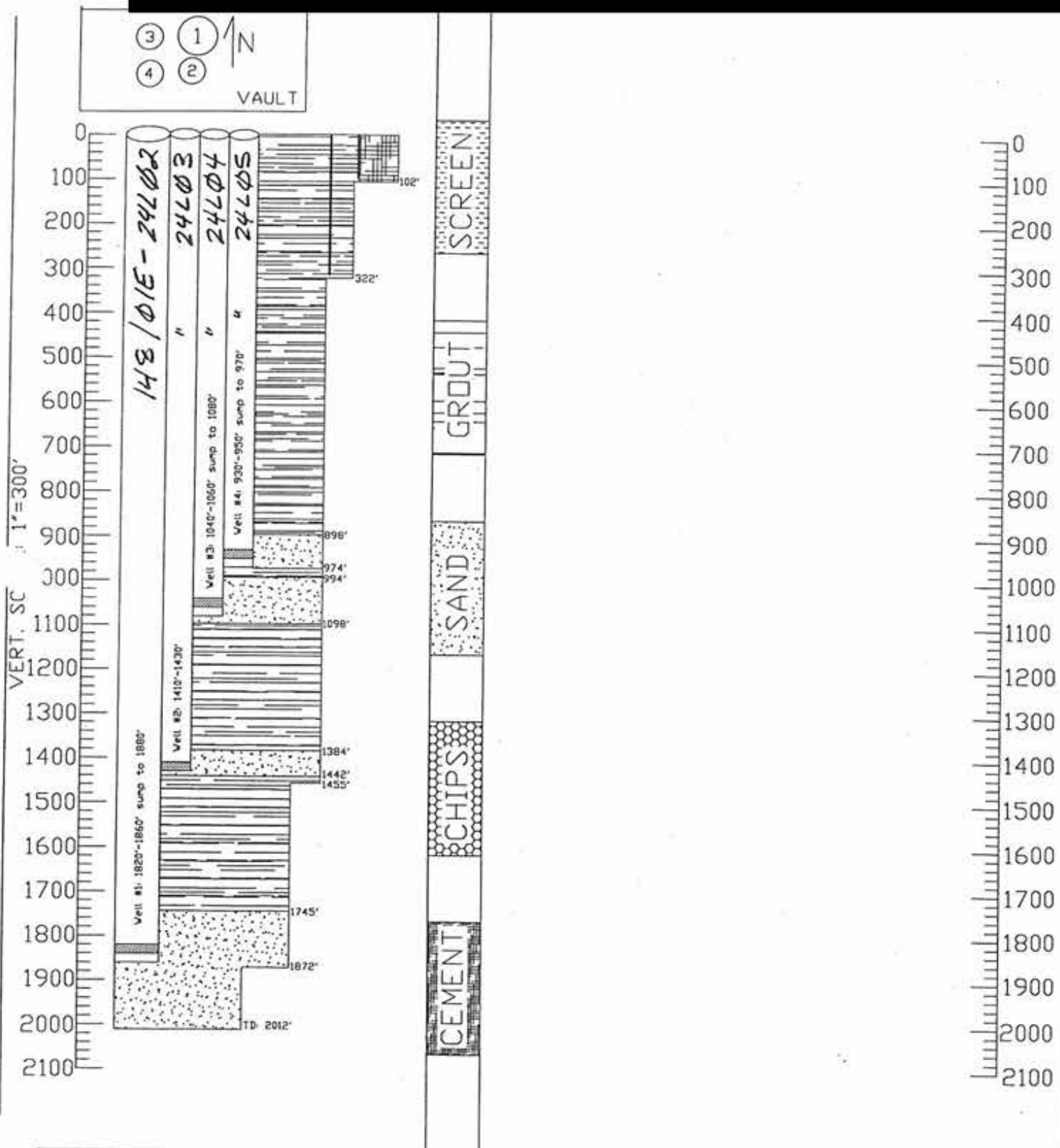
STATION NAME: 14S/01E-24K

TOTAL DEPTH: 2012'

USGS SITE: [REDACTED]

WELL FINISH: VAULT

OWNER: [REDACTED]



DRILL TYPE: HYDRAULIC MUD ROTARY

DRILLER: USGS WESTERN REGION CREW

CASING TYPE: SCHED. 80 PVC 20' SEC.

SCREEN TYPE: SCHED. 80 1.5"x0.02" SLOTS

GROUT: ENVIROPLUG GROUT 30% SOLIDS

SAND: RMC #3

BOREHOLE DIA: 19 1/2": 0-102'; 13 7/8": 102-322'; 9 7/8": 322-1455'; 7 7/8": 1455-1872'; 4 1/2": 1872-2012'

DWR USE ONLY - DO NOT FILL IN

14S/01E-24L05

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

14S/01E-24L05

APN/TRS/OTHER

**GEOLOGIC LOG**

ORIENTATION ( ) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)

DRILLING METHOD Hydraulic Mud Rotary FLUID Bentonite Mud

DEPTH FROM SURFACE

FL	to	FL	DESCRIPTION
0	90		Dune sand, coarse to very coarse with some finer snads
90	170		Gravelly sand, C to VC sand and gravels
170	190		Clayey VF sand with silt
190	230		Gravelly sand, C to VC sand and gravels
230	270		Sandy clayey silt
270	330		Gravelly sand, C to VC sand and gravels with some silt
330	380		Sandy clayey silt
380	440		Sand, C to VC
440	540		Sands, fine sand with silt and medium to VC sand
540	570		Clayey VF sand with silt
570	630		Partially cemented sands
630	660		Silt
660	680		Granulas of fine cemented sands
680	700		Gravally VC sands
700	900		Silty clays and shales
900	970		Interbedded silts, clays and fine sands
970	1040		Silty clays with shell fragments
1040	1080		Sandy silt
1080	1120		Shale with some clays and shell fragments
1120	1370		Interbedded silts, clays and fine sands
1370	1700		Shales/Clays
1700	1800		Bedded sands, VC to fine sand, some partially cemented
1800	1820		Gravelly, silty clay
1820	1880		Gravels and shale fragments
1880	2000		Shale fragments
2000	core		Very fine sands

TOTAL DEPTH OF BORING 2012 (Feet)

TOTAL DEPTH OF COMPLETED WELL 470 (Feet)

**WELL LOCATION**

Address 11 Reservation Road

City Marina

County Monterey

APN Book 14S Page 01E Parcel 24K

Township 36 Range 41 Section 57

Latitude 36 41 57 NORTH Longitude 121 48 28 WEST

DEG. MIN. SEC. DEG. MIN. SEC.

**LOCATION SKETCH**

(NOT TO SCALE)

**ACTIVITY ( )**

☒ NEW WELL

MODIFICATION/REPAIR

☐ Deepen

☐ Other (Specify)

**DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")**

**PLANNED USES ( )**

WATER SUPPLY

☐ Domestic ☐ Public

☐ Irrigation ☐ Industrial

**MONITORING**

☒ TEST WELL

☐ CATHODIC PROTECTION

☐ HEAT EXCHANGE

☐ DIRECT PUSH

☐ INJECTION

☐ VAPOR EXTRACTION

☐ SPARGING

☐ REMEDIATION

☐ OTHER (SPECIFY)

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER (FL) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL (FL) & DATE MEASURED

ESTIMATED YIELD \* (GPM) & TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN (FL)

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE	BORE-HOLE DIA. (Inches)	CASING (S)					
		TYPE ( )				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)
FL	to	FL	BLANK	SCREEN	CONDUCTOR		
0'	1455'	9.88"					
1455'	1872'	7.88"					
1872'	2012'	4.5"					
0	1450		X			PVC	schd 80
1450	1750			X		PVC	2" schd 80
1750	470		X			PVC	schd 80

DEPTH FROM SURFACE	ANNULAR MATERIAL			
	TYPE			
FL	to	FL	CE-MENT ( )	BEN-TONITE ( )
2012'	1745'			X
1442'	1384'			X
1098'	994'			X
974'	898'			X
All other depths				X

**ATTACHMENTS ( )**

☒ Geologic Log

☒ Well Construction Diagram

☒ Geophysical Log(s)

☒ Soil/Water Chemical Analyses

☒ Other On File @ USGS San Diego

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME United States Geological Survey (858) 637-9005

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

5735 Kearny Villa Rd, Suite O San Diego CA 92123

ADDRESS CITY STATE ZIP

Signed [Signature] DATE SIGNED 6/23/00

WELL DRILLER/AUTHORIZED REPRESENTATIVE C-57 LICENSE NUMBER

SITE I.D.: 3641571214828

148 / 01E - 24L05

COMPLETION DATE: 6/8/2001

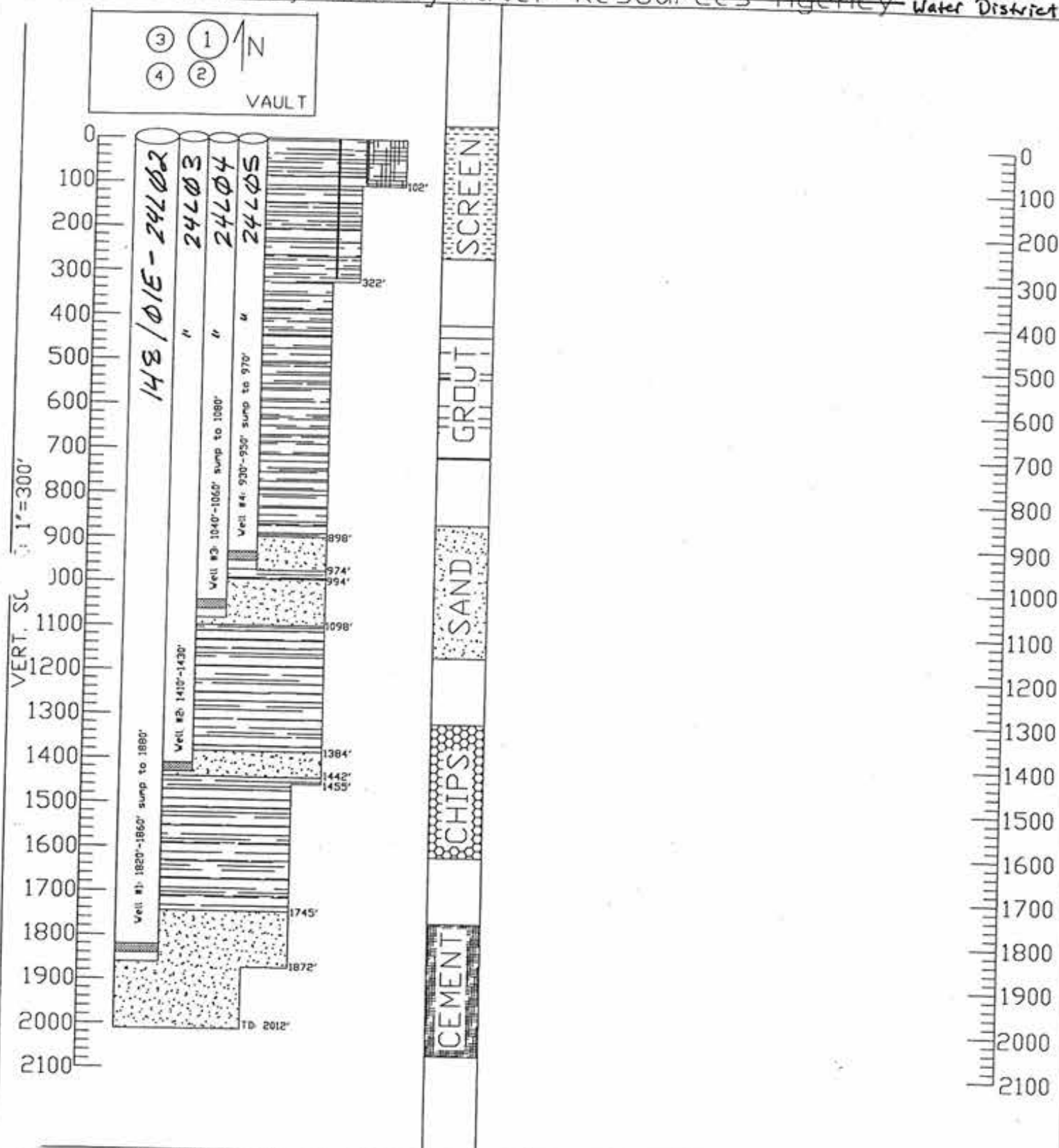
STATION NAME: 14S/01E-24K

TOTAL DEPTH: 2012'

USGS SITE: MCWD-1

WELL FINISH: VAULT

OWNER: Monterey County Water Resources Agency Marina Coast Water District



DRILL TYPE: HYDRAULIC MUD ROTARY	DRILLER: USGS WESTERN REGION CREW
CASING TYPE: SCHD. 80 PVC 20' SEC.	SCREEN TYPE: SCHD. 80 1.5"x0.02" SLOTS
GROUT: ENVIROPLUG GROUT 30% SOLIDS	SAND: RMC #3
BOREHOLE DIA: 19 1/2": 0-102'; 13 7/8": 102-322'; 9 7/8": 322-1455'; 7 7/8": 1455-1872'; 4 1/2": 1872-2012'	



STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do Not Fill In

No 141763

State Well No. 145 ZE-661

Other Well No. P-960

(1) OWNER:

(2) LOCATION OF WELL:

County Monterey Owner's number, if any

Township, Range, and Section Mulligan Hill

Distance from cities, roads, railroads, etc. See attached map

(3) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Destroying ☐

If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☐

Irrigation ☐ Test Well ☐ Other ☒

(5) EQUIPMENT:

Rotary ☒

Cable ☐

Other ☐

(6) CASING INSTALLED:

STEEL: OTHER:

SINGLE ☒ DOUBLE ☐

If gravel packed

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	From ft.	To ft.
0	600	16	3/8	28-1/2	0	600
600	603	16	2 reducer	26	600	603
603	1563	12	3/8	26	603	1563

Size of shoe or well ring:

Describe joint

Weld

Size of gravel:

Spec sand

(7) PERFORATIONS OR SCREEN:

Type of perforation or name of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
860	1540			3/32 Horz.
				Lowvre Full
				Flo

(8) CONSTRUCTION:

Was a surface sanitary seal provided? Yes ☒ No ☐ To what depth 800 ft.

Were any strata sealed against pollution? Yes ☒ No ☐ If yes, note depth of strata

From ft. to ft.

From ft. to ft.

Method of sealing Concrete and 30" steel conductor

(9) WATER LEVELS:

Depth at which water was first found, if known ft. 100

Standing level before perforating, if known ft.

Standing level after perforating and developing ft.

(10) WELL TESTS:

Was pump test made? Yes ☐ No ☐ If yes, by whom?

2100 gal./min. with ft. drawdown after hrs.

Temperature of water Was a chemical analysis made? Yes ☐ No ☐

Was electric log made of well? Yes ☒ No ☐ If yes, attach copy

(11) WELL LOG:

Total depth 1809 ft. Depth of completed well 1560 ft.

Formation: Describe by color, character, size of material, and structure

0 ft. to 6 Top Soil ft.

6 - 15 Blue sandy clay  
15 - 32 Fine blue sand  
32 - 60 Blue clay w/sea shell  
60 - 75 Blue soft sand  
75 - 100 Blue clay  
100 - 184 Blue clay & sand streak  
184 - 278 Coarse sand & gravel  
278 - 300 Yellow Clay  
300 - 330 Blue clay  
330 - 360 Coarse yellow sand, streak of clay  
360 - 434 Yellow clay, streaks blue & brown shale  
434 - 440 Yellow clay, streaks blue & brown shale  
440 - 490 White coarse sand  
490 - 528 Blue clay  
528 - 590 Sand & gravel, streak clay  
590 - 610 Yellow Clay  
610 - 621 Sand & gravel  
621 - 715 Yellow clay w/streak of sand  
715 - 747 Yellow clay w/streak gravel  
747 - 778 Yellow clay w/streak gravel  
778 - 795 yellow clay w/streak gravel blue clay  
795 - 840 Yellow clay w/streak gravel blue clay  
840 - 872 Blue clay  
872 - 903 Blue clay  
903 - 934 Brown clay  
934 - 965 Hard brown clay & shale  
965 - 997 Hard brown clay & shale  
997 - 1028 Hard brown clay & shale  
1028 - 1059 Blue clay  
1059 - 1090 Blue & brown clay

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Salinas Pump Co.  
(Person, firm or corporation) (Typed or printed)

Address 1128 Madison Lane  
Salinas, Ca. 93901

[SIGNED] Arthur Thornton  
(Well Driller)

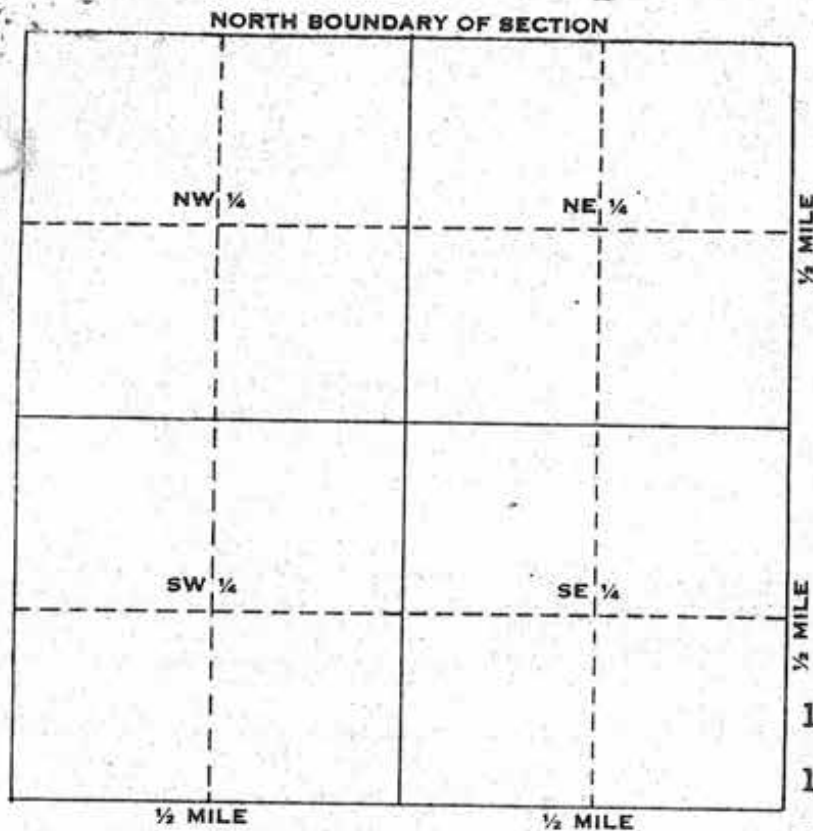
License No. 273053 Dated \_\_\_\_\_, 19\_\_

SKETCH LOCATION OF WELL ON REVERSE SIDE

OVER  
CONTINUED ON BACK

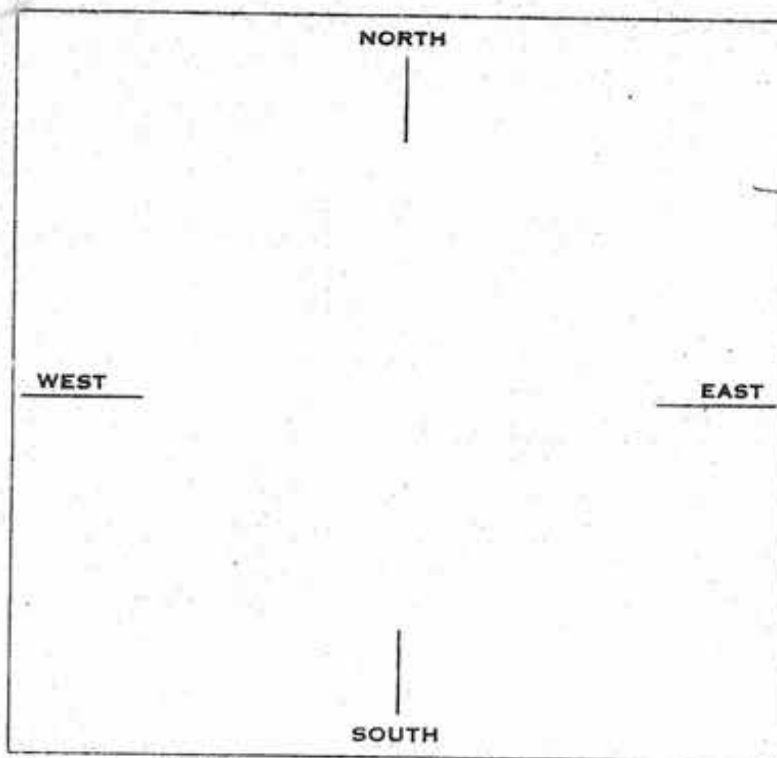


145/ZE-6L

Township 14 N/SRange 2 E/WSection No. 621

A. Location of well in sectionized areas.  
Sketch roads, railroads, streams, or other features as necessary.

1090'	-	1122'	Blue & brown shaley clay
1122'	-	1153'	Blue & brown shaley clay
1153'	-	1184'	Blue shaley clay with streak hard sandstone
1184'	-	1247'	Blue shale streak sand
1247'	-	1300'	Blue clay, streak sand
1300'	-	1340'	Blue clay streak sand
1340'	-	1372'	blue clay & shale
1372'	-	1403'	Blue clay, strk gravel & sand
1403'	-	1435'	Strk gravel & sand
1435'	-	1466'	Strk gravel & sand
1466'	-	1498'	Strk gravel & sand
1498'	-	1529'	Strk gravel & sand
1529'	-	1561'	Strk gravel & sand 1540'
1561'	-	1592'	Strk gravel & sand
1592'	-	1600'	Strk gravel & sand
1600'	-	1630'	Blue clay
1630'	-	1645'	Blue clay & sand
1645'	-	1660'	Brown clay & Blue clay
1660'	-	1675'	Shale, blue clay
1675'	-	1690'	Shale, blue clay
1690'	-	1705'	Brown clay, blue clay
1705'	-	1720'	Brown clay, sand streak
1720'	-	1735'	Blue clay
1735'	-	1750'	Blue clay
1750'	-	1809'	Blue shale



B. Location of well in areas not sectionized.  
Sketch roads, railroads, streams, or other features as necessary.  
Indicate distances.

8317243228

F.C. #22755

MAGGIORA BROS

PAGE 02

STATE OF CALIFORNIA  
WELL COMPLETION REPORT

STATE OF CALIFORNIA  
COMPLETION F  
Refer to Instruction Pamphlet

No. 0911505

Owner's Well No. 11155-1

Date Work Began 1/17/2008 Ended 5/11/2008

Local Permit Agency MONTEREY CO. ENV. HEALTH DEPT

Permit No. 04-09527

Permit Date 12/8/2004

## GEOLOGIC LOG

☒ WELL OWNER

PRESSURE-DEEP

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

WELL LOCATION  
Address 315 NEPOKSET ROAD

CITY MARINA

County MONTEREY

APN Book 229 Page 011 Parcel GOS

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Lat \_\_\_\_\_ N Long \_\_\_\_\_ W

DEC MIN SEC

LOCATION SKETCH NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Purses, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)  
☒ NEW WELL  
☐ MODIFICATION/REPAIR  
    ☐ Deepen  
    ☐ Other (Specify) \_\_\_\_\_  
☐ DESTROY (Describe Procedure and Materials Under "GEOLOGIC LOG")

USES (✓)  
WATER SUPPLY  
    ☐ Domestic     ☒ Public  
    ☐ Irrigation   ☒ Industrial

MONITORING \_\_\_\_\_  
TEST WELL \_\_\_\_\_  
CATHODIC PROTECTION \_\_\_\_\_  
HEAT EXCHANGE \_\_\_\_\_  
DIRECT PUSH \_\_\_\_\_  
INJECTION \_\_\_\_\_  
VAPOR EXTRACTION \_\_\_\_\_  
SPARGING \_\_\_\_\_  
REMEDIATION \_\_\_\_\_  
OTHER (SPECIFY) \_\_\_\_\_

## WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER \_\_\_\_\_ (FL) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 25.5 (F) & DATE MEASURED 05-11-05

ESTIMATED YIELD : 700 IGPM @ TEST TYPE PUMP

TEST LENGTH <sup>4</sup> (H<sub>2</sub>) TOTAL DRAWDOWN 112.2

\* May not be representative of a well's long-term yield.

[illegible]

## ATTACHMENTS (2)

- ☒ Geologic Log
- ☒ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other \_\_\_\_\_

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME MAGGICRA BROS. DRILLING INC

(PERSON, FIRM, OR CORPORATION) TYPED OR PRINTED

595 AIRPORT BLVD WATSONVILLE, CA 95076

NO OR EXT

Signed James T. Root

**2**

—

100

0-

249357



06/27/2005 09:06 8317243228

MAGGIORA BROS

PAGE 02

**QUADRUPPLICATE**  
**For Local Requirements**STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction PamphletPage 1 of 1Owner's Well No. 41155-1No. **0911505**Date Work Began 1/17/2005 Ended 5/11/2005Local Permit Agency MONTEREY CO. ENV. HEALTH DEPT.Permit No. 04-09527Permit Date 12/8/2004

DWR USE ONLY - DO NOT FILL IN

1.415/0121E-1017103

STATE WELL REGISTRATION NO.

LATITUDE LONGITUDE

1.415/0121E-1017103

APN/RS/OTHER

WELL OWNER

PRESSURE-DEEP**GEOLOGIC LOG**ORIENTATION ( ) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)  
DRILLING METHOD MUD ROTARY FLUID WATER/BRINEDEPTH FROM SURFACE  
Fe. to Fe.**DESCRIPTION**

Describe material, grain size, color, etc.

0	0.5	ASPHALT & BASE ROCK
0.5	20	BRN SAND
20	80	BRN SANDY CLAY
80	210	SAND & GRAVEL
210	240	GRAVEL
240	270	GRAY CLAY & GRAVEL
270	300	GRAY CLAY
300	390	SANDY CLAY & GRAVEL
390	420	SAND & GRAVEL
420	430	SAND
430	510	SAND & GRAVEL
510	570	SANDY CLAY
570	630	SAND
630	860	SAND & GRAVEL
860	840	SANDY CLAY
840	800	CLAY
800	930	SANDY CLAY
930	1020	CLAY
1020	1200	CLAY & GRAVEL
1200	1290	SAND & CLAY
1290	1380	CLAY
1380	1410	SANDY CLAY
1410	1440	CLAY
1440	1595	SAND & CLAY

TOTAL DEPTH OF BORING 1595 (Feet)TOTAL DEPTH OF COMPLETED WELL 1573 (Feet)

WELL LOCATION

Address 315 NEPOMSETT ROAD

City MONTEREY

County MONTEREY

APN Book 229 Page 011 Parcel 005

Township 4 Range 1 Section 1

Lat. 36 DEG. 50 MIN. 00 SEC. Long. 120 DEG. 50 MIN. 00 SEC.

LOCATION SKETCH

NORTH

WEST

SOUTH

Diagram or Describe Distance of Well from Roads, Buildings, Fences, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY ( )

☒ NEW WELL

MODIFICATION/REPAIR

☐ Enlarge

☐ Other (Specify)

DESTROY (Describe Procedure and Materials Under GEOLOGIC LOG)

USES ( )

WATER SUPPLY

☐ Domestic ☒ Public

☐ Irrigation ☒ Industrial

MONITORING

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)

**WATER LEVEL & YIELD OF COMPLETED WELL**DEPTH TO FIRST WATER 25.5 (Fe.) BELOW SURFACEDEPTH OF STATIO WATER LEVEL 25.5 (Fe.) & DATE MEASURED 05-11-05ESTIMATED YIELD 700 (GPM) & TEST TYPE PUMPTEST LENGTH 4 (Hrs.) TOTAL DRAWDOWN 132.2

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE	BORE- HOLE DIA. (Inches)	CASING (S)					DEPTH FROM SURFACE	ANNULAR MATERIAL						
		TYPE (S)				MATERIAL / GRADE		INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE			
		BLANK	SCREEN	COPE	DUCTOR						FILL TYPE	CE- MENT (≤)	BEN- TONITE (≤)	FILL (≤)
Fe. to Fe.								Fe. to Fe.						
SEE ATTACHED								0	1380	XX			10 mesh	
								1380	1595		XX		8 x 16	

**ATTACHMENTS ( )**

- ☐ Geologic Log
- ☒ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME MAGGIORA BROS. DRILLING, INC.

(PERSON, FIRM, OR CORPORATION) (TYPE OR PRINTED)

ADDRESS 595 AIRPORT BLVD. WATSONVILLE, CA 95076

CITY

STATE

ZIP

Signed

DATE SIGNED 6-14-05

DATE SIGNED

C-37 LICENSE NUMBER 249057

Copy to KR 6-28-05

05/23/2005 16:01 8317243228

MAGGIORA BROS

145/2E-07543

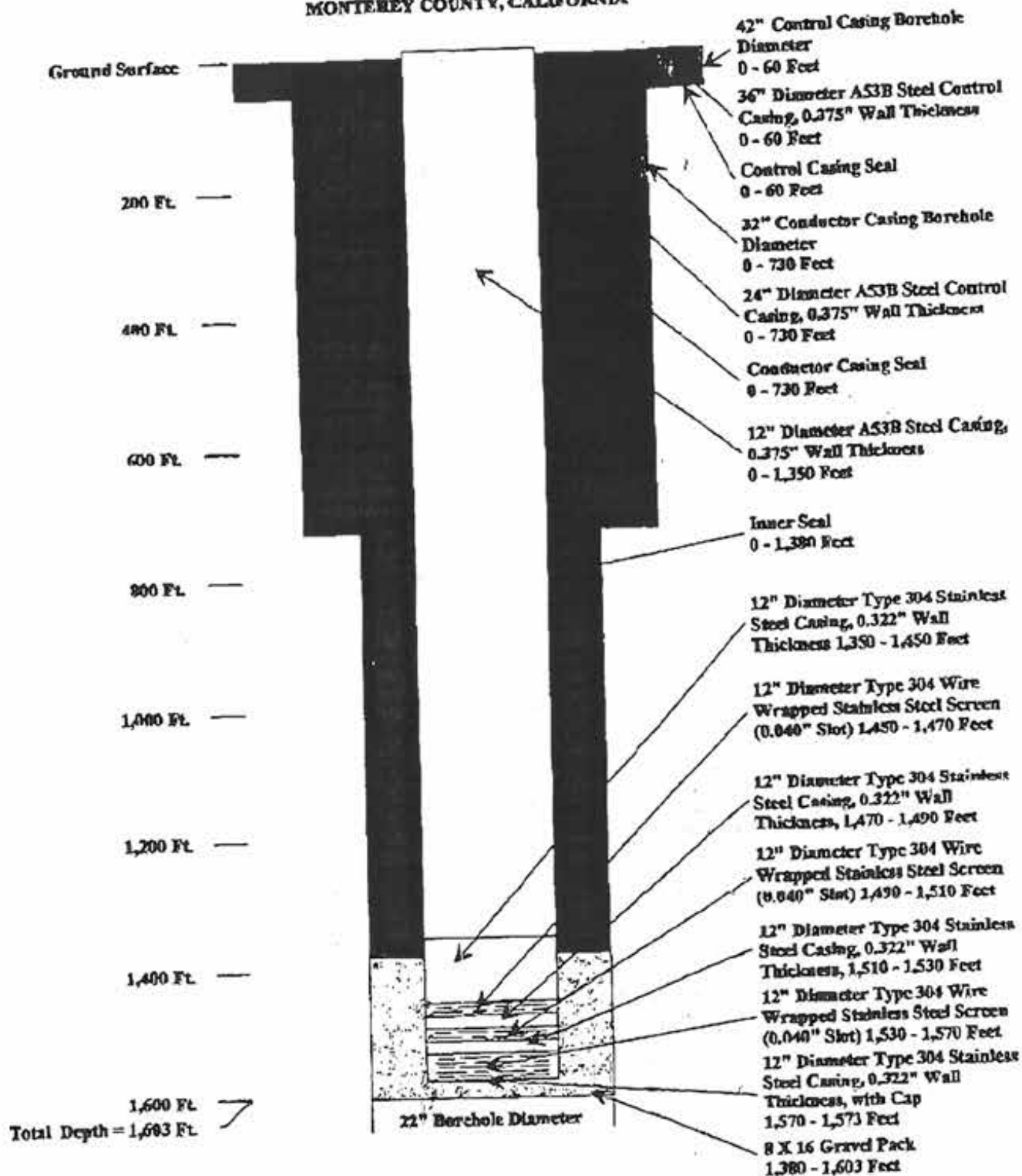
PAGE 02

002

03/14/05 14:05 FAX 408-53 2543

Geoconsultants

# PROPOSED WELL CONSTRUCTION DIAGRAM [REDACTED] MONTEREY COUNTY, CALIFORNIA



GEOCONSULTANTS, INC.  
 G1431-01A 03/05 FIGURE 1

14/2-18E1

ORIGINAL

File with DWR

STATE OF CALIFORNIA  
THE RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES  
WATER CODE Sec. 13 WATER WELL DRILLERS REPORT

Do Not Fill In

No 121665

State Well No. 145/2E-18E1

Other Well No.



(2) LOCATION OF WELL:

County Monterey Owner's number, if any  
Township, Range, and Section Between Marina & Castroville  
Distance from cities, roads, railroads, etc. off Lapis Road

(3) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Destroying ☐  
If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☐  
Irrigation ☒ Test Well ☐ Other ☐

(5) EQUIPMENT:

Rotary ☒  
Cable ☐  
Other ☐

(6) CASING INSTALLED:

STEEL: OTHER:  
SINGLE ☒ DOUBLE ☐

If gravel packed

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	From ft.	To ft.
303	306	14"	1/4"	26	300	370
306	870	12"	1/4"			

Size of shoe or well ring: Size of gravel: 1/4 pea

Describe joint: welded

(7) PERFORATIONS OR SCREEN:

Type of perforation or name of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
666	834	8	4 1/2	1/8" std louvre

(8) CONSTRUCTION:

Was a surface sanitary seal provided? Yes ☒ No ☐ To what depth: 300 ft.

Were any strata sealed against pollution? Yes ☒ No ☐ If yes, note depth of strata

From 0 ft. to 300 ft.

From ft. to ft.

Method of sealing: concrete

(9) WATER LEVELS:

Depth at which water was first found, if known ft.

Standing level before perforating, if known ft.

Standing level after perforating and developing ft.

(10) WELL TESTS: to be tested

Is pump test made? Yes ☐ No ☒ If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

Temperature of water Was a chemical analysis made? Yes ☐ No ☒

Was electric log made of well? Yes ☐ No ☐ If yes, attach copy

(11) WELL LOG:

Total depth	ft.	Depth of completed well	ft.
0	75	870	
Formation: Describe by color, character, size of material, and structure			
0	75	100	fine sand
75	100	125	coarse gravel
100	125	150	gravel-streaks clay
125	150	175	clay rock
150	175	200	coarse gravel
175	200	225	fine sand streak clay
200	225	250	fine sand streak clay
225	250	275	gravel
250	275	300	fine sand - streak clay
275	300	325	white sand
300	325	350	sand-clay streaks
325	350	375	sand
350	375	400	fine sand
375	400	425	sand gravel
400	425	450	sand gravel
425	450	475	sand streaks clay
450	475	500	coarse gravel-clay
475	500	525	sand clay
500	525	550	sand clay
525	550	575	sandy clay
550	575	600	fine sand clay
575	600	625	sand
600	625	650	Red clay gravel
625	650	675	yellow clay
650	675	700	yellow clay
675	700	725	fine gravel
700	725	750	coarse gravel
725	750	775	coarse gravel
750	775	800	fine gravel
775	800	825	coarse gravel
800	825	850	coarse gravel
825	850	875	yellow clay
850	875	900	yellow clay
875	900	913	yellow clay

Work started 7-2-74 19 Completed 7-5-74 19

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Salinas Pump Co.,

(Person, firm, or corporation) (Typed or printed)  
Address 1128 Madison Lane, Salinas, Ca. 93901

[SIGNED] *Salinas Pump Co.*  
(Well Driller)

License No. 273053 Dated 7-15-74 19

SKETCH LOCATION OF WELL ON REVERSE SIDE



DUPLICATE

Driller's Copy

Page 1 of 2

Owner's Well No. 701471

Date Work Began 06/18/97

Local Permit Agency

Permit No. 97-067

Permit Date 04/07/97

GEOLOGIC LOG

STATE OF CALIFORNIA

## WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No.

419777

DWR USE ONLY - DO NOT FILL IN

145/02E-20B03

STATE WELL NO./STATION NO.

LATITUDE

LONGITUDE

145/02E-20T50

APN/TRS/OTHER

WELL OWNER PRESSURE-DEEP

ORIENTATION ( ) VERTICAL HORIZONTAL ANGLE (SPECIFY)

DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

DEPTH FROM SURFACE

DESCRIPTION

Describe material, grain size, color, etc.

CITY

WELL LOCATION

STATE

ZIP

Address 14811 DEL MONTE AVE.

City MONTEREY

County MONTEREY

APN Book 175 Page 011 Parcel 041

Township Range Section

Latitude NORTH Longitude

DEG. MIN. SEC.

DEG. MIN. SEC.

LOCATION SKETCH

NORTH

SEE ATTACHED

ACTIVITY ( )

NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Spec)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC")

PLANNED USE ( )

MONITORING

WATER SUPPLY

Domestic

Public

Irrigation

Industrial

"TEST WELL"

CATHODIC PROTECTION

OTHER (Spec)

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE &amp; COMPLETE.

DRILLING METHOD

REVERSE ROTARY

FLUID

WATER

WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH OF STATIC

WATER LEVEL 152.25 (Ft.) &amp; DATE MEASURED 08/18/97

ESTIMATED YIELD 250 (GPM) &amp; TEST TYPE PUMP

TEST LENGTH (Hrs) TOTAL DRAWDOWN 19.3 (Ft.)

\* May not be representative of a well's long-term yield.

TOTAL DEPTH OF BORING 840 (Feet)

TOTAL DEPTH OF COMPLETED WELL 825 (Feet)

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING(S)						DEPTH FROM SURFACE			ANNULAR MATERIAL					
				TYPE ( $\leq$ )				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)				GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE			
Ft.	to	Ft.		BLANK	SCREEN	CORR. DUCTOR	TAIL PIPE			CE- MENT ( $\leq$ )	BEN- TONITE ( $\leq$ )	FILL ( $\leq$ )			FILTER PAC (TYPE / SIZE)			
0		50	32			X		STEEL	.250		STAINLESS .040	0		650	XX			
0		670	22	X				STEEL	.250		STAINLESS	650		840			XX	8X16
670		730	22		X			STEEL	.250		STAINLESS .040							
730		785	22	X				STEEL	.250		STAINLESS							
785		805	22			X		STEEL	.250		STAINLESS .040							
805		825	22	X				STEEL	.250		STAINLESS							

ATTACHMENTS ( )

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analyses
- Other

ATTACH ADDITIONAL INFORMATION IF IT EXISTS

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME MAGGIORA BROS. DRILLING, INC.

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

595 AIRPORT BLVD. WATSONVILLE, CA 95076

ADDRESS

CITY

11/14/97

STATE

ZIP 95076

Signed

WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED

C/S LICENSE NUMBER

Owner's Well No. 701471 No. 419779

Date Work Began 06/18/97 Ended 06/26/97

Local Permit Agency MONTEREY COUNTY DEPARTMENT OF HEALTH

Permit No. WSAI 97-067 Permit Date 04/07/97

GEOLOGIC LOG

WELL OWNER

ORIENTATION ( ) VERTICAL HORIZONTAL ANGLE (SPECIFY)

DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

DEPTH FROM SURFACE  
Ft. to Ft.

DESCRIPTION

Describe material, grain size, color, etc.

660	680	COARSE SAND AND GRAVEL
680	700	COARSE SAND
700	715	HARD SAND
715	720	SAND AND GRAVEL
720	730	SAND AND GRAVEL
730	740	CLAY
740	780	HARD CLAY
780	785	CLAY
785	790	SAND AND GRAVEL
790	800	HARD SAND
800	840	CLAY

CITY STATE ZIP

WELL LOCATION

Address 14811 DEL MONTE AVE.

City MONTEREY

County MONTEREY

APN Book 175 Page 011 Parcel 041

Township Range Section

Latitude Longitude

DEG. MIN. SEC. NORTH Longitude DEG. MIN. SEC. WE

LOCATION SKETCH

SEE ATTACHED

ACTIVITY ( )

X NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USE ( )

MONITORING

WATER SUPPLY

Domestic

X Public

Irrigation

Industrial

"TEST WELL"

CATHODIC PROTECTION

OTHER (Specify)

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

DRILLING

METHOD REVERSE ROTARY FLUID WATER

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 162.25 (Ft.) & DATE MEASURED 08/18/97

ESTIMATED YIELD 250 (GPM) & TEST TYPE 2012

TEST LENGTH 5.5 (Hrs.) TOTAL DRAWDOWN 19.33 (Ft.)

\* May not be representative of a well's long-term yield.

TOTAL DEPTH OF BORING 840 (Feet)

TOTAL DEPTH OF COMPLETED WELL 825 (Feet)

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING(S)					DEPTH FROM SURFACE			ANNULAR MATERIAL				
				TYPE ( $\angle$ )				MATERIAL / GRADE				INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE	
Ft.	to	Ft.	BLANK	SCREEN	CON-DOCTOR	FILL PIPE										CE- MENT ( $\angle$ )
0		50	32					STEEL	250		STAINLESS	040				
0		670	22	X				STEEL	250		STAINLESS					
670		730	22		X			STEEL	250		STAINLESS	040				
730		785	22	X				STEEL	250		STAINLESS					
785		805	22		X			STEEL	250		STAINLESS	040				
805		825	22	X				STEEL	250		STAINLESS					

ATTACHMENTS ( )

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analyses
- Other

ATTACH ADDITIONAL INFORMATION IF IT EXISTS

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

NAME MAGGIORA BROS. DRILLING, INC.

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

595 AIRPORT BLVD.

WATSONVILLE, CA 95076

ADDRESS

CITY

11/14/97

STATE

ZIP 249957

Signed

WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED

C57 LICENSE NUMBER

FC 24033  
 00095485 145/02E-22A03

The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save and merge a saved form.

File Original with DWR

State of California  
**Well Completion Report**  
 Made to National Pumping  
 No. 00095485

Page 1 of 2  
 Owner's Well Number 90021-1  
 Date Work Began 03/19/2009 Date Work Ended 6/23/2009  
 Local Permit Agency Monterey County Division of Environmental Health  
 Permit Number 09-11577 Permit Date 2/4/09

DWR Use Only - Do Not Fill In

State Well Number/State File Number

Latitude Longitude

APN/Tract/Owner

Geologic Log		
Orientation	<input checked="" type="radio"/> Vertical <input type="radio"/> Horizontal <input type="radio"/> Angle	Specify
Drilling Method	Flowline Circulation Rotary	
Drilling Fluid	Fresh Water	
Depth from Surface Feet to	Feet	Description Describe material, grain size, color, etc.
0	7	Black clay
7	40	Brn. sand
40	75	Gray clay
75	140	Blue clay
140	180	Sand & gravel
180	240	Sandy clay
240	255	Sand & gravel
255	290	Brn. clay
290	390	Sand & gravel
390	420	Sand
420	460	Tan clay
460	505	Sand & gravel
505	515	Brn. clay
515	520	Fine sand
520	540	Brn. clay
540	545	Fine sand
545	560	Brn. clay
560	570	Tan clay & sand
570	575	Brn. clay
575	585	Sand & gravel
585	595	Brn. clay
595	620	Sand & gravel
620	655	Brn. clay
655	665	Sand
665	675	Brn. clay
675	695	Sand
695	700	Brn. clay
700	705	Sand
705	800	Brn. clay
800	840	Sand & brn. clay
Total Depth of Boring		1664 1664 Feet
Total Depth of Completed Well		1640 1640 Feet

**Well Owner**

**Well Location**

Address 53 Cooper Road

City Salinas County Monterey

Latitude Dec. Min. Sec. N Longitude Dec. Min. Sec. W

Datum Decimal Lat. Decimal Long.

APN Book 227 Page 061 Parcel 004

Township Range Section

**Location Sketch**  
 (Sketch must be drawn by hand after each previous)

**Activity**

☒ New Well  
☐ Modification/Repair  
☐ Deepen  
☐ Other  
☐ Destroy  
 (Destroy requires permit from Statewide LSC)

**Planned Uses**

☒ Water Supply  
☐ Domestic ☐ Public  
☐ Irrigation ☐ Industrial

☐ Cathodic Protection  
☐ Dewatering  
☐ Heat Exchange  
☐ Injection  
☐ Monitoring  
☐ Remediation  
☐ Sparging  
☐ Test Well  
☐ Vapor Extraction  
☐ Other

**Water Level and Yield of Completed Well**

Depth to first water (Feet below surface)

Depth to Static

Water Level 85 (Feet) Date Measured 06/23/2009

Estimated Yield 1,700 (GPM) Test Type Constant Rate

Test Length 8.0 (Hours) Total Drawdown 290 (Feet)

\*May not be representative of a well's long term yield

Casing						Annular Material		
Depth from Surface Feet to	Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size (Inches)
0	73	48	Concrete	Low Carbon Steel	.375	42		
0	456	36	Concrete	Low Carbon Steel	.375	28		
0	700	26	Blank	Low Carbon Steel	.375	18		
700	880	26	Blank	Low Carbon Steel	.375	16		
880	880	26	Blank	304 Stainless Steel	.313	16		
880	1,640	26	Screen	304 Stainless Steel	0.313	16	Wire Mesh	0.040
Depth from Surface Feet to	Feet	Fill	Description					
0	73	Cement	10 SACK					
0	456	Cement	Neat					
0	920	Cement	Neat					
920	1,664	Filter Pack	8 X 16					

**Attachments**

☐ Geologic Log  
☐ Well Construction Diagram  
☐ Geophysical Log(s)  
☐ Soil/Water Chemical Analyses  
☐ Other

**Declaration Statement**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

Name Madonna River Drilling, Inc. City WATSONVILLE State CA Zip 95076

Address 395 AIRPORT BLVD

Signed [Signature] Date Signed 07-24-09 License Number 240957

Certified by [Signature] Date Signed 07-24-09 License Number C-57

CAH 148 REV. 9/08

\* IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVE \* IN JUNE 1977 FORM



File Original with DMR

Page 2 of 2

Owner's Well Number 90021-1

Date Work Began: 03/19/2009

Local Petrol Agency: Montgomery County Division of Equine Medical Health

Permit Number 09-11577

Report Date: 2/4/09

State of California  
Well Completion Report

Poster to be presented at the 10th Annual Meeting of the European Association of Developmental Psychologists, 19-23 September 2006, University of York, UK.

No. 0006485

CNTR User Only - Do Not Fill In  
 State and Number Site Number  
 Latitude Longitude  
 APN:TR:Ower

Geologic Log			
Orientation		Vertical	Horizontal
Drilling Method		Reverse	Open
Drilling Fluid		Fresh Water	
Depth from Surface		Description	
Feet	Feet	Describe material, grain size, color, etc.	
840	850	Sand	
850	860	Brn. clay	
860	870	Sand & gravel	
870	880	Brn. clay	
880	890	Sand & gravel	
890	900	Brn. clay	
900	910	Sand & gravel	
910	920	Brn. clay	
920	930	Sand & gravel	
930	940	Brn. clay	
940	950	Sand & gravel	
950	960	Brn. clay	
960	970	Sand & gravel	
970	980	Brn. clay	
980	990	Sand & gravel	
990	1000	Brn. clay	
1000	1010	Sand & gravel	
1010	1020	Brn. clay	
1020	1030	Sand & gravel	
1030	1040	Brn. clay	
1040	1050	Sand & gravel	
1050	1060	Brn. clay	
1060	1070	Sand & gravel	
1070	1080	Brn. clay	
1080	1090	Sand & gravel	
1090	1100	Brn. clay	
1100	1110	Sand & gravel	
1110	1120	Brn. clay	
1120	1130	Sand & gravel	
1130	1140	Brn. clay	
1140	1150	Sand & gravel	
1150	1160	Brn. clay	
1160	1170	Sand & gravel	
1170	1180	Brn. clay	
1180	1190	Sand & gravel	
1190	1200	Brn. clay	
1200	1210	Sand & gravel	
1210	1220	Brn. clay	
1220	1230	Sand & gravel	
1230	1240	Brn. clay	
1240	1250	Sand & gravel	
1250	1260	Brn. clay	
1260	1270	Sand & gravel	
1270	1280	Brn. clay	
1280	1290	Sand & gravel	
1290	1300	Brn. clay	
1300	1310	Sand & gravel	
1310	1320	Brn. clay	
1320	1330	Sand & gravel	
1330	1340	Brn. clay	
1340	1350	Sand & gravel	
1350	1360	Brn. clay	
1360	1370	Sand & gravel	
1370	1380	Brn. clay	
1380	1390	Sand & gravel	
1390	1400	Brn. clay	
1400	1410	Sand & gravel	
1410	1420	Brn. clay	
1420	1430	Sand & gravel	
1430	1440	Brn. clay	
1440	1450	Sand & gravel	
1450	1460	Brn. clay	
1460	1470	Sand & gravel	
1470	1480	Brn. clay	
1480	1490	Sand & gravel	
1490	1500	Brn. clay	
1500	1510	Sand & gravel	
1510	1520	Brn. clay	
1520	1530	Sand & gravel	
1530	1540	Brn. clay	
1540	1550	Sand & gravel	
1550	1560	Brn. clay	
1560	1570	Sand & gravel	
1570	1580	Brn. clay	
1580	1590	Sand & gravel	
1590	1600	Brn. clay	
1600	1610	Sand & gravel	
1610	1620	Brn. clay	
1620	1630	Sand & gravel	
1630	1640	Brn. clay	
1640	1650	Sand & gravel	
1650	1660	Brn. clay	
1660	1670	Sand & gravel	
1670	1680	Brn. clay	
1680	1690	Sand & gravel	
1690	1700	Brn. clay	
1700	1710	Sand & gravel	
1710	1720	Brn. clay	
1720	1730	Sand & gravel	
1730	1740	Brn. clay	
1740	1750	Sand & gravel	
1750	1760	Brn. clay	
1760	1770	Sand & gravel	
1770	1780	Brn. clay	
1780	1790	Sand & gravel	
1790	1800	Brn. clay	
1800	1810	Sand & gravel	
1810	1820	Brn. clay	
1820	1830	Sand & gravel	
1830	1840	Brn. clay	
1840	1850	Sand & gravel	
1850	1860	Brn. clay	
1860	1870	Sand & gravel	
1870	1880	Brn. clay	
1880	1890	Sand & gravel	
1890	1900	Brn. clay	
1900	1910	Sand & gravel	
1910	1920	Brn. clay	
1920	1930	Sand & gravel	
1930	1940	Brn. clay	
1940	1950	Sand &	

<b>Well Owner</b>			
<b>Well Location</b>			
Address <u>S3 Cooper Road</u>			
City <u>Salinas</u>		County <u>Monterey</u>	
Latitude <div style="display: flex; justify-content: space-between; font-size: small;"> <span>____ Deg</span> <span>____ Min</span> <span>____ Sec</span> </div>		Longitude <div style="display: flex; justify-content: space-between; font-size: small;"> <span>____ Deg</span> <span>____ Min</span> <span>____ Sec</span> </div>	
Datum: <u>Decimal Lat.</u>		Decimal Long. _____	
APN Book <u>227</u> Page <u>051</u>		Parcel <u>004</u>	
Township _____ Range _____		Section _____	
<b>Location Sketch</b>		<b>Activity</b>	
(Sketch must be drawn by hand after form is printed) North <span style="float: right;">↑</span>		<input checked="" type="radio"/> New Well <input type="radio"/> Modification/Repair <div style="margin-left: 20px;"> <input type="radio"/> Deepen  <input type="radio"/> Other _____         </div> <input type="radio"/> Destroy <small>(Official Use: Installation and Publication of Well Locations, 1975)</small>	
<b>Planned Uses</b>		<input checked="" type="radio"/> Water Supply <div style="display: flex; justify-content: space-between; font-size: small;"> <input type="checkbox"/> Domestic    <input type="checkbox"/> Public         </div> <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial  <input type="radio"/> Caliche Protection <input type="radio"/> Dewatering <input type="radio"/> Heat Exchange <input type="radio"/> Injection <input type="radio"/> Monitoring <input type="radio"/> Remediation <input type="radio"/> Spraying <input type="radio"/> Test Well <input type="radio"/> Vapor Extraction <input type="radio"/> Other _____	
South <span style="float: right;">↓</span>			

Water Level and Yield of Completed Well

Depth to first water \_\_\_\_\_ (Feet below surface)  
Depth to Static \_\_\_\_\_  
Water Level 85 (Feet) Date Measured 08/29/2006  
Estimate Yield 1,700 (GPM) Test Type Constant Rate  
Test Length: 8.0 (Hours) Total Drawdown: 299 (Feet)

[illegible]

Attachments	Certification Statement
<input type="checkbox"/> Geologic Log <input type="checkbox"/> Well Construction Diagram <input type="checkbox"/> Geophysical Log(s) <input type="checkbox"/> Soil/Water Chemical Analyses <input type="checkbox"/> Other _____	I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief. Name <u>Atalunga Bros. Drilling, Inc.</u> <small>Person, Title or Organization</small> <u>595 AIRPORT BLVD</u> <u>WATSONVILLE</u> <u>CA 95070</u> <small>Address City State Zip</small> Signed _____ Date <u>07-24-06</u> <small>C-77 Licensed Water Well Contractor Date Signed C-57 License Number</small>
<small>Attach additional information if it exists.</small>	

**TAKE THE KEY LOCK**

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

**GEOCONSULTANTS, INC.**

G1570-01B 07/09

FIGURE A-2, Page 2

Owner's Well No. 8083

Date Work Began 6/23/2008, Ended 7/3/2008

Local Permit Agency Monterey County Health Dept

Permit No. 07-11018

Permit Date 4/2/2007

# WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. E0088288

DWR USE ONLY - DO NOT FILL IN

145/02E-28C102

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

145/02E-28C102

WELL ARNERS/OTHER

## GEOLOGIC LOG

ORIENTATION (✓) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)

DRILLING METHOD REVERSE

FLUID WATER

### DESCRIPTION

Describe material, grain, size, color, etc.

DEPTH FROM SURFACE  
Fl. to Fl.

0	600	Existing 16" casing
600	640	Tan clay with sand
640	680	Sand with small gravel
680	800	Tan clay with sand
800	820	Sand with small gravel
820	980	Tan clay with sand streaks
980	1020	Sand with small gravel
1020	1080	Brittle yellow gray clay with sand
1080	1130	Brittle yellow clay with sand and small gravel
1130	1180	Brittle blue clay with sand
1180	1240	Brittle gray blue clay

FC21676  
deepened

TOTAL DEPTH OF BORING 1180 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1160 (Feet)

WELL OWNER Pressure Nec. 2

WELL LOCATION

Address .15 Mi W of Salinas River & .9 Mi N of

City Blanco Road CA

County MONTEREY

APN Book 175 Page 011

Parcel 440-047-000

Township 14 S Range 2 E Section 28

Latitude

DEG. MIN. SEC.

### LOCATION SKETCH

NORTH

DEG. MIN. SEC.

### ACTIVITY (✓)

NEW WELL

MODIFICATION/REPAIR

✓ Deepen

Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

### PLANNED USES (✓)

WATER SUPPLY

Domestic Public

✓ Irrigation Industrial

MONITORING

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

### WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER (Fl.) BELOW SURFACE

DEPTH OF STATIC

WATER LEVEL 60.5 (Fl.) & DATE MEASURED 7/23/2008

ESTIMATED YIELD \* 1009 (GPM) & TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN 61.9 (Fl.)

May not be representative of a well's long-term yield.

DEPTH FROM SURFACE Fl. to Fl.	BORE-HOLE DIA. (Inches)	CASING (S)					
		TYPE (✓)			MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS
		BLANK	SCREEN	CON-DUCTOR FILL PIPE			
300 640	16/15.5	✓			ASTM-135	8-5/8	.322
640 720	15.5	✓			Stainless St	8-5/8	
720 750	15.5		✓		Hvy Staines	8-5/8	
750 790	15.5	✓			Stainless St	8-5/8	.050
790 860	15.5		✓		Hvy Staines	8-5/8	
860 980	15.5	✓			Stainless St	8-5/8	.050

DEPTH FROM SURFACE Fl. to Fl.	ANNULAR MATERIAL			
	TYPE			FILTER PACK (TYPE/SIZE)
	CE-MENT (✓)	BEN-TO-NITE (✓)	FILL (✓)	
320 660	✓			Sand Slurry
660 900			✓	SRI#8 Sand
900 940		✓		Bentonite Chips
940 1180			✓	SRI#8 Sand

### ATTACHMENTS (✓)

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analysis
- Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

### CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE

ADDRESS

WOODLAND

CITY

CA

STATE

95695

ZIP

Signed

WELL DRILLER/AUTHORIZED REPRESENTATIVE

03/18/09

DATE SIGNED

C57 A HIC - 13378

C-57 LICENSE NUMBER

Copy to MR 3-25-09



Owner's Well No. 8083

Date Work Began 6/23/2008, Ended 7/3/2008

Local Permit Agency Monterey County Health Dept

Permit No. 07-11018

Permit Date 4/2/2007

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction Pamphlet

No. **E0088288**

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

**GEOLOGIC LOG**

ORIENTATION (✓) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)  
DRILLING METHOD **REVERSE** FLUID **WATER**

DEPTH FROM SURFACE		DESCRIPTION
FL	to FL	Describe material, grain, size, color, etc.
0	600	Existing 16" casing
600	640	Tan clay with sand
640	680	Sand with small gravel
680	800	Tan clay with sand
800	820	Sand with small gravel
820	980	Tan clay with sand streaks
980	1020	Sand with small gravel
1020	1080	Brittle yellow gray clay with sand
1080	1130	Brittle yellow clay with sand and small gravel
1130	1180	Brittle blue clay with sand
1180	1240	Brittle gray blue clay

**WELL LOCATION**

Address 15 Mi W of Salinas River & 9 Mi N of  
City Blanco Road CA  
County MONTEREY  
APN Book 175 Page 011 Parcel 140  
Township 14 S Range 2 E Section 28  
Latitude

**LOCATION SKETCH**

DEG. MIN. SEC. NORTH

WEST EAST

**ACTIVITY (✓)**

☐ NEW WELL

**MODIFICATION/REPAIR**

☒ Deepen

☐ Other (Specify)

**DESTROY** (Describe Procedures and Materials Under "GEOLOGIC LOG")

**PLANNED USES (✓)**

**WATER SUPPLY**

☐ Domestic ☐ Public

☒ Irrigation ☐ Industrial

☐ MONITORING

☐ TEST WELL

☐ CATHODIC PROTECTION

☐ HEAT EXCHANGE

☐ DIRECT PUSH

☐ INJECTION

☐ VAPOR EXTRACTION

☐ SPARGING

☐ REMEDIATION

☐ OTHER (SPECIFY)

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER (FL) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 60.5 (FL) & DATE MEASURED 7/23/2008

ESTIMATED YIELD 1009 (GPM) & TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN 61.9 (FL)

*May not be representative of a well's long-term yield.*

DEPTH FROM SURFACE		BORE HOLE DIA. (Inches)	CASING (S)				
FL	to FL		TYPE (✓)	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
980	1140	15.5	<input checked="" type="checkbox"/>	Hvy Stainles	8-5/8		.050
1140	1160	15.5	<input checked="" type="checkbox"/>	Stainless St	8-5/8		

DEPTH FROM SURFACE		ANNULAR MATERIAL			
FL	to FL	CE- MENT (✓)	BEN- TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
320	660	<input checked="" type="checkbox"/>			Sand Slurry
660	900			<input checked="" type="checkbox"/>	SRI#8 Sand
900	940		<input checked="" type="checkbox"/>		Bentonite Chips
940	1180			<input checked="" type="checkbox"/>	SRI#8 Sand

**ATTACHMENTS (✓)**

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analysis
- ☐ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.  
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE

ADDRESS

Signed [Signature]

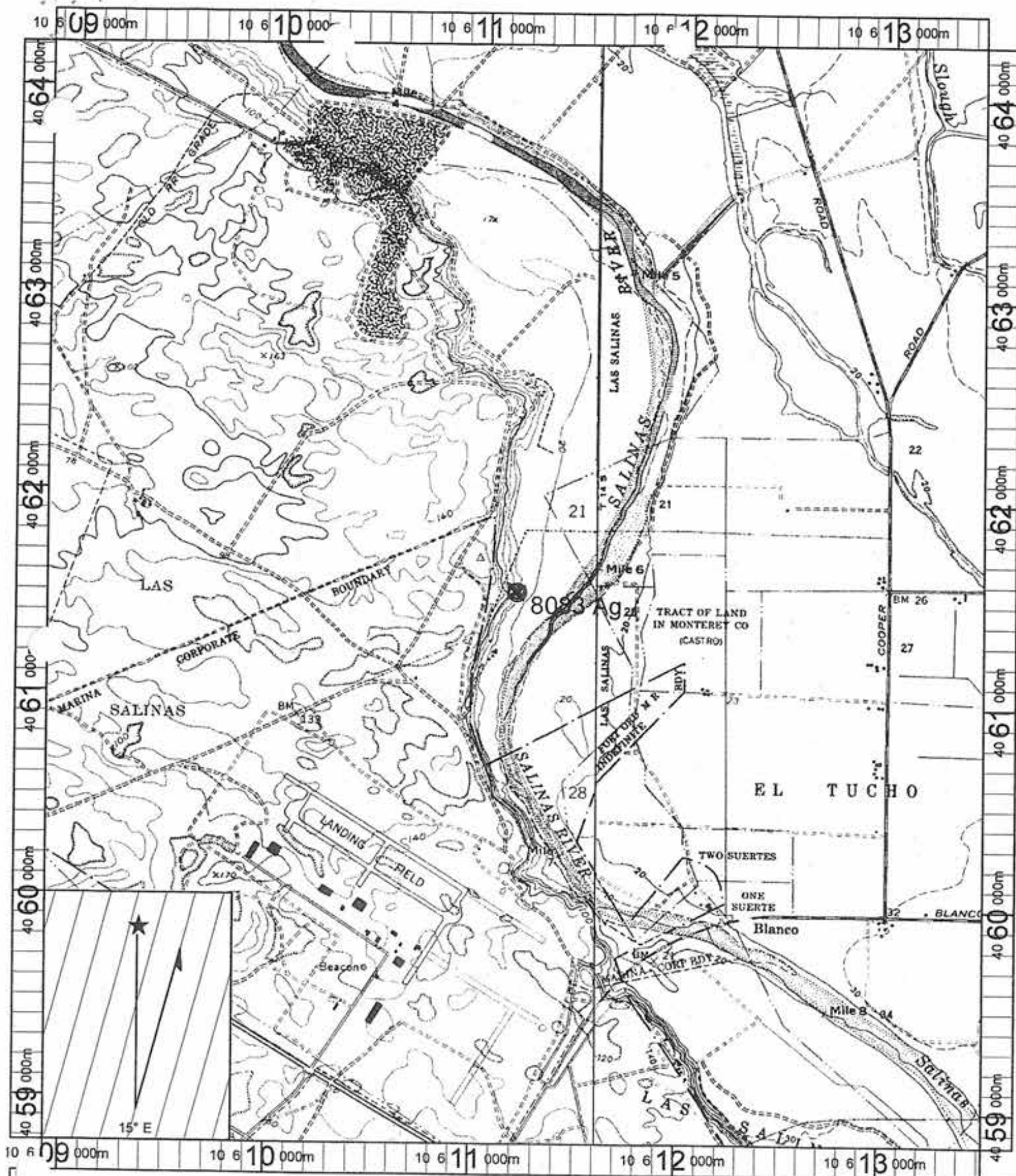
WELL DRILLER/AUTHORIZED REPRESENTATIVE

WOODLAND  
CITY

CA 95695  
STATE ZIP

03/18/09  
DATE SIGNED

C57 A HIC - 13378  
C-57 LICENSE NUMBER



Name: MARINA  
 Date: 1/24/2007  
 Scale: 1 inch equals 2000 feet

Caption: Jefferson Farms - Job# 8083 Ag  
 APN: 175-011-014  
 T14S R2E s28

F 22727

ORIGINAL  
File with DWR

Page 1 of 2

Owner's Well No. 7985

Date Work Began 7/24/2006

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction PamphletNo. **E046611**

Ended 8/4/2006

Local Permit Agency MONTEREY CNTY HEALTH DEPT

Permit No. 05-10703

Permit Date 12/29/2005

DWR USE ONLY		DO NOT FILL IN	
145102E-28H04		STATE WELL NO./STATION NO.	
LATITUDE		LONGITUDE	
145102E-28H04		APN/TRS/OTHER	

**GEOLOGIC LOG**ORIENTATION (✓) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)DRILLING METHOD **ROTARY**FLUID **MUD****DESCRIPTION**

Describe material, grain, size, color, etc.

DEPTH FROM SURFACE Ft. to Ft.		
0	727	EXISTING 16 INCH CASING
727	780	YELLOW CLAY WITH BRITTLE CLAY STREAKS
780	790	COARSE SAND
790	810	YELLOW CLAY WITH BRITTLE CLAY STREAKS
810	814	SAND
814	836	YELLOW CLAY WITH BRITTLE CLAY STREAKS
836	875	YELLOW CLAY WITH SAND
875	895	YELLOW CLAY
895	945	YELLOW CLAY WITH SAND
945	962	COARSE SAND
962	995	YELLOW AND BLUE CLAY STREAKS WITH SAND
995	1025	COARSE SAND
1025	1055	BRITTLE BLUE CLAY
1055	1148	COARSE SAND WITH SMALL GRAVEL
1148	1200	BRITTLE BLUE CLAY WITH SAND
1200	1300	BRITTLE BLUE CLAY

\*NOTE\*

EXISTING WELL 16" CASING TO 727 FEET.  
DRILLED THROUGH BOTTOM DEEPENING  
WELL TO 1180 FEET.

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1180 (Feet)

**WELL OWNED**

Address 54 MI WOF COOPER RD &amp; 27 MI SOF

City MCFADDEN RD CA

County MONTEREY

APN Book 414 Page 014 Parcel 017

Township 14 S Range 2 E Section 28

Latitude

DEG. MIN. SEC.

**LOCATION SKETCH**

NORTH

DEG. MIN. SEC.

**ACTIVITY (✓)**☒ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

**PLANNED USES (✓)**

WATER SUPPLY

☒ Domestic ☐ Public☒ Irrigation ☐ IndustrialMONITORING ☐TEST WELL ☐CATHODIC PROTECTION ☐HEAT EXCHANGE ☐DIRECT PUSH ☐INJECTION ☐VAPOR EXTRACTION ☐SPARGING ☐REMEDICATION ☐OTHER (SPECIFY) ☐

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE &amp; COMPLETE.

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 49.4 (Ft.) &amp; DATE MEASURED 8/14/2006

ESTIMATED YIELD 928 (GPM) &amp; TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN 88.1 (Ft.)

May not be representative of a well's long-term yield.

DEPTH FROM SURFACE		BORE - HOLE DIA. (inches)	CASING (S)						DEPTH FROM SURFACE	ANNULAR MATERIAL							
			TYPE (✓)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)		GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE					
Ft	to	Ft	BLANK	SCREEN	CON- DUCTOR	FILL PIPE								Ft	to	Ft	CE- MENT (✓)
300	730	16	✓				ASTM-135	8-5/8	.322		320	740	✓				SAND SLURRY
730	940	15.5	✓				STAINLESS	8-5/8			740	1200			✓		SRI#8 SAND
940	960	15.5		✓			HVY SS	8-5/8		.050							
960	990	15.5	✓				STAINLESS	8-5/8									
990	1030	15.5		✓			HVY SS	8-5/8		.050							
1030	1050	15.5	✓				STAINLESS	8-5/8									

**ATTACHMENTS (✓)**

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analysis
- Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME **EATON DRILLING CO.**

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE

ADDRESS

WOODLAND

CITY

CA

STATE

95695

ZIP

Signed *Mike Dawson*

WELL DRILLER/AUTHORIZED REPRESENTATIVE

10/25/06

DATE SIGNED

C57 A HIC - 133783

C-57 LICENSE NUMBER



ORIGINAL  
File with DWR

Page 2 of 2

Owner's Well No. 7985

Date Work Began 7/24/2006, Ended 8/4/2006

Local Permit Agency MONTEREY CNTY HEALTH DEPT

Permit No. 05-10703

Permit Date 12/29/2005

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**

Refer to Instruction Pamphlet

No. **E046611**

DWR USE ONLY - DO NOT FILL IN

145/02E-28

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

**GEOLOGIC LOG**

**WELL OWNER**

ORIENTATION (✓)		VERTICAL	HORIZONTAL	ANGLE	(SPECIFY)
DEPTH FROM SURFACE		DRILLING METHOD ROTARY FLUID MUD			
Ft to Ft		DESCRIPTION			
		Describe material, grain, size, color, etc.			
0	727	EXISTING 16 INCH CASING			
727	780	YELLOW CLAY WITH BRITTLE CLAY STREAKS			
780	790	COARSE SAND			
790	810	YELLOW CLAY WITH BRITTLE CLAY STREAKS			
810	814	SAND			
814	836	YELLOW CLAY WITH BRITTLE CLAY STREAKS			
836	875	YELLOW CLAY WITH SAND			
875	895	YELLOW CLAY			
895	945	YELLOW CLAY WITH SAND			
945	962	COARSE SAND			
962	995	YELLOW AND BLUE CLAY STREAKS WITH SAND			
995	1025	COARSE SAND			
1025	1055	BRITTLE BLUE CLAY			
1055	1148	COARSE SAND WITH SMALL GRAVEL			
1148	1200	BRITTLE BLUE CLAY WITH SAND			
1200	1300	BRITTLE BLUE CLAY			

**\*NOTE\***

EXISTING WELL 16" CASING TO 727 FEET.  
DRILLED THROUGH BOTTOM DEEPENING  
WELL TO 1180 FEET.

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1180 (Feet)

**WELL LOCATION**

Address 54 MI WOF COOPER RD & 27 MI SOF  
City MCFADDEN RD CA  
County MONTEREY  
APN Book 414 Page 014 Parcel 017  
Township 14 S Range 2 E Section 28  
Latitude

DEG. MIN. SEC. LOCATION SKETCH NORTH SOUTH

DEG. MIN. SEC. ACTIVITY (✓)

NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY

Domestic Public

✓ Irrigation Industrial

MONITORING

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER (Ft) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 49.4 (Ft) & DATE MEASURED 8/14/2006

ESTIMATED YIELD 928 (GPM) & TEST TYPE

TEST LENGTH (Hrs) TOTAL DRAWDOWN 88.1 (Ft)

May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE - HOLE DIA. (Inches)	CASING (S)							
				TYPE (✓)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
Ft	to	Ft	BLANK	SCREEN	CON. CLOSURE	FILL PIPE					
1050		1160	15.5		✓			HVY SS	8-5/8		.050
1160		1180	15.5	✓				STAINLESS	8-5/8		

DEPTH FROM SURFACE		ANNULAR MATERIAL			
Ft to Ft		TYPE			
		CE- MENT (✓)	BEN- TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
320	740	✓			SAND SLURRY
740	1200			✓	SR#8 SAND

**ATTACHMENTS (✓)**

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analysis
- Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.  
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE

ADDRESS

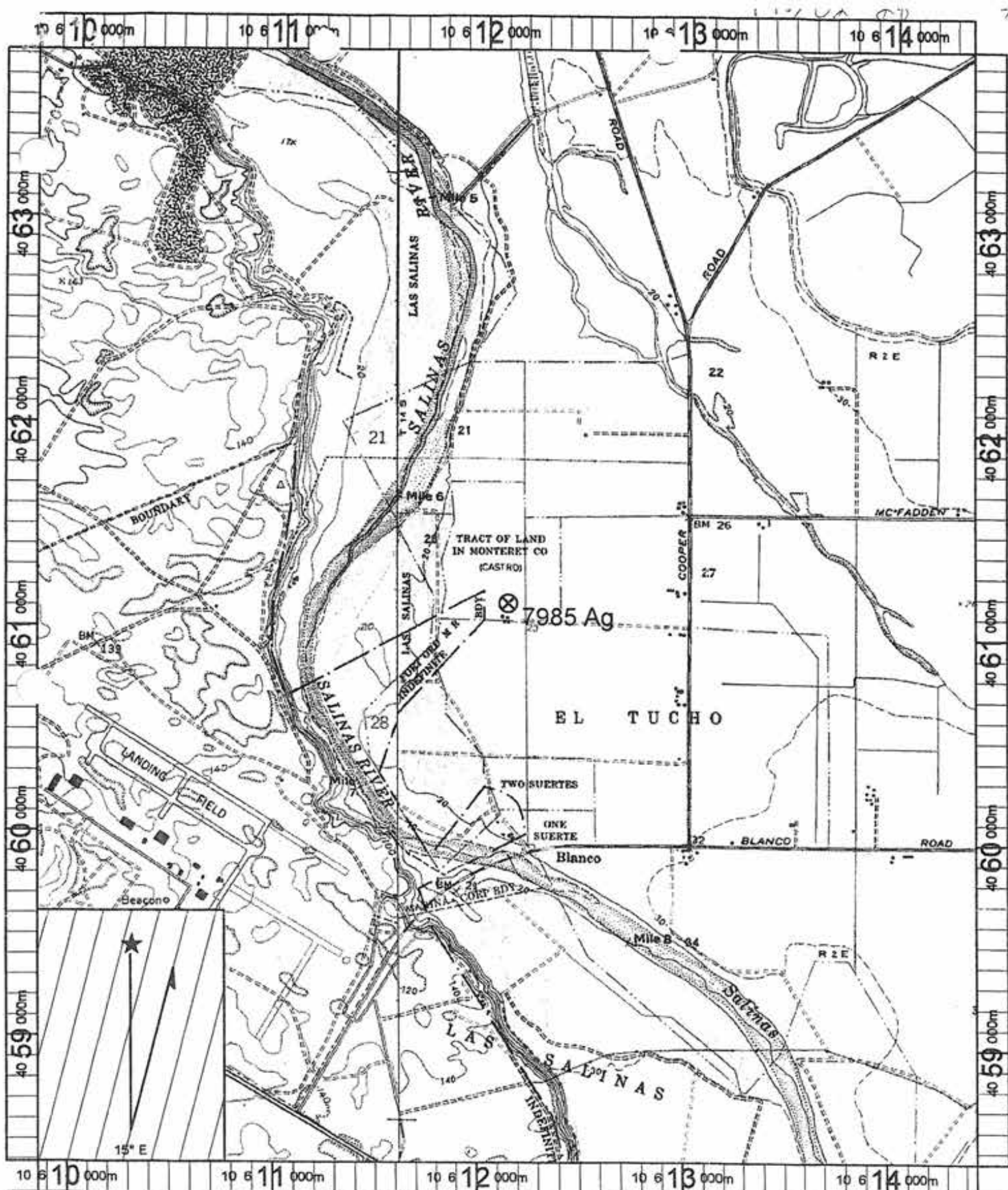
Signed *Mark Danner*  
WELL DRILLER/AUTHORIZED REPRESENTATIVE

WOODLAND  
CITY

CA 95695  
STATE ZIP

10/25/06  
DATE SIGNED

C57 A HIC - 133783  
C-57 LICENSE NUMBER



Name: SALINAS  
 Date: 7/3/2006  
 Scale: 1 inch equals 2000 feet

Caption: Ross Nisson - Job# 7985 Ag  
 APN: 414-014-017  
 T14S R2E s28



ORIGINAL  
File with DWRSTATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

No. 289272

Notice of Intent No. \_\_\_\_\_  
Local Permit No. or Date April 4, 1989State Well No. 14/01  
Other Well No. \_\_\_\_\_

## (1) OWNER:

Address \_\_\_\_\_

City \_\_\_\_\_

## (2) LOCATION OF WELL (See instructions):

County Monterey Owner's Well Number #12Well address if different from above Assessors Parcel No.

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Distance from cities, roads, railroads, fences, etc. \_\_\_\_\_

See attached map

## (3) TYPE OF WORK

New Well ☒ Deepening ☐Reconstruction ☐Reconditioning ☐Horizontal Well ☐Destruction ☐ (Describe destruction materials and procedures in Item 12)

## (4) PROPOSED USE

Domestic ☐Irrigation ☐Industrial ☐Test Well ☐Municipal ☐Other ☒

(Describe)

## WELL LOCATION SKETCH

## (5) EQUIPMENT:

Rotary ☐Reverse ☒Cable ☐Air ☐Other ☐Bucket ☐

## (6) GRAVEL PACK Monterey Sand

Yes ☒ No ☐Diameter of bore 28"Packed from 1250 T.D.

## (7) CASING INSTALLED:

Steel ☐Plastic ☐Concrete ☐

## (8) PERFORATIONS MOSS

Type of perforation or size of screen Ful-Flo

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	600	28"	.312	1390	1420	.040
600	1390	16"	.312	1480	1530	.040
1940	1950	16"	.312	1660	1700	.040

## (9) WELL SEAL: 1780-1810 ft. &amp; 1830-1880 ft. and 1900-1940 ft.

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 87 ft.Were strata sealed against pollution? Yes ☒ No ☐ Interval 0-1250 ft.Method of sealing cement grout seal

## (10) WATER LEVELS:

Depth of first water, if known 100 ft.Standing level after well completion 100 ft.

## (11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? Beylik DrillingType of test PumpBailer ☐Air lift ☐Depth to water at start of test 100 ft.At end of test 100 ft.Discharge 1800 gal/min after 72 hours

Water temperature \_\_\_\_\_

Chemical analysis made? Yes ☒ No ☐ If yes, by whom? Marina C.W.D.Was electric log made? Yes ☒ No ☐ If yes, attach copy to this report(12) WELL LOG: Total depth 2020 ft. Completed depth 1950 ft.  
from ft. to ft. Formation (Describe by color, character, size or material)

0	-	80 ft.	fine sand
80	-	100 ft.	fine sand/silt
100	-	110 ft.	fine sand
110	-	130 ft.	blue clay
130	-	160 ft.	sandy clay
160	-	250 ft.	fine sand
250	-	270 ft.	sandy clay
270	-	310 ft.	coarse sand and clay
310	-	390 ft.	brown clay, coarse fine sands
390	-	430 ft.	brown clay
430	-	490 ft.	coarse sand
490	-	520 ft.	fine sand
520	-	580 ft.	coarse sand/yellow clay
580	-	610 ft.	yellow clay
610	-	670 ft.	silty brown clay
670	-	920 ft.	brown clay, silty clay
920	-	950 ft.	coarse sand and clay
950	-	965 ft.	clay
965	-	1000 ft.	blue shale
1000	-	1110 ft.	clay and sand
1110	-	1200 ft.	clay and sand
1200	-	1230 ft.	clay and gray clay and sand
1230	-	1300 ft.	sandy clay
1300	-	1350 ft.	blue sandy clay
1350	-	1400 ft.	shale and clay
1400	-	1420 ft.	clay and coarse sand
1420	-	1520 ft.	blue clay, coarse sand
1520	-	1570 ft.	blue clay some shale
1570	-	1650 ft.	gray clay, sand and shale
1650	-	1680 ft.	fine sand
1680	-	1740 ft.	blue clay
1740	-	1860 ft.	clay, shale and sand
1860	-	1900 ft.	clay and shale
1900	-	1980 ft.	sand and clay
1980	-	2020 ft.	clay and sandy clay

Work started April 11, 1989 Completed May 5, 1989

## WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signed Dean Marshall

(Well Driller)

NAME BEYLIK DRILLING, INC.

(Person, firm, or corporation) (Typed or printed)

Address 591 S. Walnut StreetCity La Habra, CalifZIP 90631License No. 306291-C57&C-61 Date of this report Aug. 28, 1989

TRIPPLICATE  
Owner's Copy

STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do not fill in.

No. 225501

Name of Interest No. \_\_\_\_\_  
Local Permit No. or Date \_\_\_\_\_

State Well No. 146/02E-31401  
Other Well No. PRESSURE-DEEP

WELL #10

<p>(2) LOCATION OF WELL (See instructions): County <u>San Diego</u> Owner's Well Number <u>10</u> Well address if different from above: Township <u>14S</u> Range <u>2E</u> Section <u>32</u> Distance from cities, roads, railroads, fences, etc. <u>2600'</u> south and <u>400'</u> east from NW corner of Section 32. North end of Bayer Avenue</p>		<p>(12) WELL LOG: Total depth <u>1569'</u>. Depth of completed well <u>1550'</u> from ft. to ft. Formation (Describe by color, character, size or material)</p>																													
		<p>0 - 73 Sand 73 - 93 Sand with cemented lenses 93 - 113 Sand 113 - 133 Sand with brown clay 133 - 153 Fine sand 153 - 213 Blue clay 213 - 223 Coarse sand 223 - 253 Coarse sand with gravel 253 - 263 Coarse sand 263 - 273 Fine sand 273 - 283 Boulders and sand 283 - 315 Sand and gravel 315 - 325 Boulders 325 - 374 Cement, coarse sand/gravel 374 - 380 Blue and brown clay 380 - 395 Tan clay and sand 395 - 475 Fine sand and silt 475 - 515 Sandy brown clay and silty sand, sea shells 515 - 525 Red sandy clay, brown clay, sand lenses 525 - 535 Fine silty sand 535 - 545 Hard red sandstone, sand, gravel 545 - 575 Red and gray clay 575 - 595 Brown sandstone 595 - 731 Tan silty clay 731 - 815 Tan clay 815 - 865 Tan sandy clay 865 - 885 Gray clay 885 - 905 Gray clay, gravel streaks 905 - 925 Tan sandy clay 925 - 950 Cemented gravel shale and sandy clay streaks 950 - 965 Brown sandy clay 965 - 975 Coarse sand, tan sand, clay 975 - 985 Cemented gravel, sand, sandy clay 985 - 1005 Gray clay, sand lenses, shells 1005 - 1025 Gray sandy clay, cem. gravel, shell</p>																													
<p>(3) TYPE OF WORK: New Well <input checked="" type="checkbox"/> Deepening <input type="checkbox"/> Reconstruction <input type="checkbox"/> Reconditioning <input type="checkbox"/> Horizontal Well <input type="checkbox"/> Destruction <input type="checkbox"/> (Describe destruction materials and procedures in Item 12). (4) PROPOSED USE: Domestic <input checked="" type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Test Well <input type="checkbox"/> Stock <input type="checkbox"/> Municipal <input type="checkbox"/> Other <input type="checkbox"/></p>		<p>(5) EQUIPMENT: Rotary <input type="checkbox"/> Reverse <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Air <input type="checkbox"/> Other <input type="checkbox"/> Bucket <input type="checkbox"/> (6) GRAVEL PACK: <u>Monterey</u> Yes <input type="checkbox"/> No <input type="checkbox"/> Size <u>No. 8 sand</u> Diameter of bore <u>24</u> Packed from <u>860'</u> to <u>1550'</u> ft.</p>																													
<p>(7) CASING INSTALLED: Steel <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> (8) PERFORATIONS: <u>Johnson 16"</u> Type of perforation or size of screen</p> <table border="1"> <thead> <tr> <th>From ft.</th> <th>To ft.</th> <th>Dia. in.</th> <th>Gage or Wall</th> <th>From ft.</th> <th>To ft.</th> <th>Slot size</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>60</td> <td>26</td> <td>1/4</td> <td>930</td> <td>970</td> <td>0.040</td> </tr> <tr> <td>0</td> <td>930</td> <td>16</td> <td>5/16</td> <td>990</td> <td>1010</td> <td>0.040</td> </tr> <tr> <td>970</td> <td>990</td> <td>16</td> <td>5/16</td> <td>1040</td> <td>1080</td> <td>0.040</td> </tr> </tbody> </table>		From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size	0	60	26	1/4	930	970	0.040	0	930	16	5/16	990	1010	0.040	970	990	16	5/16	1040	1080	0.040	<p>(9) WELL SEAL: Was surface sanitary seal provided? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, to depth <u>860'</u> ft. Were struts sealed against pollution? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Interval _____ ft. Method of sealing _____ (10) WATER LEVELS: Depth of first water, if known _____ ft. Standing level after well completion <u>155</u> ft.</p>	
From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size																									
0	60	26	1/4	930	970	0.040																									
0	930	16	5/16	990	1010	0.040																									
970	990	16	5/16	1040	1080	0.040																									
<p>(11) WELL TESTS: Was well test made? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, by whom? <u>Chappel</u> Type of test _____ Pump <input checked="" type="checkbox"/> Bailor <input type="checkbox"/> AM bit <input type="checkbox"/> Depth to water at start of test <u>305</u> ft. At end of test <u>310</u> ft. Discharge <u>2000</u> gal/min after <u>2.0</u> hours Water temperature _____ Chemical analysis made? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, by whom? <u>Owner</u> Was electric log made? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, attach copy to this report</p>		<p>WELL DRILLER'S STATEMENT: This well was drilled under my immediate supervision and this report is true to the best of my knowledge and belief. Signed _____ (Well Driller) NAME <u>Stang Hydraulics Inc.</u> (Firm, firm, or corporation) (Typed or printed) Address <u>3362 Fitzgerald Road</u> City <u>Rancho Cordova, California</u> No. <u>95670</u> License No. <u>394815</u> Date of this report <u>9-8-83</u></p>																													



**TRIPPLICATE**  
Owner's Copy

STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do not fill in

No. 225502

State Well No. 145/02E-31H01  
Other Well No. \_\_\_\_\_

Notice of Intent No. \_\_\_\_\_  
Local Permit No. or Date \_\_\_\_\_

<p><b>(2) LOCATION OF WELL</b> (See instructions):</p> <p>County _____ Owner's Well Number _____</p> <p>Well address if different from above _____</p> <p>Township _____ Range _____ Section _____</p> <p>Distance from cities, roads, railroads, ferries, etc. _____</p>	<p><b>(12) WELL LOG:</b> Total depth _____ ft. Depth of completed well _____ ft.</p> <p>from ft. to ft. A. Formation (Describe by color, character, size or material)</p> <p>1025 - 1035 Blue clay, wood at 1033</p> <p>1035 - 1055 Blue sandstone</p> <p>1055 - 1075 Blue clay</p> <p>1075 - 1085 Tan clay</p> <p>1085 - 1108 Blue shale, sandstone streaks</p> <p>1108 - 1137 Black sandy clay, black sandstone shells</p> <p>1137 - 1155 Black sandy clay</p> <p>1155 - 1173 Cemented sand, gravel, shells</p> <p>1173 - 1180 Black sandy clay</p> <p>1180 - 1185 Cemented sand, gravel, shells</p> <p>1185 - 1212 Dark gray sandy clay</p> <p>1212 - 1215 Cemented sand, gravel</p> <p>1215 - 1225 Sticky blue clay</p> <p>1225 - 1235 Blue sandstone</p> <p>1235 - 1245 Sticky blue clay, sandy lenses</p> <p>1245 - 1255 Sandy black clay with shale</p> <p>1255 - 1265 Blue clay, fine gravel @ 1260</p> <p>1265 - 1275 Blue sandstone, clay lenses</p> <p>1275 - 1285 Blue sandstone</p> <p>1285 - 1305 Black sandstone and shale</p> <p>1305 - 1317 Sandy black clay</p> <p>1317 - 1320 Black stone</p> <p>1320 - 1328 clay and sandstone streaks</p> <p>1328 - 1343 Sandy black clay</p> <p>1343 - 1365 Sandstone</p> <p>1365 - 1370 Gray sandy clay</p> <p>1370 - 1375 Sandstone</p> <p>1375 - 1395 Gray silty clay</p> <p>1395 - 1398 Sandstone</p> <p>1398 - 1408 Gray silty clay</p> <p>1408 - 1410 Black sandstone</p> <p>1410 - 1415 Silty blue clay</p> <p>1415 - 1418 Black sandstone</p> <p>1418 - 1435 Silty blue clay</p> <p>1435 - 1437 Gray clay with gravel</p> <p>1437 - 1445 Coarse sand, gravel</p>																												
<p><b>(3) TYPE OF WORK:</b></p> <p>New Well <input type="checkbox"/> Deepening <input type="checkbox"/></p> <p>Renovation <input type="checkbox"/></p> <p>Reconditioning <input type="checkbox"/></p> <p>Horizontal Well <input type="checkbox"/></p> <p>Destruction <input type="checkbox"/> (Describe destruction materials and procedures in Item 12)</p> <p><b>(4) PROPOSED USE:</b></p> <p>Domestic <input type="checkbox"/></p> <p>Irrigation <input type="checkbox"/></p> <p>Industrial <input type="checkbox"/></p> <p>Test Well <input type="checkbox"/></p> <p>Stock <input type="checkbox"/></p> <p>Municipal <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p>	<p><b>(6) GRAVEL PACK:</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> Size _____</p> <p>Diameter of bore _____</p> <p>Packed from _____ to _____ ft.</p> <p><b>(8) PERFORATIONS:</b></p> <p>Type of perforation or size of screen _____</p>																												
<p><b>WELL LOCATION SKETCH</b></p> <p><b>(5) EQUIPMENT:</b></p> <p>Rotary <input type="checkbox"/> Reverse <input type="checkbox"/></p> <p>Cable <input type="checkbox"/> Air <input type="checkbox"/></p> <p>Other <input type="checkbox"/> Bucket <input type="checkbox"/></p> <p><b>(7) CASING INSTALLED:</b></p> <p>Steel <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>From ft.</th> <th>To ft.</th> <th>Dis. in.</th> <th>Cage or Wall</th> <th>From ft.</th> <th>To ft.</th> <th>Slot size</th> </tr> </thead> <tbody> <tr> <td>1010</td> <td>1040</td> <td>16</td> <td>5/16</td> <td>1190</td> <td>1210</td> <td>0.040</td> </tr> <tr> <td>1080</td> <td>1190</td> <td>16</td> <td>5/16</td> <td>1500</td> <td>1540</td> <td>0.040</td> </tr> <tr> <td>1210</td> <td>1500</td> <td>16</td> <td>5/16</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p><b>(9) WELL SEAL:</b></p> <p>Was surface sanitary seal provided? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, to depth _____ ft.</p> <p>Were struts sealed against pollution? Yes <input type="checkbox"/> No <input type="checkbox"/> Interval _____ ft.</p> <p>Method of sealing _____</p> <p><b>(10) WATER LEVELS:</b></p> <p>Depth of first water, if known _____ ft.</p> <p>Standing level after well completion _____ ft.</p> <p><b>(11) WELL TESTS:</b></p> <p>Was well test made? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, by whom? _____</p> <p>Type of test _____ Pump <input type="checkbox"/> Bailor <input type="checkbox"/> Air lift <input type="checkbox"/></p> <p>Depth to water at start of test _____ ft. At end of test _____ ft.</p> <p>Discharge _____ gal/min after _____ hours Water temperature _____</p> <p>Chemical analysis made? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, by whom? _____</p> <p>Was electric log made? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, attach copy to this report</p>	From ft.	To ft.	Dis. in.	Cage or Wall	From ft.	To ft.	Slot size	1010	1040	16	5/16	1190	1210	0.040	1080	1190	16	5/16	1500	1540	0.040	1210	1500	16	5/16			
From ft.	To ft.	Dis. in.	Cage or Wall	From ft.	To ft.	Slot size																							
1010	1040	16	5/16	1190	1210	0.040																							
1080	1190	16	5/16	1500	1540	0.040																							
1210	1500	16	5/16																										

## WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of knowledge and belief.

SIGNED \_\_\_\_\_ (Well Driller)

NAME Stang Hydraulics Inc. (Person, firm, or corporation) (Typed or printed)

Address 3362 Fitzgerald Road

City Rancho Cordova, California Zip 95670

License No. 394815 Date of this report 9-8-83

**TRIPPLICATE**  
Owner's Copy

STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do not fill  
No. 225503

Name of Interest No. \_\_\_\_\_

Local Permit No. or Date \_\_\_\_\_

State Well No. 145/02E-31H01

Other Well No. \_\_\_\_\_

(2) LOCATION OF WELL (See instructions):

County \_\_\_\_\_ Owner's Well Number \_\_\_\_\_

Well address if different from above \_\_\_\_\_

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Distance from cities, roads, railroads, fences, etc. \_\_\_\_\_

(12) WELL LOG: Total depth \_\_\_\_\_ ft. Depth of completed well \_\_\_\_\_ ft.  
from ft. to ft. Formation (Describe by color, character, size of material)

1445 - 1455 Blue clay

1455 - 1475 Blue clay, sandstone streaks

1475 - 1485 Blue shale

1485 - 1505 Cemented gravel

1505 - 1511 Brown and gray clay

1511 - 1523 White sandy clay

1523 - 1535 ~~Gray~~ Shale

1535 - 1540 Green clay, shale

1540 - 1544 Fine to coarse sand

1544 - 1546 Green clay and shale

1546 - 1550 Green clay, white sandy clay,

blue shale

1550 - 1557 Black sandstone

1557 - 1560 Green sandy clay, white sandstone

black shale

1560 - 1569 Blue sandstone, white sandstone

(3) TYPE OF WORK:

New Well ☐ Deepening ☐

Reconstruction ☐

Retooling ☐

Horizontal Well ☐

Destruction ☐ (Describe destruction materials and procedures in item 12)

(4) PROPOSED USE:

Domestic ☐

Irrigation ☐

Industrial ☐

Test Well ☐

Stock ☐

Municipal ☐

Other ☐

WELL LOCATION SKETCH

(5) EQUIPMENT:

Borey ☐

Reverse ☐

Cable ☐

Air ☐

Other ☐

Bucket ☐

(6) GRAVEL PACK:

Yes ☐ No ☐ Size \_\_\_\_\_

Diameter of bore \_\_\_\_\_

Packed from \_\_\_\_\_ to \_\_\_\_\_ ft.

(7) CASTING INSTALLED:

Steel ☐

Plastic ☐

Concrete ☐

(8) PERFORATIONS:

Type of perforation or size of screen \_\_\_\_\_

From ft.	To ft.	Dia. in.	Cage or Wall	From ft.	To ft.	Slot size
1540	1550	16	5/16			

(9) WELL SEAL:

Was surface sanitary seal provided? Yes ☐ No ☐ If yes, to depth \_\_\_\_\_ ft.

Were struts sealed against pollution? Yes ☐ No ☐ Interval \_\_\_\_\_ ft.

Method of sealing \_\_\_\_\_

(10) WATER LEVELS:

Depth of first water, if known \_\_\_\_\_ ft.

Standing level after well completion \_\_\_\_\_ ft.

(11) WELL TESTS:

Was well test run? Yes ☐ No ☐ If yes, by whom? \_\_\_\_\_

Type of test Pump ☐ Bailor ☐ Air lift ☐

Depth to water at start of test \_\_\_\_\_ ft. At end of test \_\_\_\_\_ ft.

Discharge \_\_\_\_\_ gal/min after \_\_\_\_\_ hours Water temperature \_\_\_\_\_

Chemical analysis made? Yes ☐ No ☐ If yes, by whom? \_\_\_\_\_

Was electric log made? Yes ☐ No ☐ If yes, attach copy to this report

Work started \_\_\_\_\_ 19\_\_\_\_ Completed \_\_\_\_\_ 19\_\_\_\_

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED \_\_\_\_\_ (Well Driller)

NAME Stang Hydraulics Inc.  
(Person, firm, or corporation) (Typed or printed)

Address 3362 Fitzgerald Road  
City Rancho Cordova, California Zip 95670

License No. 294815 Date of this report 9-8-83

ORIGINAL

File with DWR

STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do not fill in

No. 240867

N of Intent No. 232508  
L Permit No. or Date 11-4-85

State Well No. 145/2E-32D4  
Other Well No.

(1) OWNER [Redacted]  
Address [Redacted]  
City [Redacted]

(2) LOCATION OF WELL (See instructions):  
County Monterey Owner's Well Number No. 11  
Well address if different from above  
Township Range Section  
Distance from cities, roads, railroads, fences, etc. approx. 140 ft. West  
of Salinas Ave. at Reservation Road  
Marina, Calif. 93933

(3) TYPE OF WORK:  
New Well ☒ Deepening ☐  
Reconstruction ☐  
Reconditioning ☐  
Horizontal Well ☐  
Destruction ☐ (Describe destruction materials and procedures in item 12)  
(4) PROPOSED USE:  
Domestic ☐  
Irrigation ☐  
Industrial ☐  
Test Well ☐  
Stock ☐  
Municipal ☐  
Other ☐

WELL LOCATION SKETCH  
(5) EQUIPMENT:  
Rotary ☐ Reverse ☒  
Cable ☐ Air ☐  
Other ☐ Bucket ☐  
(6) GRAVEL PACK: Monterey Sand  
Yes ☒ No ☐ Size 18  
Diameter of bore 28  
Packed from 880 to 1660 ft.  
(7) CASING INSTALLED:  
Steel ☒ Plastic ☐ Concrete ☐  
From ft. To ft. Dia. in. Gauge or Wall  
0 880 30 5/16  
0 1660 16 5/16  
(8) PERFORATIONS: Johnson Screens  
Type of perforation or size of screen  
From ft. To ft. Slot size  
970 1100 3/4  
1540 1570  
1610 1660

(9) WELL SEAL:  
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 880 ft.  
Were strata sealed against pollution? Yes ☒ No ☐ Interval 0 - 880 ft.  
Method of sealing 6 sack grout mix

(10) WATER LEVELS:  
Depth of first water, if known 168 ft.  
Standing level after well completion 168 ft.

(11) WELL TESTS:  
Was well test made? Yes ☒ No ☐ If yes, by whom? Beylik Drilling  
Type of test Pump ☒ Bailer ☐ Air lift ☐  
Flow to water at start of test 168 ft. At end of test 168 ft.  
Rate 2500 gal/min after 133 hours Water temperature  
Chemical analysis made? Yes ☐ No ☐ If yes, by whom?  
Electric log made? Yes ☒ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth 1700 ft. Depth of completed well 1660 ft.  
from ft. to ft. Formation (Describe by color, character, size or material)  
0 - 50 ft. sand, fine gravel  
50 - 60 ft. gravel  
60 - 80 ft. clay  
80 - 90 ft. sand and wood  
90 - 110 ft. sticky sand  
110 - 120 ft. sand and wood  
120 - 140 ft. sand  
140 - 170 ft. clay  
170 - 190 ft. fine gravel, little clay  
190 - 200 ft. gravel  
200 - 210 ft. clay  
210 - 220 ft. gravel, pieces of clay  
220 - 230 ft. gravel and clay  
230 - 260 ft. clay  
260 - 270 ft. gravel  
270 - 290 ft. gravel, small amt. clay  
290 - 310 ft. fine gravel  
310 - 330 ft. gravel, clay and sand  
330 - 340 ft. rock and clay  
340 - 360 ft. sand and rock  
360 - 370 ft. clay  
370 - 380 ft. gravel, little clay  
380 - 390 ft. clay, gravel mixed  
390 - 400 ft. clay and gravel  
400 - 440 ft. gravel  
440 - 490 ft. clay  
490 - 500 ft. gravel and sme clay  
500 - 510 ft. clay  
510 - 540 ft. clay and sand  
540 - 550 ft. sand  
550 - 580 ft. clay  
580 - 590 ft. sandy red clay  
590 - 650 ft. sandy clay  
650 - 660 ft. gravel and small rocks  
660 - 670 ft. clay, small amt. gravel  
670 - 790 ft. clay  
790 - 810 ft. sand and rocks  
- continued on next page #240868

Work started Nov. 4, 1985 Completed January 9, 1986  
WELL DRILLER'S STATEMENT:  
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.  
SIGNED [Signature] (Well Driller)  
NAME BEYLIK DRILLING, INC.  
(Person, firm, or corporation) (Typed or printed)  
Address 591 S. Walnut Street  
City La Habra, Calif. Zip 90631  
License No. 306291-C57&SC-61 Date of this report Jan. 21, 1986



STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
WATER WELL DRILLERS REPORT

Do not fill in

No. 240868

State Well No. 145/2E-32D4  
Other Well No.

Notice of Intent No. 232508  
Location mit No. or Date 11/4/85

(1) [Redacted]		(12) WELL LOG: Total depth 1700 ft. Depth of completed well 1660 ft.	
Add.		from ft. to ft. Formation (Describe by color, character, size or material)	
City.		810 - 820 ft. clay and rock	
(2) LOCATION OF WELL (See instructions):		820 - 830 ft. gravel, little clay	
County Monterey Owner's Well Number #11		830 - 960 ft. clay	
Well address if different from above		960 - 970 ft. sand clay and rock	
Township Range Section		970 - 990 ft. sand and rock	
Distance from cities, roads, railroads, fences, etc. approx. 140 ft. West		990 - 1000 ft. small amt. clay, gravel and rocks	
of Salinas Ave. at Reservation Road,		1000 - 1010 ft. gravel, small rocks	
Marina, Calif. 93933		1010 - 1040 ft. silty clay	
(3) TYPE OF WORK:		1040 - 1050 ft. silty clay, trace of gravel	
New Well <input checked="" type="checkbox"/> Deepening <input type="checkbox"/>		1050 - 1060 ft. silty clay, gravel	
Reconstruction <input type="checkbox"/>		1060 - 1090 ft. clay	
Reconditioning <input type="checkbox"/>		1090 - 1094 ft. granite, decomposed	
Horizontal Well <input type="checkbox"/>		1094 ft - 1100 ft. granite, sea shells	
Destruction <input type="checkbox"/> (Describe destruction materials and procedures in Item 12)		1100 - 1160 ft. clay	
(4) PROPOSED USE:		1160 - 1170 ft. clay, small amt. gravel	
Domestic <input type="checkbox"/>		1170 - 1180 ft. clay	
Irrigation <input type="checkbox"/>		1180 - 1190 ft. clay, small amt. gravel	
Industrial <input type="checkbox"/>		1190 - 1220 ft. clay	
Test Well <input type="checkbox"/>		1220 - 1230 ft. sand and clay	
Stock <input type="checkbox"/>		1230 - 1240 ft. rock and clay	
Municipal <input checked="" type="checkbox"/>		1240 - 1310 ft. clay	
Other <input type="checkbox"/>		1310 - 1330 ft. hard brittle clay	
WELL LOCATION SKETCH		1330 - 1350 ft. chunks of hard clay	
(5) EQUIPMENT:		1350 - 1390 ft. clay	
Rotary <input type="checkbox"/> Reverse <input checked="" type="checkbox"/>		1390 - 1480 ft. soft clay	
Cable <input type="checkbox"/> Air <input type="checkbox"/>		1480 - 1500 ft. clay, sand and rock	
Other <input type="checkbox"/> Bucket <input type="checkbox"/>		1500 - 1510 ft. clay and sand	
(6) GRAVEL PACK: Monterey Sand		1510 - 1530 ft. clay	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Size 8 x 16		1530 - 1539 ft. clay and sand	
Diameter of bore 28"		1539 - 1570 ft. sand and clay	
Packed from 880 to 1660 ft.		1570 - 1580 ft. green soft clay, sandy	
(7) CASING INSTALLED:		1580 - 1590 ft. white sandy clay, little clumps	
Steel <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/>		1590 - 1600 ft. clay, soft	
(8) PERFORATIONS: Johnson		1600 - 1620 ft. clay, some sand, and gravel	
Type of perforation or size of screen		1620 - 1650 ft. rock, sand and clay	
From ft. To ft. Dia. in. Gauge of Wall		1650 - 1670 ft. gravel 85%, white clay: 15%	
0 880 30 5/16"		1670 - 1680 ft. white clay, sand and small gravel	
0 1660 16 5/16"		1680 - 1700 ft. hard conglomerates - end-end-er	
(9) WELL SEAL:		Work started Nov. 4, 1985 Completed Jan. 9, 1986	
1650 ft.		WELL DRILLER'S STATEMENT:	
Was surface sanitary seal provided? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, to depth 880 ft.		This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.	
Were strata sealed against pollution? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Interval 0 - 880 ft.		SIGNED [Signature]	
Method of sealing 6 sack grout mix		(Well Driller)	
(10) WATER LEVELS:		NAME BEYLIK DRILLING, INC.	
Depth of first water, if known 168 ft.		(Person, firm, or corporation) (Typed or printed)	
Standing level after well completion 168 ft.		Address 591 S. Walnut Street	
(11) WELL TESTS:		City La Habra, Calif. Zip 90631	
Was well test made? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, by whom? Beylik Drilling		License No. 306291C57&SC-61 Date of this report Jan. 21, 1986	
Type of test Pump <input checked="" type="checkbox"/> Bailor <input type="checkbox"/> Air lift <input type="checkbox"/>			
Depth to water at start of test 168 ft. At end of test 168 ft.			
I 2500 gal/min after 133 hours Water temperature			
Chemical analysis made? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, by whom?			
Electric log made? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, attach copy to this report			

Well produced 2500 GPM after 133 hrs. with  
drawdown of 180 and a specific yield of: 11.11

14S/02E-33E01 (FC 26313)

14S/02E-33E02 (FC 26314)

ORIGINAL  
File with DWRPage 1 of 1Owner's Well No. [REDACTED]Date Work Began Jan 6 2025 Ended Jan 25 2025Local Permit Agency Monterey County Dept of HealthPermit No. 04-18447Permit Date 10/19/04STATE OF CALIFORNIA  
WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 737000

DWR USE ONLY - DO NOT FILL IN	
STATE WELL NO./STATION NO.	
LATITUDE	LONGITUDE
APR/MS/OTHER	
WELL OWNER	
Pressure Deep	

## GEOLOGIC LOG

ORIENTATION (±) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)

DRILLING METHOD Mud Rotary FLUID retake water

DEPTH FROM SURFACE

Fe	To	Fe	Description
			Describe material, grain size, color, etc.
			<u>see attached geologic log</u>

WELL LOCATION

Address 3200 Eugin Road

City Marina

County Monterey

APN Book 145 Page 114 Parcel 031-111-037

Township 14S Range R2E Section 11A

Latitude 36° 40' 24" NORTH Longitude 121° 45' 10" WEST

## LOCATION SKETCH



## ACTIVITY (±)

☒ NEW WELL

MODIFICATION/REPAIR

☐ Deepen

☐ Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (±)

WATER SUPPLY

☐ Domestic ☐ Public

☐ Irrigation ☐ Industrial

MONITORING ☒

TEST WELL ☐

CATHODIC PROTECTION ☐

HEAT EXCHANGE ☐

DIRECT PUSH ☐

INJECTION ☐

VAPOR EXTRACTION ☐

SPARGING ☐

REMEDIATION ☐

OTHER (SPECIFY) ☐

## WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ~100 (Fe) BELOW SURFACEDEPTH OF STATIC WATER LEVEL 100.1 (Fe) & DATE MEASURED Jan 24, 2025ESTIMATED YIELD ~1/4 (GPM) & TEST TYPE N/ATEST LENGTH N/A (Hrs) TOTAL DRAWDOWN N/A (Fe) Note: 2-upper well 1-lower well

\* May not be representative of a well's long-term yield.

TOTAL DEPTH OF BORING 2025 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1760 (Feet)

DEPTH FROM SURFACE			BORE-HOLE DIA. (inches)	CASING (S)					DEPTH FROM SURFACE		ANNULAR MATERIAL				
				TYPE (±)			MATERIAL / GRADE	INTERNAL DIAMETER (inches)			GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (inches)	TYPE		
FL	TO	FL	BLANK	SCREEN	CON. DUCTOR	FILL PIPE			FL	TO			FL	CE- MENT (±)	BEN- TONITE (±)
0	40				✓		steel	16	5/8	—	0	50	✓		11-sack mix.
5	1045		✓				PVC	2-in	sch 80	—	50	1045		✓	Pure Gravel
1045	1095			✓			PVC	2-in	sch 80	0.20	1045	1112		✓	#3 w/ #60 TS
0	1680		✓				PVC	3-in	sch 80	—	1112	1680		✓	1/2 Gravel
1680	1760			✓			PVC	3-in	sch 80	0.20	1680	1771		✓	#3 w/ #60 TS
											1771	1885	✓		Pure Gravel

## ATTACHMENTS (±)

- ☒ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Logs
- ☐ Soil/Water Chemical Analyses
- ☐ Other

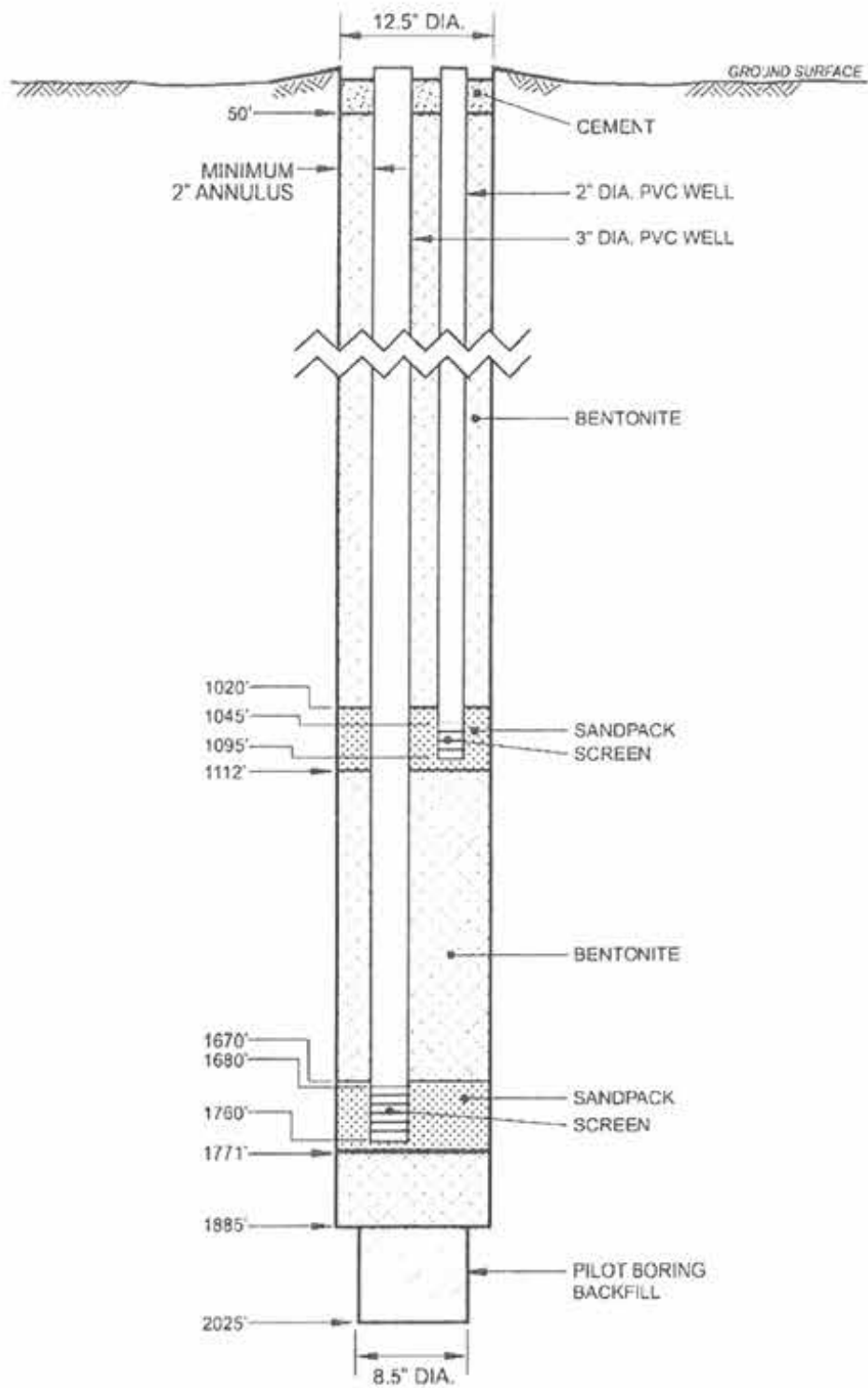
ATTACH ADDITIONAL INFORMATION IF IT EXISTS

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME WDC ExplorationADDRESS P.O. Box 1417, Marina, CA 95690Signed Jim WhitleyDATE SIGNED 4-18-05 STATE CA ZIP 95690

C-57 LICENSE NUMBER



SCHEM. Pilot Boring ver 2 Pmt10



# Schematic of DMW-2 Well Construction

Marina, California

PLATE

3

DRAWN  
CN

JOB NUMBER  
4098042052 02

CHECKED  
*[Signature]*

CHECKED DATE  
05/05

APPROVED  
*[Signature]*

APPROVED DATE  
7-7-05





ORIGINAL

File with DWR

Page 1 of 1

Owner's Well No. Well D Test Hole

Date Work Began 1/15/95

Ended 2/28/95

No. 555850

Local Permit Agency Monterey County Health Dept.

Permit No. WSAL 95035

Permit Date 1/23/95

STATE OF CALIFORNIA  
WELL COMPLETION REPORT

Refer to Instruction Pamphlet

MIDDLE AQUIFER - 610 H. WELL

DWR USE ONLY - DO NOT FILL IN

1.5/S/O.2/E-014A02

STATE WELL NO./STATION NO.

LATITUDE

LONGITUDE

1.5/S/O.2/E-014A02

APN/TRS/OTHER

WELL OWNER Ft. Ord

## GEOLOGIC LOG

ORIENTATION ( ) — VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)

DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

## DESCRIPTION

Describe material, grain size, color, etc.

DEPTH FROM SURFACE	Ft.	to	Ft.	DESCRIPTION
0	140			Sand, light brown, fine to medium grained
140	335			Sand, light brown, fine to coarse grained, subrounded to rounded
335	440			Sand with chert pebbles and shell fragments, coarse grained
440	470			Silty clay with sand and gravel
470	480			Sand with chert pebbles
480	495			Diatomaceous claystone with sand
495	530			Sand with silt and rounded diatomaceous claystone fragments
530	580			Clay, reddish brown to gray brown with interbedded sand
580	610			Sand with chert pebbles and thin clay layers, coarse grained
610	645			Clay, orange brown soft minor sand
645	690			Sand with chert pebbles, coarse grained, subangular
690	735			Interbedded layers of sand and soft light yellow brown clay
735	870			Clay, light brown, stiff, local sand and gravel lenses
870	905			Clay blue gray, stiff
905	1050			Sand, white to light brown, fine to coarse grained minor gravel
1050	1205			Clay, gray to light brown, stiff, minor fine grained sand
1205	1212			Sand, light gray, very fine grained

TOTAL DEPTH OF BORING (Feet)

TOTAL DEPTH OF COMPLETED WELL (Feet)

WELL LOCATION STATE ZIP

Address Reservation Road At Garrison

City Ft. Ord

County Monterey, CA

APN Book Page Parcel

Township Range Section

Latitude Longitude

DEG. MIN. SEC. NORTH Longitude DEG. MIN. SEC. WEST

LOCATION SKETCH NORTH

ACTIVITY ( ) -

NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify)

DESTROY (Describe Procedures and Material Under "GEOLOGIC LOG")

PLANNED USE(S)

MONITORING

WATER SUPPLY

Domestic

Public

Irrigation

Industrial

"TEST WELL"

CATHODIC PROTECTION

OTHER (Specify)

SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.

PLEASE BE ACCURATE &amp; COMPLETE.

DRILLING METHOD Rotary

FLUID mud

WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL (Ft.) &amp; DATE MEASURED

ESTIMATED YIELD\* (GPM) &amp; TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING(S)						DEPTH FROM SURFACE			ANNULAR MATERIAL					
Ft.	to	Ft.		TYPE (✓)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	Ft.	to	Ft.	TYPE			
				BLANK	SCREEN	CON. DUCTOR	FILL PIPE								CE- MENT (✓)	BEN- TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
								See attached										
			</															

## ATTACHMENTS ( )

- ☒ Geologic Log  
☒ Well Construction Diagram  
☐ Geophysical Log(s)  
☐ Soil/Water Chemical Analyses  
☐ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Reylik Drilling, Inc.  
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

3429 Longview Drive North Highlands CA 95660

ADDRESS CITY STATE ZIP

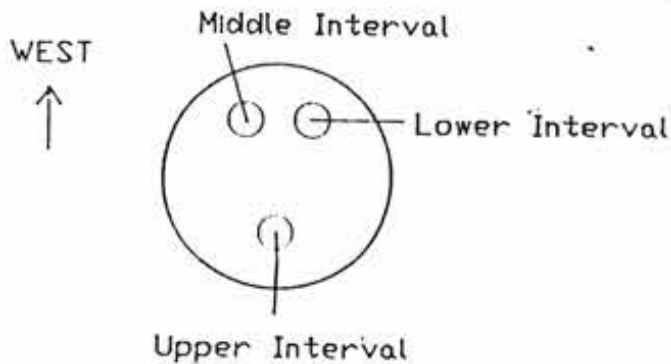
Signed [Signature] DATE SIGNED 3/14/95 306291

WELL DRILLER/AUTHORIZED REPRESENTATIVE C-57 LICENSE NUMBER

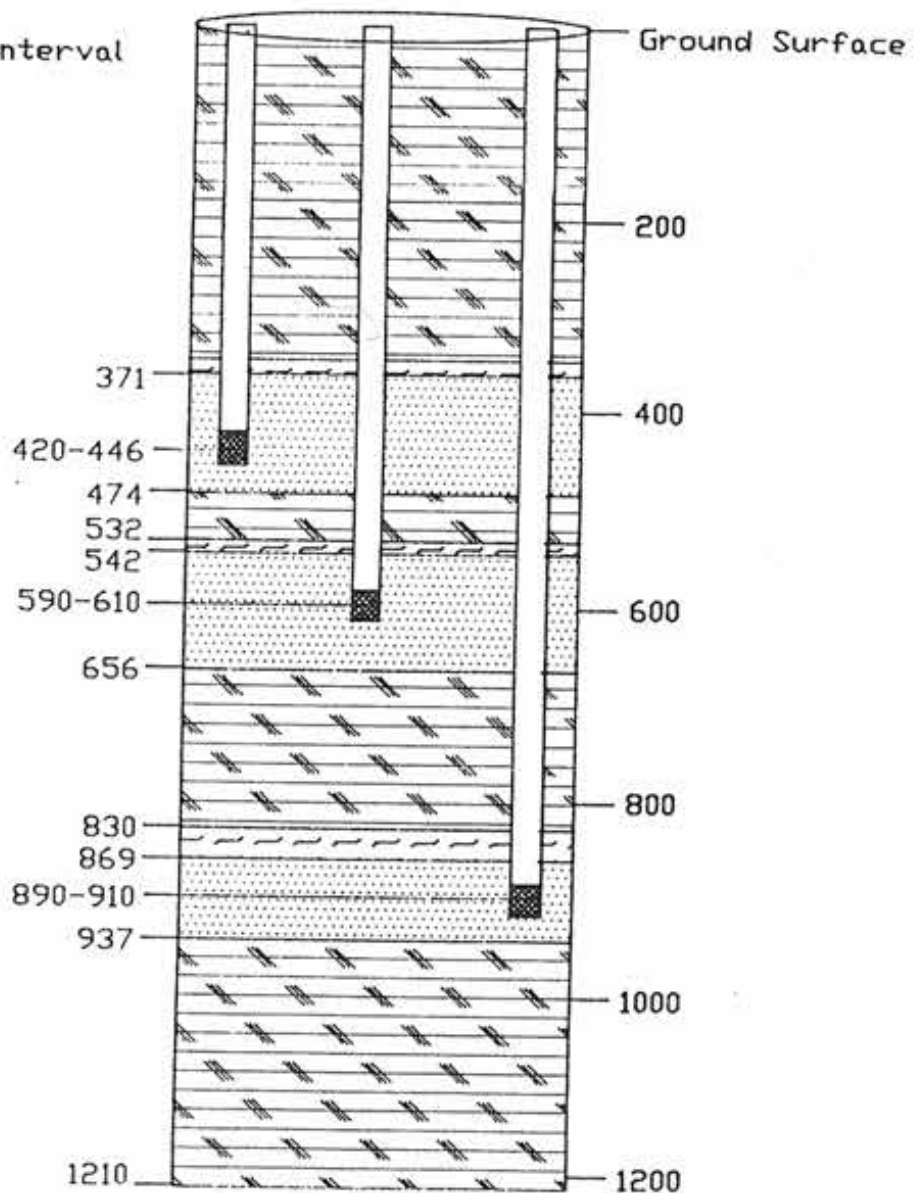


C-57 LICENSE NUMBER

155/φ2E-φ4Aφ1  
 155/φ2E-φ4Aφ2  
 155/φ2E-φ4Aφ3



- 420-440 Upper Screen
- 590-610 Intermed Screen
- 890-910 Lower Screen
- 0-362 Cement
- 362-371 Gravel/Benseal
- 371-474 Gravel
- 474-532 Cement
- 532-542 Gravel/Benseal
- 542-656 Gravel
- 656-830 Cement
- 830-869 Gravel/Benseal
- 869-937 Gravel Pack
- 937-1208 Cement Plug



\*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

FC 25375

State of California

# Well Completion Report

Refer to Instruction Pamphlet

No. e0131077

Page 1 of 2

Owner's Well Number Well 34

Date Work Began 02/22/2011

Date Work Ended 5/4/2011

Local Permit Agency Monterey County Division of Environmental Health

Permit Number 10-11860

Permit Date 2/11/11

DWR Use Only - Do Not Fill In

1	5	8	/	1	0	2	E	-	0	4	A	0	4
State Well Number/Well Number													
Latitude							Longitude						
1	5	8	/	1	0	2	E	-	0	4	A	0	4
APN/TRS/Other													

## Geologic Log

Orientation ☒ Vertical ☐ Horizontal ☐ Angle Specify \_\_\_\_\_  
Drilling Method \_\_\_\_\_ Drilling Fluid Fresh Water

Depth from Surface \_\_\_\_\_ Description \_\_\_\_\_  
Feet to Feet Describe material, grain size, color, etc

0	7	Gray sand
7	145	Bm. sand
145	150	Blue clay
150	155	Bm. clay
155	270	Bm. sand
270	290	Bm. clay
290	310	Bm. sandy clay
310	335	Sand & gravel
335	340	Bm. clay
340	360	Sand & gravel
360	400	Bm. clay
400	470	Sand & gravel
470	475	Bm. clay
475	485	Bm. clay & gravel
485	505	Bm. sandy clay
505	510	Bm. clay
510	515	Bm. sandy clay
515	545	Bm. clay & gravel
545	580	Bm. sandy clay
580	585	Bm. clay & gravel
585	605	Bm. sand
605	628	Bm. clay
628	650	Sand & gravel
650	665	Bm. sandy clay
665	725	Bm. clay
725	730	Bm. sandy clay
730	745	Bm. clay
745	755	Bm. sandy clay
755	760	Bm. clay
760	775	Bm. sandy clay

Total Depth of Boring 1110 Feet

Total Depth of Completed Well 1095 Feet

## Well Owner

## Well Location

Address 565 Reservation Road

City Marina County Monterey

Latitude \_\_\_\_\_ N Longitude \_\_\_\_\_ W  
Dec. Min. Sec. Dec. Min. Sec.

Datum \_\_\_\_\_ Decimal Lat. \_\_\_\_\_ Decimal Long. \_\_\_\_\_

APN Book 031 Page 011 Parcel 012

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

## Location Sketch

(Sketch must be drawn by hand after form is printed.)

North



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

## Activity

- ☒ New Well  
☐ Modification/Repair  
☐ Deepen  
☐ Other \_\_\_\_\_  
☐ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

## Planned Uses

- ☒ Water Supply  
☐ Domestic ☒ Public  
☐ Irrigation ☐ Industrial  
☐ Cathodic Protection  
☐ Dewatering  
☐ Heat Exchange  
☐ Injection  
☐ Monitoring  
☐ Remediation  
☐ Sparging  
☐ Test Well  
☐ Vapor Extraction  
☐ Other \_\_\_\_\_

## Water Level and Yield of Completed Well

Depth to first water \_\_\_\_\_ (Feet below surface)

Depth to Static \_\_\_\_\_

Water Level 201 (Feet) Date Measured 05/04/2011

Estimated Yield \* 2,000 (GPM) Test Type Constant Rate

Test Length 9.0 (Hours) Total Drawdown 170 (Feet)

\*May not be representative of a well's long term yield.

## Casings

Depth from Surface Feet to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	55	38	Conductor	Low Carbon Steel	3/8	32	
0	695	28	Fill pipe	304 Stainless Steel	SCH 40	2.25	
0	598	28	Blank	HSLA	3/8	18.75	
598	603	28	Reducer	HSLA	3/8	18 x14	
603	605	28	Dielectric	HSLA X Stainless	3/8	14.5	
605	705	22	Blank	304 Stainless Steel	5/16	14.5	

## Annular Material

Depth from Surface Feet to Feet	Fill	Description
0	55	Cement 10 SACK
0	685	Cement Neat cement
685	1,110	Filter Pack 8 X 16

## Attachments

- ☐ Geologic Log  
☐ Well Construction Diagram  
☐ Geophysical Log(s)  
☐ Soil/Water Chemical Analyses  
☐ Other \_\_\_\_\_

Attach additional information, if it exists

## Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Maggiora Bros. Drilling, Inc.

Person, Firm or Corporation

595 Airport Blvd.

Watsonville

CA 95076

Signed

*[Signature]*

05/24/2011

249957

Date Signed

C-57 License Number

File Original with DWR

# State of California Well Completion Report

Refer to Instruction Pamphlet

No. e0131077

Page 2 of 2

Owner's Well Number Well 34

Date Work Began 02/22/2011

Date Work Ended 5/4/2011

Local Permit Agency Monterey County Division of Environmental Health

Permit Number 10-11860

Permit Date 2/11/11

DWR Use Only - Do Not Fill In

State Well Number/Site Number

Latitude Longitude

APN/TRS/Other

## Geologic Log

Orientation ☒ Vertical ☐ Horizontal ☐ Angle Specify \_\_\_\_\_  
Drilling Method \_\_\_\_\_ Drilling Fluid \_\_\_\_\_ Fresh Water \_\_\_\_\_

Depth from Surface Description  
Feet to Feet Describe material, grain size, color, etc.

775	780	Bm. clay
780	795	Bm. sandy clay
795	830	Bm. clay
830	840	Sand & gravel
840	865	Bm. clay
865	875	Bm. sand & clay
875	895	Bm. clay
895	930	Fine bm. sand
930	955	Bm. sand & clay
955	960	Bm. sand, clay & gravel
960	1,090	Bm. sand & clay
1090	1,110	Bm. clay

Total Depth of Boring 1110 Feet

Total Depth of Completed Well 1095 Feet

## Well Owner

## Well Location

Address 565 Reservation Road

City Marina County Monterey

Latitude \_\_\_\_\_ N Longitude \_\_\_\_\_ W

Datum \_\_\_\_\_ Decimal Lat. \_\_\_\_\_ Decimal Long. \_\_\_\_\_

APN Book 031 Page 011 Parcel 012

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

## Location Sketch

(Sketch must be drawn by hand after form is printed.)

North



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

## Activity

- ☒ New Well
- ☐ Modification/Repair
  - ☐ Deepen
  - ☐ Other \_\_\_\_\_
- ☐ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

## Planned Uses

- ☒ Water Supply
  - ☐ Domestic ☒ Public
  - ☐ Irrigation ☐ Industrial
- ☐ Cathodic Protection
- ☐ Dewatering
- ☐ Heat Exchange
- ☐ Injection
- ☐ Monitoring
- ☐ Remediation
- ☐ Sparging
- ☐ Test Well
- ☐ Vapor Extraction
- ☐ Other \_\_\_\_\_

## Water Level and Yield of Completed Well

Depth to first water \_\_\_\_\_ (Feet below surface)

Depth to Static \_\_\_\_\_

Water Level \_\_\_\_\_ (Feet) Date Measured \_\_\_\_\_

Estimated Yield \* \_\_\_\_\_ (GPM) Test Type \_\_\_\_\_

Test Length \_\_\_\_\_ (Hours) Total Drawdown \_\_\_\_\_ (Feet)

\*May not be representative of a well's long term yield.

## Casings

Depth from Surface Feet to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
705	1,085	22	Screen	304 Stainless Steel	14.5	Wire Wrap	0.050
1,085	1,095	22	Blank	304 Stainless Steel	5/16		

## Annular Material

Depth from Surface Feet to Feet	Fill	Description
0	685	Cement
685	1,110	Filter Pack
		8 X 16

## Attachments

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other \_\_\_\_\_

Attach additional information, if it exists.

## Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief  
Name Maggiore Bros. Drilling, Inc.

Person, Firm or Corporation

595 Airport Blvd.

Address

Watsonville

City

CA 95076

State

Zip

Signed \_\_\_\_\_

C-57 Licensed Water Well Contractor

05/24/2011

Date Signed

249957

C-57 License Number



STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**

Refer to Instruction Pamphlet

No. **768941**

Page 1 of 1

Owner's Well No. New 2002

Date Work Began 1/10/02, Ended 3/28/02

Local Permit Agency Monterey Co. Health Dept

Permit No. 01-175 ✓ Permit Date 1/8/02

DWR USE ONLY — DO NOT FILL IN

**15S/03E-09N58**

STATE WELL NO / STATION NO

LATITUDE LONGITUDE

**15S/03E-03N58**

APN/TRS/OTHER

**GEOLOGIC LOG**

ORIENTATION (✓) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)

DRILLING METHOD **CABLE** FLUID **Water**

**DESCRIPTION**

Describe material, grain, size, color, etc.

DEPTH FROM SURFACE	FL	to	FL	DESCRIPTION
0	64			Sandy Yellow Clay
64	92			Sandy Clay
92	96			Sand
96	100			Sandy Clay
100	118			Yellow Clay
118	136			Sand & Pea Gravel
136	140			Yellow Clay
140	196			Sand & Gravel ( 1" - 8")
196	216			Sand
216	332			Sand & Gravel ( rock to 8")
332	334			Yellow Clay
334	338			Sand
338	362			Blue Clay
362	380			Sand & Gravel ( 1" - 3")
380	402			Yellow Clay w/sand
402	412			Sand & Gravel ( 1" - 3")
412	418			Yellow Clay
418	434			Blue Clay
434	494			Sand & Gravel ( 1" - 4" )
494	604			Yellow Clay
604	620			Sand & Gravel ( pea to 2")
620	652			Brown Clay, streaked with sand
652	662			Runny sandy clay
662	674			Sand & Gravel ( Pea to 2")
674	678			Sand
678	682			Yellow Clay ( td )

TOTAL DEPTH OF BORING **682** (Feet)

TOTAL DEPTH OF COMPLETED WELL **682** (Feet)

**WELL LOCATION**

Address **Growers St**  
City **Salinas CA 93902**  
County **Monterey**

APN Book **002** Page **881** Parcel **061**

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Latitude \_\_\_\_\_

DEG. MIN. SEC.

**LOCATION SKETCH**

NORTH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

DEG. MIN. SEC.

**ACTIVITY (✓)**

☒ NEW WELL  
MODIFICATION/REPAIR  
— Deepen  
— Other (Specify) \_\_\_\_\_

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

**PLANNED USES (✓)**

WATER SUPPLY  
— Domestic — Public  
— Irrigation ☒ Industrial  
MONITORING \_\_\_\_\_  
TEST WELL \_\_\_\_\_  
CATHODIC PROTECTION \_\_\_\_\_  
HEAT EXCHANGE \_\_\_\_\_  
DIRECT PUSH \_\_\_\_\_  
INJECTION \_\_\_\_\_  
VAPOR EXTRACTION \_\_\_\_\_  
SPARGING \_\_\_\_\_  
REMEDATION \_\_\_\_\_  
OTHER (SPECIFY) \_\_\_\_\_

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER **60** (FL) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL **75** (FL) & DATE MEASURED **4/10/02**

ESTIMATED YIELD • **1300** (GPM) & TEST TYPE **Pump Test**

TEST LENGTH **4** (Hrs.) TOTAL DRAWDOWN **208** (FL)

May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA (inches)	CASING (S)					DEPTH FROM SURFACE			ANNULAR MATERIAL					
				TYPE (✓)				MATERIAL / GRADE				INTERNAL DIAMETER (inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (inches)	TYPE		
Fl	to	Fl	BLANK	SCREEN	CON- DUCTOR FILL PIPE						Fl				to	Fl	CE- MENT (✓)
0		52	24			✓	STEEL	24	10 ga	10 ga	0		52	✓			
0		334	16			✓	STEEL	16	10 ga dbl	10 ga dbl	0		334	✓			
0		682	12	✓			STEEL	12	10 ga dbl	10 ga dbl							
604		620				✓			.25 x 3.5	.25 x 3.5							
662		674				✓			.25 x 3.5	.25 x 3.5							

**ATTACHMENTS (✓)**

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analysis
- Other \_\_\_\_\_

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME **Roy Alsop Pump and Drilling, Inc.**

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

1508 Abbott St

ADDRESS

Signed \_\_\_\_\_

WELL DRILLER/AUTHORIZED REPRESENTATIVE

Salinas

CITY

CA

STATE

93901

ZIP

10/16/02  
DATE SIGNED

C57-569945  
C-57 LICENSE NUMBER





ORIGINAL  
File with DWR

Page 2 of 2

Owner's Well No. 8029

Date Work Began 11/27/2006, Ended 12/1/2006

Local Permit Agency MONTEREY CNTY HEALTH DEPT

Permit No. 06-10933

Permit Date 9/20/2006

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction Pamphlet

No. **E049014**

DWR USE ONLY — DO NOT FILL IN

**15S/03E-05R.52**

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

**15S/03E-05R.52**

APN/TRS/OTHER

**GEOLOGIC LOG**

ORIENTATION (✓)		✓ VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)
DEPTH FROM SURFACE		DRILLING METHOD REVERSE FLUID WATER
Ft.	to Ft.	DESCRIPTION
Describe material, grain, size, color, etc.		
0	5	CLAY TOP SOIL
5	55	SOFT YELLOW CLAY
55	80	SOFT BLUE CLAY
80	152	SAND AND GRAVEL WITH CLAY STREAKS
152	185	YELLOW CLAY
185	195	SAND
195	315	BLUE GRAY CLAY WITH SAND STREAKS
315	340	SAND AND GRAVEL
340	365	TAN CLAY WITH SAND
365	535	SAND AND SMALL GRAVEL WITH TAN CLAY STREAKS
535	612	TAN CLAY WITH SAND AND GRAVEL STREAKS
612	655	SAND AND SMALL GRAVEL
655	710	SAND AND SMALL GRAVEL WITH TAN CLAY ST
710	770	TAN CLAY WITH BLUE CLAY STREAKS
770	855	SAND AND SMALL GRAVEL
855	860	BLUE CLAY

TOTAL DEPTH OF BORING **870** (Feet)

TOTAL DEPTH OF COMPLETED WELL **840** (Feet)

**WELL LOCATION**

CITY **STREET CA** STATE **CA** ZIP **95695**

Address **2 MI SOF E BLANCO RD & 4 MI EOF S MAIN**

County **MONTEREY**

APN Book **207** Page **112** Parcel **005**

Township **14 S** Range **3 E** Section **8**

Latitude **36° 52' 15" N** Longitude **121° 52' 15" W**

**LOCATION SKETCH**

NORTH

WEST EAST

**ACTIVITY (✓)**

☒ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

**PLANNED USES (✓)**

WATER SUPPLY

Domestic ☐ Public ☐

☒ Irrigation ☐ Industrial ☐

MONITORING ☐

TEST WELL ☐

CATHODIC PROTECTION ☐

HEAT EXCHANGE ☐

DIRECT PUSH ☐

INJECTION ☐

VAPOR EXTRACTION ☐

SPARGING ☐

REMEDIATION ☐

OTHER (SPECIFY) ☐

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER — (Ft) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL **60.4** (Ft) & DATE MEASURED **12/8/2006**

ESTIMATED YIELD • **1607** (GPM) & TEST TYPE

TEST LENGTH — (Hrs.) TOTAL DRAWDOWN **21.7** (Ft)

May not be representative of a well's long-term yield.

DEPTH FROM SURFACE	BORE-HOLE DIA. (Inches)	CASING (S)					
		TYPE (✓)			MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS
Ft. to Ft.		BLANK	SCREEN	CONDUCTOR			
820	840	28	✓		ASTM-135	16	.312

DEPTH FROM SURFACE	ANNULAR MATERIAL			
	TYPE			
Ft. to Ft.	CE- MENT (✓)	BEN- TONE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	560	✓		SAND SLURRY
560	870		✓	BIRDSEYE GR

**ATTACHMENTS (✓)**

— Geologic Log

— Well Construction Diagram

— Geophysical Log(s)

— Soil/Water Chemical Analysis

— Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME **EATON DRILLING CO.**

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE

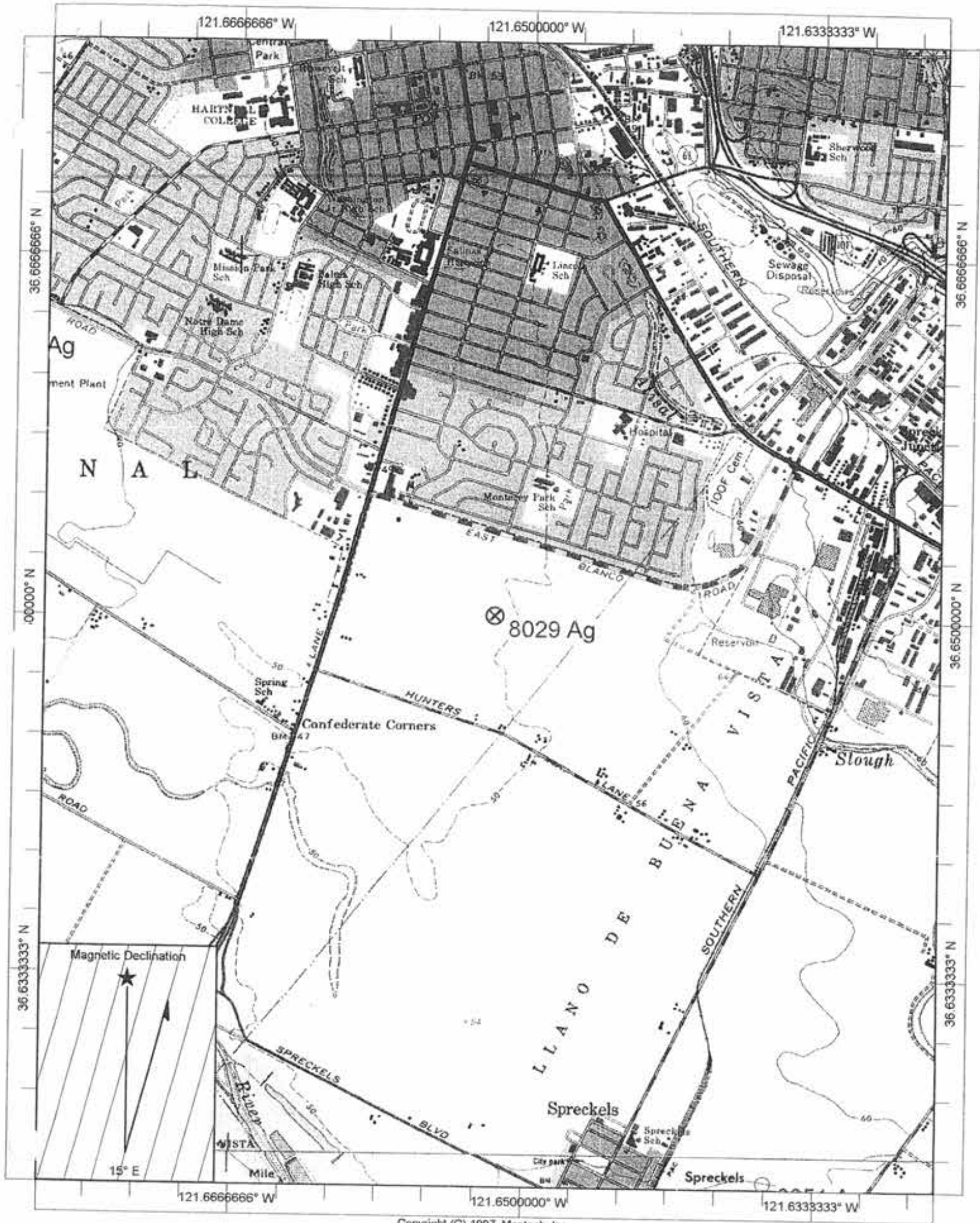
ADDRESS

WOODLAND CA 95695

CITY STATE ZIP

Signed **Mike D...** DATE SIGNED **12/18/06** C57 A HIC - 133783

WELL DRILLER/AUTHORIZED REPRESENTATIVE C-57 LICENSE NUMBER





FC 25553

File Original with DWR

# STATE OF CALIFORNIA WELL COMPLETION REPORT

Refer to Instruction Pamphlet

Page 1 of 4Owner's Well No. 47-01No. e0142945Date Work Began 7/8/11 Ended 10/13/11Local Permit Agency Monterey County Health DeptPermit No. 11-11900 Permit Date 6/3/11

DWR USE ONLY - DO NOT FILL IN

15S103E-10D04

STATE WELL NO./STATION NO.

LATITUDE

LONGITUDE

15S103E-10D04

APN/TRS/OTHER

WELL OWNER Pressure 400

## GEOLOGIC LOG

ORIENTATION (X) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE ☐ (SPECIFY)

DRILLING METHOD

Flooded ReverseFLUID

DESCRIPTION

Describe material, grain size, color, etc.

DEPTH FROM SURFACE

FL to Ft.

50	60	Sticky clay
60	70	Sand & gravel
70	80	Sand, gravel, and clay
80	90	Gravel & clay
90	100	Coarse gravel and small gravel
100	110	Rock and gravel, some clay
110	120	Sand, gravel, and rocks
120	130	Clay, gravel, & rocks
130	135	Rocks, gravel, & coarse sand
135	145	Rocks & gravel
145	155	Coarse sand & gravel
155	165	Gravel & rocks
165	170	Coarse gravel and rocks
170	175	Coarse sand
175	195	Sand
195	200	Gravel & rocks
200	210	Gravel
210	215	Sand
215	220	Gravel
220	260	Gravel & sand
260	265	Gravel & clay
265	270	Sand & clay
270	280	Sand, clay, gravel
280	290	Sand, gravel, clay
290	300	Sand, gravel, rocks
300	320	Gravel and rocks
320	330	Clay, small gravel
330	350	Sand
350	355	Sand & rocks
355	360	Sand

TOTAL DEPTH OF BORING 1,495 (Feet)TOTAL DEPTH OF COMPLETED WELL 980 (Feet)

CITY Salinas STATE Ca ZIP 95370

Address 1320 Dayton St

County Monterey

APN Book 177 Page 141 Parcel 073

Township 15S Range 3E Section 3

Latitude 36 38 53.4 NORTH Longitude 121 37 50.2 WEST

## LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads Buildings, Fences, Rivers etc and attach map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

## ACTIVITY (X)

☒ NEW WELL  
☐ MODIFICATION/REPAIR  
☐ Deepen  
☐ Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

## PLANNED USES (X)

WATER SUPPLY  
☐ Domestic ☒ Public  
☐ Irrigation ☐ Industrial

MONITORING ☐  
 TEST WELL ☐  
 CATHODIC PROTECTION ☐  
 HEAT EXCHANGE ☐  
 DIRECT PUSH ☐  
 INJECTION ☐  
 VAPOR EXTRACTION ☐  
 SPARGING ☐  
 REMEDIATION - OTHER (SPECIFY) ☐

## WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER Unknown (FL) BELOW SURFACEDEPTH OF STATIC WATER LEVEL 80 (Ft.) & DATE MEASURED 10/5/11-10/13/11ESTIMATED YIELD 3,000 (GPM) & TEST TYPE Development, Step, ConstantTEST LENGTH 82 (Hrs.) TOTAL DRAWDOWN 58 (FL)

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (inches)	CASING (S)					DEPTH FROM SURFACE			ANNULAR MATERIAL							
				TYPE (-)				MATERIAL / GRADE				OUTSIDE DIAMETER (inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (inches)	TYPE				
FL	to	FL	BLANK	SCREEN COUPLER	PIPE						FL				to	FL	CE- MENT (X)	BEN- TONITE (X)	FILL (X)
0		50	48			X		LCS	34	.375			0		575	X			10.3 sack
0		590	32	X				HSLA	18.75	.375			575		980			X	8x12 Co. Silica
590		600	32	X				HSLA	18.75	.375									
600		630	28		X			HSLA	18.75	.312	.070								
630		645	28	X				HSLA	18.75	.375									
645		775	28		X			HSLA	18.75	.312	.070								

## ATTACHMENTS (X)

- ☒ Geologic Log  
☒ Well Construction Diagram  
☒ Geophysical Log(s)  
☐ Soil/Water Chemical Analyses  
☒ Other Test Pump Data & Video Survey

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

Layne Christensen Co.

NAME (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

1717 W. Park Ave

Redlands

CA

92373

ADDRESS

Signed

WELL DRILLER/AUTHORIZED REPRESENTATIVE

CITY

1/3/2012

STATE

510011

DATE SIGNED

C-57 LICENSE NUMBER



# STATE OF CALIFORNIA WELL COMPLETION REPORT

Refer to Instruction Pamphlet

Page 2 of 4Owner's Well No. 47-01No. e0142945Date Work Began 7/8/11 Ended 10/13/11Local Permit Agency Monterey County Health DeptPermit No. 11-11900 Permit Date 6/3/11

DWR USE ONLY		DO NOT FILL IN	
STATE WELL NO./STATION NO.			
LATITUDE		LONGITUDE	
APN/TRS/OTHER			

## GEOLOGIC LOG

## WELL OWNER

ORIENTATION (X) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE ☐ (SPECIFY)  
 DRILLING METHOD Flooded Reverse FLUID ☐  
 DESCRIPTION  
 Describe material, grain size, color, etc.

DEPTH FROM SURFACE FL to Ft.		
360	365	Sand & rocks
365	385	Rocks & gravel
385	400	Clay
400	415	Gravel
415	420	Gravel and rocks
420	425	Clay
425	430	Gravel, sand, and clay
430	435	Clay
435	470	Gravel & rocks
470	475	Clay
475	485	Gravel & sand
485	490	Gravel, sand, and clay
490	515	Sand & gravel
515	520	Sand, gravel, clay
520	525	Sand & clay
525	535	Sand, clay, gravel
535	540	Sand & clay
540	555	Sand, gravel, clay
555	590	Clay & sand
590	595	Clay
595	600	Sand & some clay
600	605	Clay
605	610	Sand
610	615	Gravel, sand, and rocks
615	620	Gravel & rocks
620	630	Sand
630	650	Clay
650	665	Sand
665	675	Sand & gravel
675	680	Sand, gravel, clay

TOTAL DEPTH OF BORING 1,495 (Feet)  
 TOTAL DEPTH OF COMPLETED WELL 980 (Feet)

WELL LOCATION  
 1320 Dayton St  
 Address Salinas Ca  
 City Monterey STATE CA ZIP 93701  
 County Monterey  
 APN Book 177 Page 141 Parcel 073  
 Township 15S Range 3E Section 3  
 Latitude 36 38 53.4 NORTH Longitude 121 37 50.2 WEST  
 DEG. MIN. SEC. DEG. MIN. SEC.



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers etc and attach map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (X)  
☒ NEW WELL  
☐ MODIFICATION/REPAIR  
☐ Deepen  
☐ Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (X)  
 WATER SUPPLY  
☐ Domestic ☒ Public  
☐ Irrigation ☐ Industrial

MONITORING ☐  
 TEST WELL ☐  
 CATHODIC PROTECTION ☐  
 HEAT EXCHANGE ☐  
 DIRECT PUSH ☐  
 INJECTION ☐  
 VAPOR EXTRACTION ☐  
 SPARGING ☐  
 REMEDIATION - OTHER (SPECIFY) ☐

## WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER Unknown (FL) BELOW SURFACE  
 DEPTH OF STATIC WATER LEVEL 80 (FL) & DATE MEASURED 10/5/11-10/13/11  
 ESTIMATED YIELD 3,000 (GPM) & TEST TYPE Development, Step, Constant  
 TEST LENGTH 82 (Hrs.) TOTAL DRAWDOWN 58 (FL)  
 \* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE FL to FL	BORE-HOLE DIA. (Inches)	CASING (S)					DEPTH FROM SURFACE FL to FL	ANNULAR MATERIAL			
		TYPE (-)	MATERIAL / GRADE	OUTSIDE DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)		TYPE	CEMENT (X)	BENTONITE (X)	FILL (X)
775	815	28	X	HSLA	18.75	.375	0	575	X		
815	855	28	X	HSLA	18.75	.312	575	980			X
855	885	28	X	HSLA	18.75	.375					
885	950	28	X	HSLA	18.75	.312					
950	960	28	X	HSLA Cellar	18.75	.375					

## ATTACHMENTS (X)

- ☒ Geologic Log  
☒ Well Construction Diagram  
☒ Geophysical Log(s)  
☐ Soil/Water Chemical Analyses  
☒ Other Test Pump Data & Video Survey

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

Layne Christensen Co.

NAME (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

1717 W. Park Ave

Redlands CA 92373

ADDRESS

CITY 1/3/2012 STATE 510011

Signed

WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED

C-57 LICENSE NUMBER

File Original with DWR

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
 Refer to Instruction Pamphlet

Page 3 of 4Owner's Well No. 47-01No. e0142945Date Work Began 7/8/11 Ended 10/13/11Local Permit Agency Monterey County Health DeptPermit No. 11-11900 Permit Date 6/3/11

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

## GEOLOGIC LOG

ORIENTATION (X) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE ☐ (SPECIFY)

DRILLING METHOD Flooded Reverse FLUID ☐

DEPTH FROM SURFACE

FL to FL

Describe material, grain size, color, etc.

680	690	Sand
690	700	Clay
700	705	Sand & clay
705	710	Gravel & sand
710	715	Sand & clay
715	720	Sand
720	725	Clay
725	730	Sand
730	740	Gravel
740	745	Sand & clay
745	755	Clay
755	760	Sand
760	770	Gravel
770	820	Clay
820	825	Clay & sand
825	840	Sand
840	845	Sand & clay
845	860	Sand
860	875	Clay
875	880	Clay, sand, gravel
880	890	Clay
890	895	Clay & sand
895	900	Sand & gravel
900	905	Sand, gravel, small rock
905	910	Sand, gravel, clay, small rock
910	920	Sand & gravel
920	935	Clay
935	940	Sand
940	950	Gravel & sand
950	990	Clay

TOTAL DEPTH OF BORING 1,495 (Feet)TOTAL DEPTH OF COMPLETED WELL 980 (Feet)

WELL OWNER

CITY Salinas STATE Ca ZIP 95373

Address 1320 Dayton St

County Monterey

APN Book 177 Page 141 Parcel 073

Township 15S Range 3E Section 3

Latitude 36 38 53.4 NORTH Longitude 121 37 50.2 WEST

DEG. MIN. SEC. DEG. MIN. SEC.

LOCATION SKETCH

ACTIVITY (X) ☒ NEW WELL ☐ MODIFICATION/REPAIR

— Deepen ☐ Other (Specify) ☐

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (X) ☒ WATER SUPPLY ☐ DOMESTIC ☒ PUBLIC ☐ IRRIGATION ☐ INDUSTRIAL

MONITORING ☐ TEST WELL ☐ CATHODIC PROTECTION ☐ HEAT EXCHANGE ☐ DIRECT PUSH ☐ INJECTION ☐ VAPOR EXTRACTION ☐ SPARGING ☐ REMEDIATION ☐ OTHER (SPECIFY) ☐

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER Unknown (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 80 (Ft.) & DATE MEASURED 10/5/11-10/13/11

ESTIMATED YIELD 3,000 (GPM) & TEST TYPE Development, Step, Constant

TEST LENGTH 82 (Hrs.) TOTAL DRAWDOWN 58 (Ft.)

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE	BORE-HOLE DIA. (Inches)	CASING (S)					DEPTH FROM SURFACE	ANNULAR MATERIAL					
		TYPE (X)	MATERIAL / GRADE	OUTSIDE DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)		TYPE	CEMENT (X)	BENTONITE (X)	FILL (X)	FILTER PACK (TYPE/SIZE)	
FL	to	FL					FL	to	FL				

## ATTACHMENTS (X)

- ☒ Geologic Log
- ☒ Well Construction Diagram
- ☒ Geophysical Log(s)
- ☒ Soil/Water Chemical Analyses
- ☒ Other Test Pump Data & Video Survey

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

Layne Christensen Co.

NAME (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

1717 W. Park Ave

Redlands CA 92373

ADDRESS

Signed

WELL DRILLER/AUTHORIZED REPRESENTATIVE

CITY 1/3/2012 STATE 510011

DATE SIGNED C-57 LICENSE NUMBER

STATE OF CALIFORNIA  
WELL COMPLETION REPORT  
*Refer to Instruction Pamphlet*

Page 4 of 4

Page      of       
Owner's Well No. 47-01

No. e0142945

Date Work Began	7/8/11	Ended	10/13/11
-----------------	--------	-------	----------

Local Permit Agency **Monterey County Health Dept**

Permit No.	11-11900	Permit Date	6/3/11
------------	----------	-------------	--------

DWR/USE ONLY — DO NOT FILL IN  
 STATE WELL NO./STATION NO.  
 LATITUDE LONGITUDE  
 APT/TRS/OTHER

## GEOLOGIC LOG

## WELL OWNER

[illegible]

WELL LOCATION  
 Address 1320 Dayton St  
 City Salinas State Ca  
 County Monterey  
 APN Book 177 Page 141 Parcel 073  
 Township 15S Range 3E Section 3  
 Latitude 36 38 53.4 NORTH Longitude 121 37 50.2 WEST  
 DEG. MIN. SEC. DEG. MIN. SEC.

LOCATION SKETCH

ACTIVITY (X)  
☒ NEW WELL  
☐ MODIFICATION/REPAIR  
☐ Deepen  
☐ Other (Specify) \_\_\_\_\_

☐ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (X)  
 WATER SUPPLY ☒ Public ☐ Industrial  
☐ Domestic ☐ Irrigation

MONITORING ☐  
 TEST WELL ☐  
 CATHODIC PROTECTION ☐  
 HEAT EXCHANGE ☐  
 DIRECT PUSH ☐  
 INJECTION ☐  
 VAPOR EXTRACTION ☐  
 SPARGING ☐  
 REMEDIATION ☐  
 OTHER (SPECIFY) \_\_\_\_\_

Illustrate or Describe Distance Of Well from Roads Buildings, Fences, Rivers etc and attach map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

TOTAL DEPTH OF BORING 1,495 (Feet)  
TOTAL DEPTH OF COMPLETED WELL 980 (Feet)

[illegible]

## ATTACHMENTS (X)

- X Geologic Log
- X Well Construction Diagram
- X Geophysical Log(s)
- Soil/Water Chemical Analyses
- X Other Test Pump Data & Video Survey

**-CERTIFICATION STATEMENT**

1. the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

Layne Christensen Co.

NAME (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

1717 W. Park Ave

Redlands CA 92373

ADDRESS

CITY	1/3/2012	STATE	ZIP
			510011

Signed WELL DRILLER/AUTHORITY/NO REPRESENTATIVE

DATE SIGNED \_\_\_\_\_ C-57 LICENSE NUMBER \_\_\_\_\_

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.



ORIGINAL  
File with DWR

Page 1 of 1

Owner's Well No. 2

Date Work Began 6/3/97 Ended 7/7/97

Local Permit Agency Monterey County Health Dept

Permit No. US/L 97-108

Permit Date 5/30/97

STATE OF CALIFORNIA  
WELL COMPLETION REPORT  
Refer to Instruction Pamphlet

No. 510032

DWR USE ONLY - DO NOT FILL IN

158/3E-34L52

STATE WELL NO./STATION NO.

LATITUDE 155/03E LONGITUDE 34L52

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)

DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

DEPTH FROM SURFACE	DESCRIPTION
Ft. to Ft.	Describe material, grain size, color, etc.
0 to 2	Top Soil
2 to 18	Sandstone
18 to 39	Gravel w/sand
39 to 80	Sandstone w/clay
80 to 140	Hard sandstone w/fine sand
140 to 165	Sandstone
165 to 172	Gravel & clay
172 to 228	Sandstone w/ clay
228 to 256	Hard rock & sandstone
256 to 340	Sandstone w/yellow clay
340 to 351	Yellow clay & sand
351 to 400	Hard sandstone
400 to 500	Sandstone w/ yellow clay
500 to 520	Sandstone & clay
520 to 590	Rock & sandstone
590 to 680	D.G. w/ sand
680 to 780	D.G. sand & clay
780 to 820	Yellow clay w/ sand
820 to 880	D.G. rock & clay

TOTAL DEPTH OF BORING 880 (Feet)

TOTAL DEPTH OF COMPLETED WELL 800 (Feet)

WELL OWNER

PRESSURE 400

WELL LOCATION

Address 125 Pine Canyon (Salinas)

City Salinas

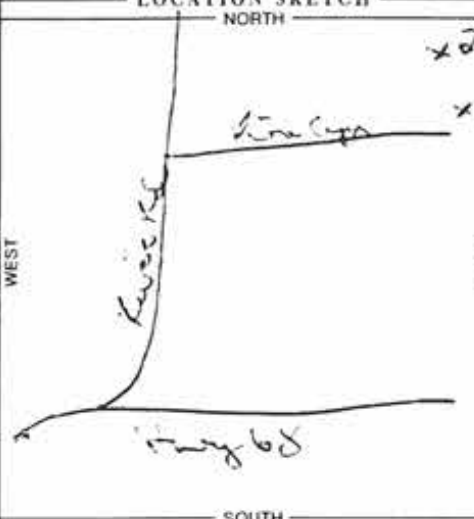
County Monterey

APN Book Page Parcel 816-649-001

Township Range Section

Latitude NORTH Longitude WEST

LOCATION SKETCH



ACTIVITY (✓)

☒ NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USE(S) (✓)

MONITORING

WATER SUPPLY

Domestic

Public

☒ Irrigation

Industrial

"TEST WELL"

CATHODIC PROTECTION

OTHER (Specify)

DRILLING METHOD Rotary FLUID Bentonite

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL (Ft.) & DATE MEASURED

ESTIMATED YIELD\* (GPM) & TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING(S)					DEPTH FROM SURFACE			ANNULAR MATERIAL					
				TYPE (✓)				MATERIAL / GRADE				INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE		
Ft.	to	Ft.		BLANK	SCREEN	CON- DUCTOR	FILL PIPE		CE- MENT (✓)	BEN- TONITE (✓)	FILL (✓)				FILTER PACK (TYPE / SIZE)		
0	220		15	x			Steel	6			0	175		x			
220	300		15	x			Steel	6			175	800			x	3 X 12	
300	360		15	x			Steel	3									
360	800		15	x			Steel	6									

ATTACHMENTS (✓)

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analyses
- Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Salinas Pump Company

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 772 Verdin Ave. Salinas, Ca 93901

Signed [Signature]

WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED 7/12/97

515945

C57 LICENSE NUMBER



ORIGINAL

File with DWR

Page 1 of 2

Owner's Well No.

Date Work Began 6/10/98 Ended 6/20/98

Local Permit Agency Monterey County Health Dept.

Permit No. Permit Date

STATE OF CALIFORNIA  
WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 503277

DWR USE ONLY - DO NOT FILL IN

16S/04E-03G52

STATE WELL NO./STATION NO.

LATITUDE

LONGITUDE

16S/04E-03G52

APN/RS/OTHER

WELL OWNER PRESSURE-DEEP

## GEOLOGIC LOG

ORIENTATION (°) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)

DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

## DESCRIPTION

Describe material, grain size, color, etc.

DEPTH FROM SURFACE	DEPTH TO FIRST WATER (Ft.) BELOW SURFACE	DESCRIPTION
Ft. to Ft.		
0 to 6	6	top soil
6 to 20	20	brown clay
20 to 65	65	gravel
65 to 72	72	tan clay
72 to 135	135	gravel
135 to 145	145	tan clay
145 to 182	182	tan clay streaked gravel
182 to 202	202	tan clay
202 to 238	238	gravel
238 to 250	250	tan sandy clay
250 to 280	280	gravel streaked tan clay
280 to 285	285	tan clay
285 to 304	304	gravel
304 to 338	338	red clay
338 to 365	365	gravel
365 to 395	395	red clay
395 to 405	405	orange clay
405 to 415	415	Eastside gravel
415 to 445	445	gravelly brown clay
445 to 455	455	Eastside gravel
455 to 472	472	brown gravelly clay
472 to 478	478	Eastside gravel
478 to 485	485	Eastside gravel
485 to 525	525	Salinas Valley gravel streak
525 to 530	530	tan clay
530 to 538	538	Salinas Valley gravel
538 to 545	545	tan clay
545 to 600	600	Salinas Valley gravel
600 to 604	604	tan clay

TOTAL DEPTH OF BORING 920 (Feet)

TOTAL DEPTH OF COMPLETED WELL 920 (Feet)

## WELL LOCATION

Address Lincoln St.

City Chualar

County Monterey

APN Book 145 Page 151 Parcel 001

Township Range Section

Latitude Longitude

DEG. MIN. SEC. NORTH Longitude DEG. MIN. SEC. WEST

## LOCATION SKETCH

NORTH

## ACTIVITY (°)

☒ NEW WELL

MODIFICATION/REPAIR

☐ Deepen☐ Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

## PLANNED USE(S)

☐ MONITORING

## WATER SUPPLY

☐ Domestic☒ Public☐ Irrigation☐ Industrial☐ "TEST WELL"☐ CATHODIC PROTECTION☐ OTHER (Specify)Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.  
PLEASE BE ACCURATE & COMPLETE.

DRILLING METHOD Reverse Rotary FLUID mud

WATER LEVEL &amp; YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 95 (Ft.) &amp; DATE MEASURED 7/2/98

ESTIMATED YIELD 15002350 &amp; TEST TYPE pump

TEST LENGTH 8 (hrs.) TOTAL DRAWDOWN 30'11" (Ft.)

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (inches)	CASING(S)						DEPTH FROM SURFACE			ANNULAR MATERIAL			
				TYPE (✓)				MATERIAL / GRADE	INTERNAL DIAMETER (inches)				GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (inches)	TYPE	
Ft	to	Ft	BLANK	SCREEN	PIPE	FLY PIPE										CE- MENT (✓)
0	:	68	24	x		x	MildSteel	23½		¼		0	:	530	x	10 sack sand
0	:	750	22	x			CB	12 3/4		¼			:		slurry	
750	:	900	22		x		CB	12 3/4		¼	.070th	530	:	920		x well pack
900	:	920	22	x			CB	12 3/4		¼			:			
	:												:			

## ATTACHMENTS (°)

☒ Geologic Log☐ Well Construction Diagram☐ Geophysical Log(s)☐ Soil/Water Chemical Analyses☐ Other

ATTACH ADDITIONAL INFORMATION IF IT EXISTS.

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME L. E. Melville &amp; Son Drilling Co., Inc.

(PERSON, FIRM, OR CORPORATION) (TYPE OR PRINTED)

ADDRESS 19730 Pinehurst Lane Salinas, Ca. 93906

CITY STATE ZIP

Signed James C. Melville 3/25/99 675586

WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED

C-57 LICENSE NUMBER



ORIGINAL  
File with DWR

FC 22831

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**

Refer to Instruction Pamphlet

Page      of     

Owner's Well No.     

No. **717244**

Date Work Began 10-16-00 Ended 10-28-00

Local Permit Agency MONTEREY

Permit No. 00-342 Permit Date 10-16-00

DWR USE ONLY - DO NOT FILL IN

165104E-03G53

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

165104E-03G53

APN/TRS/OTHER

**PRESSURE DEEP CHULAR WELL #4**

**GEOLOGIC LOG**

ORIENTATION ( ) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)     

DRILLING METHOD ROTARY FLUID NATURAL

DEPTH FROM SURFACE			DESCRIPTION
FL	TO	FI	
0	15		top soil
15	47		sand
47	53		clay
53	80		sand & gravel
80	87		clay
87	120		sand & gavel
120	137		clay
137	180		gravel & small rocks
180	200		sand & clay
200	274		sand & gravel
274	290		clay
290	325		sand & gravel
325	332		clay
332	610		sand & garvel
610	660		clay
660	680		sand
680	727		clay
727	735		sand
735	750		clay
750	785		sand & gravel
785	817		clay
817	825		sand & gravel
825	840		clay
840	930		sand & gravel

TOTAL DEPTH OF BORING 930 (Feet)

TOTAL DEPTH OF COMPLETED WELL 920 (Feet)

**WELL LOCATION**

Address SOUTH & LINCOLN ST.

City SALINAS

County MONTEREY

APN Book 145 Page 151 Parcel 002

Township      Range      Section     

Latitude      NORTH      WEST     

Longitude      NORTH      WEST     

**LOCATION SKETCH**

WEST      EAST     

**ACTIVITY ( )**

☒ NEW WELL

MODIFICATION/REPAIR

☐ Deepen

☐ Other (Specify)     

☐ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

**PLANNED USES ( )**

WATER SUPPLY

☒ Domestic ☒ Public

☐ Irrigation ☐ Industrial

MONITORING     

TEST WELL     

CATHODIC PROTECTION     

HEAT EXCHANGE     

DIRECT PUSH     

INJECTION     

VAPOR EXTRACTION     

SPARGING     

REMEDIATION     

OTHER (SPECIFY)     

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER 60 (Feet) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 60 (Feet)

ESTIMATED YIELD      (GPM) & TEST TYPE     

TEST LENGTH      (Hrs.) TOTAL DRAWDOWN      (Feet)

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING (S)							ANNULAR MATERIAL							
				TYPE ( )				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE						
FL	to	FL	BLANK	SCREEN	COR-ROSION INHIBITOR	FILL PIPE									FL	to	FL	CE-MENT ( )
0	200	24	X					copper/b	12 3/4	5/16		0	50		X			conductor
200	760	24	X					copper/b	12 3/4	5/16		0	745		X			10 sack
760	900	24		X				high/low	12 3/4	5/16	.070	745	930				X	6x12-1/4 sta
900	920	24	X					high/low	12 3/4	5/16								
0	755							xmild/steel	2"	3/4								
0	50	32			X			mild/steel	26	3/4								

**ATTACHMENTS ( )**

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

**ARTHUR \* ORUM WELL DRILLING INC.**

NAME      (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

3262 E. CONEJO AVE. FRESNO, CA. 93725

ADDRESS      CITY      STATE      ZIP     

Signed      DATE SIGNED 10-30-00 C-57 LICENSE NUMBER 361319



FC 26134

ORIGINAL  
File with DWRSTATE OF CALIFORNIA  
**WELL COMPLETION REPORT**

Refer to Instruction Pamphlet

Page 1 of 6

Owner's Well No. [REDACTED]

No. **e0102286**Date Work Began 4/25/2011, Ended 5/5/2011Local Permit Agency MontereyPermit No. 11-11872Permit Date 3/7/2011

DWR USE ONLY — DO NOT FILL IN

16S/04E-03K01

STATE WELL NO./STATION NO.

LATITUDE 16S/04E-03K01 LONGITUDE

APN/TRS/OTHER

Pressure Deep

WELL OWNER

GEOLOGIC LOG					
ORIENTATION (✓)		✓ VERTICAL	— HORIZONTAL	— ANGLE	— (SPECIFY)
DEPTH FROM SURFACE		DRILLING METHOD	REVERSE	FLUID	WATER/POL
		DESCRIPTION			
FL to FL		Describe material, grain, size, color, etc.			
0	50	CONDUCTOR			
50	57	CLAY			
57	96	GRAVEL			
96	99	CLAY			
99	148	GRAVEL/ROCK			
148	153	SANDY CLAY			
153	166	GRAVEL/ROCK			
166	177	SAND/GRAVEL			
177	186	GRAVEL/ROCK			
186	199	SAND W/ CLAY STREAKS			
199	208	SANDY CLAY			
208	247	SAND & COBBLES			
247	276	SAND W/ CLAY STREAKS			
276	294	SAND/GRAVEL			
294	315	COBBLES			
315	321	SAND & BRN CLAY			
321	351	SAND/GRAVEL			
351	372	CLAY			
372	383	SAND			
383	391	CLAY			
391	426	SAND/GRAVEL			
426	434	CLAY			
434	441	SANDY CLAY			
441	452	CLAY			
452	464	SAND			
464	472	SANDY CLAY			
472	481	SAND/GRAVEL			
481	489	SANDY CLAY			
489	496	CLAY			
496	519	GRAVEL/ROCK			

TOTAL DEPTH OF BORING 1080 (Feet)TOTAL DEPTH OF COMPLETED WELL 1060 (Feet)

**WELL LOCATION**

Address Highway 101

City Chualar, CA CA

County MONTEREY

APN Book 145 Page 151 Parcel 004

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Latitude \_\_\_\_\_

DEG. MIN. SEC. \_\_\_\_\_

**LOCATION SKETCH**

NORTH

WEST

EAST

**ACTIVITY (✓)**

☒ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify) \_\_\_\_\_

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

**PLANNED USES (✓)**

WATER SUPPLY

— Domestic — Public

☒ Irrigation — Industrial

MONITORING —

TEST WELL —

CATHODIC PROTECTION —

HEAT EXCHANGE —

DIRECT PUSH —

INJECTION —

VAPOR EXTRACTION —

SPARGING —

REMEDICATION —

OTHER (SPECIFY) \_\_\_\_\_

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER \_\_\_\_\_ (FL) BELOW SURFACE

DEPTH OF STATIC

WATER LEVEL \_\_\_\_\_ (FL) &amp; DATE MEASURED \_\_\_\_\_

ESTIMATED YIELD \* \_\_\_\_\_ (GPM) &amp; TEST TYPE \_\_\_\_\_

TEST LENGTH \_\_\_\_\_ (Hrs.) TOTAL DRAWDOWN \_\_\_\_\_ (FL)

May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING (S)					DEPTH FROM SURFACE			ANNULAR MATERIAL					
				TYPE (✓)				MATERIAL / GRADE				INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE		
FL	to	FL	BLANK	SCREEN	CON-DUCTOR	FILL PIPE									FL	to	FL
0	50	44			✓		STEEL	34	5/16		0	710	✓				
0	200	28	✓				STEEL	16OD	1/4		710	1080					GRAVEL
200	480	28	✓				STEEL	16OD	5/16								
480	760	28	✓				STEEL	16OD	3/8								
760	762	28	✓				STEEL	16	5/16	TAPER							
762	1060	28		✓			CB STEEL	16ID	5/16	.090							

**ATTACHMENTS (✓)**

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analysis
- Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Myers Well Drilling Inc.

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

11745 2nd Ave.

ADDRESS

Hanford

CITY

CA 93230

STATE ZIP

Signed

WELL DRILLER/AUTHORIZED REPRESENTATIVE

05/11/11

DATE SIGNED

865822

C-57 LICENSE NUMBER



Permit No. 11-11872

No. **e0102286**

DWR USE ONLY -- DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Permit Date 3/7/2011

## GEOLOGIC LOG

WELL OWNER

ORIENTATION (✓)		✓ VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)
DEPTH FROM SURFACE		DRILLING METHOD <b>REVERSE</b> FLUID <b>WATER/POL</b>
Fl	to Fl	DESCRIPTION <i>Describe material, grain, size, color, etc.</i>
519	528	SANDY CLAY
528	537	CLAY
537	544	SANDY CLAY
544	571	GRAVEL/ROCK
571	584	SANDY CLAY
584	591	CLAY
591	594	SANDY CLAY
594	611	SAND/GRAVEL
611	629	CLAY
629	640	SANDY CLAY
640	646	CLAY
646	678	SAND/GRAVEL
678	693	SANDY CLAY
693	731	CLAY
731	740	SANDY CLAY
740	756	CLAY
756	804	SM COBBLES & GRAVEL
804	818	SANDY CLAY
818	831	SAND/GRAVEL/ROCK
831	843	CLAY
843	856	GRAVEL/ROCK
856	868	SANDY CLAY
868	875	COBBLE/GRAVEL
875	927	SAND/GRAVEL/ROCK
927	934	SANDY CLAY
934	941	GRAVEL/ROCK
941	960	SANDY CLAY
960	974	GRAVEL/SAND/ROCK
974	983	SANDY CLAY
983	997	CLAY
TOTAL DEPTH OF BORING 1080		(Feet)
TOTAL DEPTH OF COMPLETED WELL 1060		(Feet)

WELL OWNER

Address Higheay 101

City Chualar, CA CA

County MONTEREY

APN Book 145 Page 151 Parcel 004

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Latitude \_\_\_\_\_

WELL LOCATION

DEG. MIN. SEC.

LOCATION SKETCH

NORTH

DEG. MIN. SEC.

ACTIVITY (✓)

☒ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify) \_\_\_\_\_

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY

Domestic \_\_\_\_\_ Public \_\_\_\_\_

☒ Irrigation \_\_\_\_\_ Industrial \_\_\_\_\_

MONITORING \_\_\_\_\_

TEST WELL \_\_\_\_\_

CATHODIC PROTECTION \_\_\_\_\_

HEAT EXCHANGE \_\_\_\_\_

DIRECT PUSH \_\_\_\_\_

INJECTION \_\_\_\_\_

VAPOR EXTRACTION \_\_\_\_\_

SPARGING \_\_\_\_\_

REMEDIAION \_\_\_\_\_

OTHER (SPECIFY) \_\_\_\_\_

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER \_\_\_\_\_ (FL) BELOW SURFACE

DEPTH OF STATIC \_\_\_\_\_

WATER LEVEL \_\_\_\_\_ (FL) & DATE MEASURED \_\_\_\_\_

ESTIMATED YIELD \* \_\_\_\_\_ (GPM) & TEST TYPE \_\_\_\_\_

TEST LENGTH \_\_\_\_\_ (Hrs.) TOTAL DRAWDOWN \_\_\_\_\_ (FL)

May not be representative of a well's long-term yield

[illegible]

<b>ATTACHMENTS</b> ( <input checked="" type="checkbox"/> ) <input type="checkbox"/> Geologic Log <input type="checkbox"/> Well Construction Diagram <input type="checkbox"/> Geophysical Log(s) <input type="checkbox"/> Soil/Water Chemical Analysis <input type="checkbox"/> Other _____ ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.	<b>CERTIFICATION STATEMENT</b> I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief. <b>NAME</b> <u>Myers Well Drilling Inc.</u> (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED) <u>11745 2nd Ave.</u> <u>Hanford</u> <u>CA</u> <u>93230</u> ADDRESS CITY STATE ZIP Signed _____ DATE SIGNED <u>05/11/11</u> WELL DRILLER/AUTHORIZED REPRESENTATIVE C-57 LICENSE NUMBER <u>865822</u>
---	--

ORIGINAL  
File with DWR

Page 3 of 6

Owner's Well No. [REDACTED]

Date Work Began 4/25/2011, Ended 5/5/2011

Local Permit Agency Monterey

Permit No. 11-11872

Permit Date 3/7/2011

# WELL COMPLETION REPORT

STATE OF CALIFORNIA  
Refer to Instruction Pamphlet

No. e0102286

165 14E 00

3/8

DWR USE ONLY — DO NOT FILL IN	
STATE WELL NO./STATION NO.	
LATITUDE	LONGITUDE
APN/TRS/OTHER	

## GEOLOGIC LOG

ORIENTATION (✓) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)  
DRILLING METHOD REVERSE FLUID WATER/POL

DEPTH FROM SURFACE  
FL to FL  
Describe material, grain, size, color, etc.

FL	to	FL	DESCRIPTION
997	1006		SANDY CLAY
1006	1048		ROCK/GRAVEL/SAND
1048	1050		SANDY CLAY
1050	1062		SAND/GRAVEL/ROCK
1062	1080		CLAY

## WELL OWNER

Address Higheay 101

City Chualar, CA CA

County MONTEREY

APN Book 145 Page 151 Parcel 004

Township Range Section

Latitude

DEG. MIN. SEC.

## LOCATION SKETCH

NORTH

DEG. MIN. SEC.

## ACTIVITY (✓)

☒ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

## PLANNED USES (✓)

WATER SUPPLY

— Domestic — Public

☒ Irrigation — Industrial

MONITORING

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

## WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER (FL) BELOW SURFACE

DEPTH OF STATIC

WATER LEVEL (FL) & DATE MEASURED

ESTIMATED YIELD (GPM) & TEST TYPE

TEST LENGTH (hrs.) TOTAL DRAWDOWN (FL)

May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING (S)				
FL	to	FL		TYPE (✓)	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
				BLANK SCREEN CONDUIT FILL PIPE				
0	50	44		✓	STEEL	34	5/16	
0	200	28	✓		STEEL	16OD	1/4	
200	480	28	✓		STEEL	16OD	5/16	
480	760	28	✓		STEEL	16OD	3/8	
760	762	28	✓		STEEL	16	5/16	TAPER
762	1080	28	✓		CB STEEL	16ID	5/16	.090

DEPTH FROM SURFACE			ANNULAR MATERIAL			
FL	to	FL	TYPE			
			CE-MENT (✓)	BEN-TO-NITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	710		✓			
710	1080					GRAVEL

## ATTACHMENTS (✓)

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analysis
- Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Myers Well Drilling Inc.

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

11745 2nd Ave.

ADDRESS

Hanford

CITY

CA

STATE

93230

ZIP

Signed

WELL DRILLER/AUTHORIZED REPRESENTATIVE

05/11/11

DATE SIGNED

865822

C-57 LICENSE NUMBER

Permit No. 11-11872

No. **e0102286**

DWR USE ONLY -- DO NOT FILL IN  
 STATE WELL NO./STATION NO.  
 LATITUDE LONGITUDE  
 APN/TRS/OTHER

## - WELL OWNER

[illegible][illegible]

DEPTH FROM SURFACE			ANNULAR MATERIAL			
			TYPE			FILTER PACK (TYPE/SIZE)
FL	to	FL	CE- MENT (✓)	BEN- TONITE (✓)	FILL (✓)	
0		710	✓			
710		1080				GRAVEL

ATTACHMENTS (✓)

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analysis
- Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS

### CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Myers Well Drilling Inc.

NAME (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

11745 2nd Ave

ADORE

WELL DRILLER/AUTHORIZED REPRESENTATIVE

Hanford  
City

CA  
STATE

93230  
ZIP

05/11/11

865822

C-57 LICENSE NUMBER

ORIGINAL  
File with DWR

Page 5 of 6

Owner's Well No. [REDACTED]

Date Work Began 4/25/2011, Ended 5/5/2011

Local Permit Agency Monterey

Permit No. 11-11872

Permit Date 3/7/2011

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**

Refer to Instruction Pamphlet

No. **e0102286**

16S14E00

5/8

DWR USE ONLY — DO NOT FILL IN	
STATE WELL NO./STATION NO.	
LATITUDE	LONGITUDE
APN/TRS/OTHER	

**GEOLOGIC LOG**

**WELL OWNER**

ORIENTATION (✓) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)  
DRILLING METHOD **REVERSE** FLUID **WATER/POL**

DEPTH FROM SURFACE  
FL to FL  
DESCRIPTION  
Describe material, grain, size, color, etc.

519	528	SANDY CLAY
528	537	CLAY
537	544	SANDY CLAY
544	571	GRAVEL/ROCK
571	584	SANDY CLAY
584	591	CLAY
591	594	SANDY CLAY
594	611	SAND/GRAVEL
611	629	CLAY
629	640	SANDY CLAY
640	646	CLAY
646	678	SAND/GRAVEL
678	693	SANDY CLAY
693	731	CLAY
731	740	SANDY CLAY
740	756	CLAY
756	804	SM COBBLES & GRAVEL
804	818	SANDY CLAY
818	831	SAND/GRAVEL/ROCK
831	843	CLAY
843	856	GRAVEL/ROCK
856	868	SANDY CLAY
868	875	COBBLE/GRAVEL
875	927	SAND/GRAVEL/ROCK
927	934	SANDY CLAY
934	941	GRAVEL/ROCK
941	960	SANDY CLAY
960	974	GRAVEL/SAND/ROCK
974	983	SANDY CLAY
983	997	CLAY

TOTAL DEPTH OF BORING 1080 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1060 (Feet)

**WELL LOCATION**

Address **Higheay 101**

City **Chualar, CA CA**

County **MONTEREY**

APN Book **145** Page **151** Parcel **004**

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Latitude \_\_\_\_\_

DEG. MIN. SEC.

**LOCATION SKETCH**

NORTH

DEG. MIN. SEC.

**ACTIVITY (✓)**

☒ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

**PLANNED USES (✓)**

WATER SUPPLY

— Domestic — Public

☒ Irrigation — Industrial

MONITORING —

TEST WELL —

CATHODIC PROTECTION —

HEAT EXCHANGE —

DIRECT PUSH —

INJECTION —

VAPOR EXTRACTION —

SPARGING —

REMEDIATION —

OTHER (SPECIFY) —

WEST

EAST

— SOUTH —  
Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER (FL) BELOW SURFACE

DEPTH OF STATIC

WATER LEVEL (FL) & DATE MEASURED

ESTIMATED YIELD \* (GPM) & TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN (FL)

May not be representative of a well's long-term yield.

DEPTH FROM SURFACE FL to FL	BORE-HOLE DIA. (Inches)	CASING (S)					
		TYPE (✓)			MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS
		BLANK	SCREEN	CON- DUCTOR			
0	50	44	✓		STEEL	34	5/16
0	200	28	✓		STEEL	16OD	1/4
200	480	28	✓		STEEL	16OD	5/16
480	760	28	✓		STEEL	16OD	3/8
760	762	28	✓		STEEL	16	5/16 TAPER
762	1060	28	✓		CB STEEL	16ID	5/16 .090

DEPTH FROM SURFACE FL to FL	ANNULAR MATERIAL			
	TYPE			FILTER PACK (TYPE/SIZE)
	CE- MENT (✓)	BEN- TONITE (✓)	FILL (✓)	
0	710	✓		
710	1080			GRAVEL

**ATTACHMENTS (✓)**

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analysis
- Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME **Myers Well Drilling Inc.**

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

11745 2nd Ave.

ADDRESS

Hanford

CITY

CA

STATE

93230

ZIP

Signed

WELL DRILLER/AUTHORIZED REPRESENTATIVE

05/11/11

DATE SIGNED

865822

C-57 LICENSE NUMBER



IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



Steve Vagnini, County Assessor

**General Information**

APN:	145-151-004-000	Use Type:	AGRICULTURAL PRESERVE
Site Address:		Tax Rate Area:	065-032
Mailing Address:			
Legal Description:	AGP 68-054		



\*\*The information provided here is deemed reliable, but is not guaranteed.

TRIMCATE  
Owner's Copy  
Page 1 of 2

Owner's Well No.

Date Work Began 11/30/96, Ended 12/10/96

Local Permit Agency Monterey County Health Dept.

Permit No. WSAI 96-273 Permit Date 11/26/96

STATE OF CALIFORNIA

WELL COMPLETION REPORT  
Refer to Instruction Pamphlet

No. 507958

DWR USE ONLY - DO NOT FILL IN  
1.6S/04E-111D51  
STATE WELL NO./STATION NO.  
LATITUDE LONGITUDE  
1.6S/04E-111D51  
APN/TRS/OTHER

WELL OWNER PRESSURE-400/DEEP

GEOLOGIC LOG

ORIENTATION ( ) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE (SPECIFY)  
DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

DEPTH FROM SURFACE		DESCRIPTION <i>Describe material, grain size, color, etc.</i>
Ft.	to Ft.	
0	4	top soil
4	10	yellow sandy clay
10	82	gravel & rocks
82	90	brown clay
90	115	gravel
115	121	sand
121	127	gravel
127	140	tan clay
140	156	gravel 16
156	169	tan clay 13
169	179	gravel 14
179	184	brown clay 5
184	228	gravel 4 4
228	232	brown clay 4
232	280	gravel 4 5
280	307	brown clay & gravel 2 7
307	323	red clay
323	435	gravel
435	438	brown clay
438	505	gravel
505	520	red clay
520	525	tan clay
525	553	gravel streaks sand
553	558	brown clay
558	618	gravel
618	626	brown clay
626	641	brown clay & gravel
641	659	gravel
659	667	brown clay
667	681	brown clay streaks gravel
TOTAL DEPTH OF BORING 1015 (Feet)		
TOTAL DEPTH OF COMPLETED WELL 1000 (Feet)		

Salinas, CA CITY STATE ZIP  
WELL LOCATION  
Address Hwy. 101 - Gonzales  
City Chualar  
County Monterey  
APN Book 145 Page 011 Parcel 06  
Township Range Section  
Latitude Longitude  
NORTH  
LOCATION SKETCH  
NORTH  
ACTIVITY ( )  
☒ NEW WELL  
MODIFICATION/REPAIR  
Deepen  
Other (Specify)  
DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")  
PLANNED USE(S)  
( )  
MONITORING  
WATER SUPPLY  
Domestic  
Public  
☒ Irrigation  
Industrial  
"TEST WELL"  
CATHODIC PROTECTION  
OTHER (Specify)  
SOUTH  
Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.  
PLEASE BE ACCURATE & COMPLETE.

DRILLING METHOD Reverse Rotary FLUID mud  
WATER LEVEL & YIELD OF COMPLETED WELL  
DEPTH OF STATIC WATER LEVEL 64 (Ft.) & DATE MEASURED 12/14/96  
ESTIMATED YIELD 3200 (GPM) & TEST TYPE pump  
TEST LENGTH 8 (Hrs.) TOTAL DRAWDOWN 40 (Ft.)  
\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING(S)					DEPTH FROM SURFACE		ANNULAR MATERIAL				
				TYPE ( )				MATERIAL / GRADE			INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE	
Ft.	to	Ft.		BLANK	SCREEN	CON- DOCTOR	FILL PIPE		Ft.	to				Ft.	CE- MENT ( )
0	480		25	x				MildSteel	16	1/8			0	525	x 10 sack sand
480	540		25	x				CB	16	1/8					slurry
540	990		25	xx				CB	16	3/32			525	1000	well pack
990	1000		25	x				CB	16	1/8					
CERTIFICATION STATEMENT _____															

ATTACHMENTS ( )  
☒ Geologic Log  
☐ Well Construction Diagram  
☐ Geophysical Log(s)  
☐ Soil/Water Chemical Analyses  
☐ Other  
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT  
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.  
NAME L. E. Melville & Son Drilling Co., Inc.  
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)  
19730 Pinehurst Ln. Salinas, Ca. 93906  
ADDRESS CITY STATE ZIP  
Signed James C. Melville 1/3/96 675586  
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER





ORIGINAL  
File with DWR

Page 1 of 1

Owner's Well No. \_\_\_\_\_

Date Work Began 3/14/00 , Ended 4/12/00

Local Permit Agency Monterey County Health Dept

Permit No. 00-041

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**

Refer to Instruction Pamphlet

No. **793603**

Permit Date 3/3/00

DWR USE ONLY - DO NOT FILL IN

STATE WELL NO./STATION NO. 175/041E-011L512

LATITUDE 175/041E-011L512 LONGITUDE 175/041E-011L512

APN/TRACT/OTHER \_\_\_\_\_

**GEOLOGIC LOG**

ORIENTATION ( ) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE \_\_\_\_\_ (SPECIFY) \_\_\_\_\_

DRAWING METHOD Rotary FLUID mud

DEPTH FROM SURFACE \_\_\_\_\_

Describe material, grain size, color, etc.

0	4	top soil
4	40	gravel
40	62	Salinas Valley gravel
62	84	gray clay
84	154	Salinas Valley gravel
154	203	tan clay
203	254	brown sand & fine gravel
254	260	brown clay
260	286	gravel
286	294	brown clay
294	323	gravel
323	331	brown clay
331	360	gravel
360	386	tan clay
386	400	gravel
400	416	tan clay
416	470	Salinas Valley gravel
470	480	brown clay
480	504	gravel
504	630	brown clay streaked gravel
630	666	brown clay
666	680	gravel
680	706	brown clay
706	760	gravel
760	804	brown clay

TOTAL DEPTH OF BORING 804 (Feet)

TOTAL DEPTH OF COMPLETED WELL 770 (Feet)

WELL LOCATION

Address 1625 River Rd

City Gonzales

County Monterey

APN Book 216 Page 032 Parcel 014

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_

Latitude \_\_\_\_\_ North \_\_\_\_\_ Longitude \_\_\_\_\_ West \_\_\_\_\_

LOCATION SKETCH

ACTIVITY ( )

☒ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify) \_\_\_\_\_

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES ( )

WATER SUPPLY

☒ Domestic ☐ Public

☐ Irrigation ☐ Industrial

MONITORING \_\_\_\_\_

TEST WELL \_\_\_\_\_

CATHODIC PROTECTION \_\_\_\_\_

HEAT EXCHANGE \_\_\_\_\_

DIRECT PUSH \_\_\_\_\_

INJECTION \_\_\_\_\_

VAPOR EXTRACTION \_\_\_\_\_

SPARGING \_\_\_\_\_

REMEDIATION \_\_\_\_\_

OTHER (SPECIFY) \_\_\_\_\_

Multiple \_\_\_\_\_

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER 30 (FL) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 30 (FL) & DATE MEASURED 4/20/00

ESTIMATED YIELD 55 (GPM) & TEST TYPE pump

TEST LENGTH 8 (Min.) TOTAL DRAWDOWN 100 (FL)

\* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE	FL	to	FL	BORE-HOLE DIA. (Inches)	CASING (S)					DEPTH FROM SURFACE	FL	to	FL	ANNULAR MATERIAL			
					TYPE ( )	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)					CE-MENT ( )	BEN-TONITE ( )	FILL ( )	FILTER PACK (TYPE/SIZE)
0	640	14	x		NonCopper	6 5/8	1			0	660	x	10 sack sand				
640	670	14	x		SS	6 5/8	2						slurry				
670	770	14	x		wire wrap		2		.065	660	770					x	well pack

**ATTACHMENTS ( )**

- Geologic Log
- Well Construction Diagram
- Geophysical Log(s)
- Soil/Water Chemical Analyses
- Other \_\_\_\_\_

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME L.E. Melville & Son Drilling Co., Inc.

ADDRESS 19730 Pinehurst Lane City Salinas, Ca. State 93906

Signed \_\_\_\_\_ DATE SIGNED 8/11/03 675586

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

## **APPENDIX F**

### **WELL CONSTRUCTION DETAILS FOR WELLS IN THE DEEP AQUIFERS**

## Monitoring and Production Wells in the Pressure Deep Aquifer

Facility Code	State Well ID	Well Type	Total Depth (ft)	Year Drilled	Monitoring Programs					
					Water Quality	Monthly GWL	Aug. Trough GWL	Annual GWL	Transducer	CASGEM
Monitoring Wells										
10164	13S/02E-32E05	Monitoring	1,650	1984					X	
21356	15S/02E-04A03	Monitoring	910	1995		candidate		candidate		
22274	14S/01E-24L02	Monitoring	1,880	2000					X	
22275	14S/01E-24L03	Monitoring	1,430	2000					X	
22276	14S/01E-24L04	Monitoring	1,080	2000					X	
22277	14S/01E-24L05	Monitoring	970	2000					X	
26313	14S/02E-33E01	Monitoring	1,095	2005						
26314	14S/02E-33E02	Monitoring	1,760	2005						
Production Wells										
2691	14S/02E-18E01	Agricultural	unknown	1974	X					
1672	14S/02E-06L01	Agricultural	1,809	1976	X	X		X		
75	13S/02E-19Q03	Agricultural	1,610	1980	X	X		X		X
2453	14S/02E-31H01	Municipal	1,515	1982	X					
2430	13S/02E-32M02	Agricultural	1,630	1984	X					
1153	13S/02E-31A02	Agricultural	1,635	1985	X					
2452	14S/02E-32D04	Municipal	1,700	1985	X					
2451	14S/02E-30G03	Municipal	2,020	1989	X					
2261	13S/01E-25R01	Residential	1,393	1992	X	X				
not assigned	15S/02E-03E01	Unknown	1,212	1995						
2776	16S/04E-11D51	Agricultural	1000	1996		candidate				
21655	14S/02E-20B03	Industrial	825	1997	X					
23487	15S/03E-34L52	Agricultural	800	1997						
2829	16S/04E-03G52	Municipal	920	1998						
23103	17S/04E-01L52	Residential	804	2000						
22831	16S/04E-03G53	Municipal	920	2000						
22666	15S/03E-03N58	Industrial	682	2002						
22681	13S/01E-36J02	Residential	1,364	2004	X	X		X		
22755	14S/02E-07J03	Industrial	1,573	2005	X					
22929	14S/02E-28H04	Agricultural	1,180	2006	X	X		X		
22905	15S/03E-05R52	Agricultural	840	2006		candidate				
23135	14S/02E-28C02	Agricultural	1,180	2008	X		X	X		
24033	14S/02E-22A03	Agricultural	1,640	2009	X					
25375	15S/02E-04A04	Municipal	1,095	2011						
26134	16S/04E-03K01	Agricultural	1,060	2011						
25553	15S/03E-10D04	Municipal	960	2011						
25973	14S/02E-29C01	Agricultural	1,780	2013	X					
26127	14S/02E-21L02	Agricultural	1,780	2014						
26103	14S/02E-21K04	Agricultural	1,800	2015						
not assigned	not assigned	Agricultural	700	2016						
not assigned	not assigned	Agricultural	1560	2016						
not assigned	not assigned	Agricultural	1680	2017						
Destroyed Wells										
2695	13S/01E-36J01	Municipal	1,724	1977	X	X				





**APPENDIX G**

**EXCERPTS FROM**

**MONTEREY COUNTY WATER RESOURCES AGENCY ACT**

## CHAPTER 52

### MONTEREY COUNTY WATER RESOURCES AGENCY ACT

*"An act to...repeal the Monterey County Flood Control and Water Conservation District Act (Chapter 699 of the Statutes of 1947), and to enact the Monterey County Water Resources Agency Act, relating to the Monterey County Water Resources Agency." (Stats. 1990, c. 1159).*

*Former Chapter 52, Monterey County Flood Control and Water Conservation Act, Stats. 1947, c. 699, editorially classified as Water Code Appendix §§ 52-1 to 52-36, was repealed by Stats. 1990, c. 1159 (S.B.2580), § 49.*

SECTION			
52-1, 52-2	Repealed	52-47	Renumbered
52-3	Short title.	52-48	Board of Directors; appointment; number; qualifications
52-4	Creation; name; territory	52-49	Manner of appointment; experience
52-5	Authority, limitations, rights and duties of Agency	52-50	Terms; reappointment
52-5.1	Repealed	52-51	Vacancies; manner of filling; term
52-5.2	Definitions	52-52	Duty to advise Board of Supervisors; emergencies
52-5.4	Repealed	52-53	Policy objectives of Directors
52-6	Zones established	52-54	Duties of Directors
52-7	Amendment of zones	52-55	Responsibility of Directors for initiating and developing proposals for Agency work
52-8	Objects and purposes of acts	52-56	Approval and execution of contracts by Directors
52-9	Powers of Agency	52-57	Approval of contracts for which funds budgeted; form; fiscal provisions
52-10	Revenue bonds		Purchasing agent; contracts; submission to Directors
52-11	Work or improvements undertaken; law governing; definitions	52-58	Blank
52-12	Water standby or availability charge	52-59	Contracts for which funds not budgeted; form; fiscal provisions
52-12.1, 52-12.3	Repealed	52-60.1	Contracts for lease of Agency land
52-13	Water reclamation charges	52-61	Recruitment and hiring of general manager; requirements; termination
52-14	Eminent domain	52-62	Annual performance evaluation of general manager; yearly objectives
52-15	Board of Supervisors; ordinances and resolutions	52-63	Personnel duties of Directors; planning and budgeting matters
52-16	Officers, assistants, deputies, clerks and employees	52-64	Meeting of Directors; conduct
52-17	Rules and regulations; appointment of officers and employees	52-65	Public hearings by Directors; testimony of public
52-18	Plan to control flood and storm waters; reports	52-66	By-laws; adoption by Directors; standing committees
52-19	Projects or works of improvement to be carried out	52-67	Advisory committees
52-20	Institution of projects; hearings	52-68	Advisory committees; sole authority to advise Board members
52-21	Legislative findings; Salinas River ground water basin extraction and recharge	52-69	Exercise by Directors of Agency powers not reserved to Supervisors
52-21.1	Export of groundwater or surface water from coastal watershed area; prohibition; injunctive relief	52-70	Additional powers of Board of Supervisors
52-22	Studies; groundwater basins; seawater intrusion; extraction prohibition	52-71	Duties of Supervisors concerning litigation
52-23	Water tolls or charges	52-72	Blank
52-24	Powers of Board	52-73	Reports to Supervisors
52-24.1	Proceedings; application of procedures	52-74	Reports of Board of Directors
52-25	Fees and taxes; referendum power	52-75	Semiannual meeting of Board of Supervisors and Directors
52-26	Bonds; resolutions; elections	52-76	Appeals by Agency to Directors
52-27	Bonds; form; terms; maturity denominations; signatures	52-77	Adoption of rules relating to notice and hearing by Directors
52-28	Issuance and sale of bonds; payments from zone funds	52-78, 52-79	Blank
52-29	Bonds; payment from tax revenue	52-80	Decision of Directors final; no appeal to Supervisors
52-30	Bond tax	52-81	No appeal from decision of Directors to Board of Supervisors; exception
52-31	Bonds, law applicable	52-82	Actions and decisions of Agency subject to judicial review
52-32	Bonds; legal investments	52-83	Assistance of County staff to Directors; assistance of attorney representing County counsel
52-33	Bonds; tax exemption; nature of district	52-84	Joint meeting of Supervisors and Directors to study effectiveness of Agency
52-33.1	Repealed	52-85	Cooperation by and with Pajaro Valley Water Management Agency and Monterey Peninsula Water Management District; memorandum of agreement
52-34	Improvements; conformity with plans and specifications	52-86	Act not to alter authority of Monterey Peninsula Water Management District or Pajaro Valley Water Management Agency
52-35	Additional bonds	52-87 to 52-89	Blank
52-36	Defeat of bond proposal; waiting period for new election	52-90	Liberal construction
52-37	Repeals or amendments; effect on obligations	52-91	Severability
52-38	Right of way over public lands		
52-39	Judicial proceedings; commencement		
52-40	Claims against Agency; law governing		
52-41	Title to property		
52-42	Employees' bonds		
52-43	Annexation to zones		
52-44	Structure and governance of Agency; task force		
52-45	Water allocation formula; task force		
52-46	Renumbered		

(a) At any time after the establishment of one or more zones for a project, the Board may amend any or all of the zones if it appears to the Board that circumstances have changed or that the initial determinations relating to the zone are now inappropriate. The amendments may include any of the following:

(1) Changes in the zone boundaries to annex or detach territory.

(2) Increases or decreases in the number of zones relating to the project by the making of boundary changes, the addition of new zones, or the elimination of old zones.

(3) Changes in the percentage of project benefits allocable to the zone.

In order to make the amendment, the Board shall follow the procedure for the initial establishment of zones in the manner provided in Sections 20 and 24.1. However, the project itself need not be approved again.

(b) Notwithstanding subdivision (a), the boundaries of any zone, and the percentages to be raised from any of several participating zones, shall not be reduced until all bonds issued by the Agency with respect to the zone and its project have been fully paid and discharged.

(c) Paragraph (5) of subdivision (b) of Section 43 applies to all annexations made pursuant to this section.

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

purposes or that may be acquired for the maintenance or protection of any such works, dam, or reservoir or watersheds adjacent thereto, of lands deemed by the Supervisors of the Agency to be necessary or convenient for the installation, construction, use, and maintenance of recreational areas or facilities, including picnic grounds, playgrounds, campgrounds, home sites, boats and fishing, bathing, or other facilities for use by the public, subject to such rules and regulations and reasonable charges as may be prescribed by the Board of Supervisors of the Agency. However, no property situated in another county, shall be condemned by the Agency for recreational areas or facilities unless the Board of Supervisors of the County in which the property is situated agrees to the condemnation thereof.

Sec. 9. Powers of Agency. The Agency has perpetual succession and may do any of the following:

(a) Sue and be sued in the name of the Agency in all actions and proceedings in all courts and tribunals of competent jurisdiction.

(b) Adopt a seal and alter it at pleasure.

(c) Acquire by grant, purchase, lease, gift, devise, contract, construction, or otherwise, and hold, use, enjoy, sell, let, and dispose of real and personal property of every kind, including lands, structures, buildings, rights-of-way, easements, and privileges, and construct, maintain, alter, and operate any and all works or improvements, within or outside the Agency, necessary or proper to carry out any of the purposes of this act and complete, extend, add to, alter, remove, repair, or otherwise improve any works, or improvements, or property acquired by it as authorized by this act.

(d) (1) Store water in surface or underground reservoirs within or outside the Agency for the common benefit of the Agency of any zones affected.

(2) Conserve and reclaim water for present and future use within the Agency.

(3) Appropriate and acquire water and water rights, and import water into the Agency and conserve within or outside the Agency, water for any purpose useful to the Agency.

(4) Commence, maintain, intervene in, defend, or compromise, in the name of the Agency on behalf of the landowners therein, or otherwise, and assume the costs and expenses of any action or proceeding involving or affecting the ownership or use of waters or water rights within or outside the Agency, used or useful for any purpose of the Agency or of common benefit to any land situated therein, or involving the wasteful use of water therein.

(5) Commence, maintain, intervene in, defend, and compromise and to assume the cost and expenses of any and all actions and proceedings.

(6) Prevent interference with, or diminution of, or declare rights in, the natural flow of any



stream or surface or subterranean supply of waters used or useful for any purpose of the Agency or of common benefit to the lands within the Agency or to its inhabitants.

(7) Prevent unlawful exportation of water from the Agency.

(8) Prevent contamination, pollution, or otherwise rendering unfit for beneficial use the surface or subsurface water used or useful in the Agency, and commence, maintain, and defend actions and proceedings to prevent any interference with those waters which endangers or damages the inhabitants, lands, or use of water in, or flowing into, the Agency. However, the Agency may not intervene or take part in, or pay the cost or expenses of, actions or controversies between the owners of lands or water rights which do not affect the interests of the Agency.

(e) Control 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 the flood waters thereof, flow into the Agency, and conserve those waters for beneficial and useful purposes of the Agency by spreading, storing, retaining, and causing to percolate into the soil within or outside the Agency, or save or conserve in any manner all or any of those waters and protect from damage from those flood or storm waters the watercourses, watersheds, public highways, life, and property in the Agency, and the watercourses of streams outside the Agency flowing into the Agency.

(f) Cooperate and act in conjunction with, the state, or any of its engineers, officers Boards, commissions, departments, or agencies, or with the United States, or any of its engineers, officers, boards, commissions, departments, or agencies, or with any public or private corporation, or with the County, in the construction of any work for the controlling of flood or storm waters of, or flowing into, the Agency, or for the protection of life or property therein, or for the purpose of conserving those waters for beneficial use within the Agency, or in any other works, acts, or purposes provided for herein, and adopt and carry out any definite plan or system of work for any such purpose.

(g) Carry on technical and other necessary investigations, make measurements, collect data, make analyses, studies, and inspections pertaining to water supply, water rights, control of flood and storm waters, and use of water both within and without the Agency relating to watercourses or streams flooding in or into the Agency. For those purposes, the Agency has the right of access through its authorized representatives to all properties within the Agency and elsewhere relating to watercourses and streams flowing in or into the Agency. The Agency, through its authorized representatives, may enter upon those lands and make examinations, surveys, and maps thereof.

(h) (1) Enter upon any land, to make surveys and locate the necessary works of improvement and the lines for channels, conduits, canals, pipelines, roadways, and other rights-of-way.

(2) Acquire by purchase, lease, contract, gift, devise, or other legal means all lands and water and water rights and other property necessary or convenient for the construction, use, supply maintenance, repair, and improvement of those works, including works constructed and

being constructed by private owners, lands for reservoirs for storage of necessary water, and all necessary appurtenances, if necessary to that end, and acquire and hold in the name of the state, the capital stock of any mutual water company or corporation, domestic or foreign, owning water or water rights, canals, waterworks, franchises, concessions, or rights, if the ownership of the stock is necessary to secure a water supply required by the Agency or any part thereof, and if when holding that stock, the Agency is entitled to all the rights, powers, and privileges, and is subject to all the obligations and liability conferred or imposed by law upon other holders of that stock in the same company.

(3) Perform acts necessary or proper for the performance of any agreement with the United States, or any state, county, city, district of any kind, public or private corporation, association, firm, or individual, or any number of them, for the joint acquisition, construction, leasing, ownership, disposition, use, management, maintenance, repair, or operation of any rights, works, or other property of a kind which might be lawfully acquired or owned by the Agency.

(4) Acquire the right to store water in any reservoirs, or carry water through any canal, ditch, or conduit not owned or controlled by the Agency.

(5) Grant to any owner or lessee the right to the use of any water or right to store water in any reservoir of the Agency, or to carry water through any tunnels, canal, ditch, or conduit of the Agency.

(6) Perform acts necessary or proper for the performance of any agreement with any district of any kind, public or private corporation, association, firm, or individual, or any number of them for the transfer or delivery to any district, corporation, association, firm, or individual of any water right or water pumped, stored, appropriated, or otherwise acquired or secured, for the use of the Agency, or for the purpose of exchanging the same for other water, water right, or water supply in exchange for water, water right, or water supply to be delivered to the Agency by the other party to the agreement.

(7) Cooperate with, and act in conjunction with, the state, or any of its engineers, officers, boards, commissions, departments, or agencies, or with the United States, or any of its engineers, officers, boards, commissions, departments, or agencies, or with any public or private corporation, in the construction of any work for controlling flood or storm waters of streams in or running into the Agency, or for the protection of life or property therein, or for the purpose of conserving the waters for beneficial use within the Agency, or for the protection, enhancement, and use of groundwater within the Agency, or in any other works, acts, or purposes provided for herein, and adopt and carry out any definite plan or system of work for any such purpose.

(i) Incur indebtedness and issue bonds in the manner provided in this act.

(j) Cause taxes or assessments to be levied and collected in order to pay any obligation of the Agency and carry out any of the purposes of this act.

(k) Make contracts, and employ labor, and do all acts necessary for the full exercise of all powers vested in the Agency or any of the officers thereof, by this act.

(l) Buy, provide, sell, and deliver water.

(m) Exchange water.

(n) Develop and distribute water to persons in exchange for ceasing or reducing groundwater extractions, and prevent groundwater extractions which are determined to be harmful to the groundwater basin.

(o) Transport, reclaim, purify, desalinate, treat, or otherwise manage and control water for the beneficial use of persons or property within the Agency.

(p) Construct, maintain, improve, and operate public recreational facilities appurtenant to any water reservoir operated or to be operated by the Agency whether within or without the Agency, subject to the limitations as to eminent domain use for recreational purposes outside the Agency set forth in Section 4, and provide by ordinance regulations binding upon all persons to govern the use of those facilities, including regulations imposing reasonable charges for the use thereof.

(q) Regulate inspect, and license all structures, including docks and wharves, or structures used as docks or wharves, and their anchorage or mooring system, that float on, or are designed to float on, the surface of reservoirs operated or contracted to be operated by the Agency or that are located within the area subject to its flowage easement, or that are located on real property of the Agency, and charge a reasonable fee for licensing those structures. Any of those structures that are unlicensed more than 30 days after notice to license the structure has been posted thereon, or any unlicensed structure that is neither anchored nor moored, or is found on property owned in fee by the Agency, is a nuisance. The Agency may have injunctive relief for any of those nuisances, or may summarily abate any untended structure floating on the surface of the reservoir that is neither anchored nor moored, or any untended structure found on property owned in fee by the Agency. It is a misdemeanor to maintain, anchor, or moor or suffer to be maintained, anchored, or moored on property of which one is possessed any unlicensed structure when that structure is required to be licensed pursuant to this act. The misdemeanor is punishable by a fine not to exceed five hundred dollars (\$500), or by imprisonment in the County jail for not to exceed six months, or by both that fine and imprisonment. Each day of violation of these provisions constitutes a separate offense.

(r) Use any part of its water, and any part of its works, facilities, improvements, and property used for the development, storage, and transportation of water pursuant to this section to provide, generate, and deliver hydroelectric power, and acquire, construct, operate, and maintain any and all works, facilities, improvements, and property necessary or convenient therefor.

(s) (1) Pursuant to contract, provide, generate, sell, and deliver hydroelectric power to the United States or any board, department, or agency thereof, to the state for the purposes of the

State Water Resources Development System, and to any public agency, public utility, private corporation, or other person or public entity, or any combination thereof, engaged in the sale of electric power.

(2) For the purposes of this subdivision, "public agency" means a city, county, city and county, district, local agency, public authority, or public corporation.

(t) Construct, maintain, and operate works, facilities, improvements, and property of the Agency useful or necessary for the provision, generation, and delivery of hydroelectric power, pursuant to subdivisions (r) and (s).

(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.

(v) Require the installation of flow meters on groundwater extraction facilities and water distribution system service connections in the County of Monterey, except that no public entity may use flow meters installed pursuant to this section on privately owned groundwater extraction facilities or service connections, or the data obtained from those flow meters, in connection with the imposition or collection of any taxes, or for any other purpose other than one or more of the following:

(1) To facilitate the collection of water supply and water use data.

(2) To facilitate the development and implementation of water management plans, including, but not limited to, water allocation plans, water conservation plans, and water supply projects.

(3)(A) To impose fees, charges, water tolls, or assessments solely to pay for the planning, development, acquisition, construction, operation, and maintenance of water supply projects, and for other water management activities, including, but not limited to, the development and implementation of water allocation or conservation plans.

(B) The fees, charges, water tolls, or assessments described in subparagraph (A) may be imposed only to pay for projects and activities that benefit the land on which the water extraction facility is located or the land on which the water issued.

(C) The fees, charges, water tolls, or assessments described in subparagraph (A) that are imposed to pay for water supply projects may only be imposed to pay for projects that commence operation on or after January 1, 1994.

#### Sec. 10. Revenue bonds.

(a) (1) Notwithstanding any other provision of this act, the Agency may authorize, issue, and



Sec. 21.1. Export of groundwater or surface water from coastal watershed area; prohibition; injunctive relief.

(a) The Legislature finds and determines that the watersheds of the coastal streams south of Carmel Highlands in Monterey County contribute to the unique environment of the area, and that the surface water and groundwater naturally occurring in that area, should be retained within that area.

(b) For the purpose of preserving the unique environmental characteristics of the area described in subdivision (a), no person or entity shall export from the coastal watershed area any water obtained as groundwater or surface water in that area.

(c) If any export of water in violation of this section is attempted, the Agency or any person or entity affected by the export may obtain from the superior court, and the court shall grant, injunctive relief prohibiting the export of water.

(d) For purposes of this section, the "coastal watershed area" includes the watershed of Doud Creek and the watersheds of all streams that drain into the Pacific Ocean in Monterey County south of Doud Creek, excluding any portion of any watershed lying outside the Agency's territory.

(e) This section does not prohibit the use of water on lands adjacent to the coastal watershed which are in common ownership with lands within the watershed, nor does it restrict use of water which is consistent with an existing appropriate right.

Sec. 22. Studies; groundwater basins; seawater intrusion; extraction prohibition. If, as a result of appropriate studies conducted by the Agency, it is determined by the Board that any portion of a groundwater basin underlying the Agency is threatened with the loss of a usable water supply as a result of seawater intrusion into that portion of the groundwater basin, the Board may take appropriate steps to prevent or deter the further intrusion of underground seawater by establishing and defining an area and depth from which the further extraction of groundwater is prohibited. This determination shall be made only after a public hearing by the Board upon the proposed determination, with notice of the hearing to be given in the manner prescribed in Section 6065 of the Government Code. At the hearing, the Board shall accept evidence showing the nature and extent of the threat of seawater intrusion and the facilities proposed in order to provide to the area threatened a substitute supply of surface water. If, at the conclusion of the hearing, the Board determines that a threat of seawater intrusion exists which will be aggravated by continued groundwater extraction within a given area and depth, the Board may adopt an ordinance prohibiting the further extraction of groundwater from the area and depth so defined. The ordinance shall be effective as to any existing groundwater well extracting water from the area and depth prohibited only if there is made available to the lands served from that well a substitute surface water supply adequate to replace the water supply previously available from that well. The Board shall apportion the costs of installation, maintenance, and

operation of the facilities required to furnish that substitute surface supply in an equitable manner among all those benefited by the substitute supply, and by the cessation of groundwater extraction, through appropriate standby charges, water tolls, or subsidies.

Sec. 23. Water tolls or charges. The Board may impose water tolls or charges for the use of water served directly by the Agency from any project developed and operated by the Agency pursuant to this act. The Board may impose appropriate penalties and interest charges upon delinquent water tolls or charges and shall supply to the County auditor and tax collector on or before the first day of August of each year, a list of all delinquent water tolls or charges. The County tax collector shall collect the delinquent water tolls or charges at the same time and in the same manner as standby or availability charges of the Agency imposed under Section 12, except as to water tolls or charges made pursuant to a contract of the Agency under subdivision (i) of Section 9.

Sec. 24. Powers of Board.

(a) The Board of Supervisors may do any of the following:

(1) Levy ad valorem taxes or assessments upon all property in the Agency to pay the general administrative costs and expenses of the Agency, and to carry out any of the objects or purposes of this act of common benefit to the Agency.

(2) Levy taxes or assessments in each or any of the zones and participating zones to pay the costs and expenses of carrying out any of the purposes of this act of special benefit to the zone or zones, including, but not limited to, the constructing, maintaining operating, extending, repairing, or otherwise improving any or all works or improvements established or to be established within or on behalf of the respective zones, according to the benefits derived or to be derived by the respective zones, by a levy or assessment upon all property within a zone or participating zones, which may include land, improvements thereon, and personal property.

It is declared that for the purposes of any tax or assessment levied under this subdivision, the property so taxed or assessed within a given zone is equally benefited.

(3) Levy taxes or assessments for the purpose authorized by paragraph (2), in each or any of the zones or participating zones, according to the special benefits derived or to be derived by the specific properties therein. The Board may by ordinance adopt formulas to determine differential rates within a zone based on special benefits, parcel size, land use, and any other pertinent factor or combination of factors.

(b) To initiate proceedings to levy any assessment in connection with a project, the Board shall comply with Section 20.

(c) To initiate proceedings to levy any other assessment authorized by this act, the Board of Supervisors shall adopt a resolution which specifies all of the following:

## **APPENDIX H**

### **MONTEREY COUNTY CODE CHAPTER 15.08 WATER WELLS**

# MONTEREY COUNTY



DEPARTMENT OF HEALTH ROBERT C. EGNEW, M.S.W., M.P.H., Interim Director

FAMILY & COMMUNITY HEALTH  
EMERGENCY MEDICAL SERVICES

ENVIRONMENTAL HEALTH  
BEHAVIORAL HEALTH

HEALTH PROMOTION  
ADMINISTRATION

## MONTEREY COUNTY CODE

### CHAPTER 15.08

### WATER WELLS

#### Sections:

15.08.010	Purpose
15.08.020	Definitions and Interpretation
15.08.030	Permit - Required
15.08.040	Permit - Compliance with Conditions
15.08.050	Permit - Application; Fee
15.08.060	Permit - Issuance or Denial
15.08.070	Permit - Expiration
15.08.080	Permit - Suspension or Revocation
15.08.090	Variances
15.08.100	Inspections
15.08.110	Technical Standards
15.08.120	Abandoned Well
15.08.130	Backflow Prevention
15.08.140	Special Groundwater Protection
15.08.150	Federal, State and Local Reporting Regulations
15.08.160	Appeals
15.08.170	Right of Entry and Inspection
15.08.180	Criminal Enforcement and Penalties
15.08.190	Civil Enforcement - Notice of Violation
15.08.200	Civil Enforcement - Nuisance
15.08.210	Severability

(Adopted April 19, 1988)



#### 15.08.010 PURPOSE.

- A. It is the purpose of this chapter to provide for the construction, repair, and reconstruction of all wells, including cathodic protection wells, test wells, observation wells, and monitoring wells, to the end that the groundwater of this County will not be polluted or contaminated and that water obtained from such wells will be suitable for the purpose for which used and will not jeopardize the health, safety or welfare of the people of this County. It is also the purpose of this chapter to provide for the destruction of abandoned wells, monitoring wells, observation wells, test wells, and cathodic protection wells found to be public nuisances, or when otherwise appropriate, to the end that all such wells will not cause pollution or contamination of groundwater.
- B. To comply with Articles 1, 2, 3, and 4 (commencing with Section 13700) of Chapter 10, Division 7 of the Water Code, relating to water wells, cathodic protection wells and monitoring wells. (Ord. 1967 §1, 1973.)

#### 15.08.020 DEFINITIONS AND INTERPRETATION.

- A. As used in this chapter, the following words shall have the meaning provided in this section:
  - 1. "Abandoned Well" means any well whose original purpose and use has been permanently discontinued or which is in such a state of disrepair that it cannot be used for its original purpose. A well is considered abandoned when it has not been used for a period of one year, unless the owner demonstrates his intent to use the well again for supplying water or other associated purposes, and the well is considered an inactive well as set forth in Section 15.08.120.
  - 2. "Abatement" means the construction, reconstruction, repair or destruction of a well so as to eliminate the possibility that such well could pollute or contaminate groundwater.
  - 3. "Air-gap Separation (AG)" is a physical break between the supply line and the receiving vessel.
  - 4. "Cathodic protection well" means any artificial excavation in excess of fifty feet in depth constructed by any method for the purpose of installing equipment or facilities for the protection electronically of metallic equipment in contact with the ground, commonly referred to as cathodic protection.
  - 5. "Casing" means an approved conduit required to prevent the waste and pollution of the groundwater and to hold the bore hole open during the use of the well.
  - 6. "Double check valve (DC)" is an assembly of at least two independently acting check valves including tightly closing shut-off valves on each side of the check valve assembly and test cocks available for testing the water tightness of each check valve.

7. "Groundwater Problem Area" means an area in Monterey County where groundwater quality does not meet Federal, State or local drinking water standards. The location of these areas are usually known to the Health Officer or his authorized representative, the Director of Environmental Health. When this code refers to "areas where groundwater problems are known to exist," it refers to those areas where the Health Officer knows, or has reason to believe, groundwater does not meet the Federal, State, or Local drinking water standards.
8. "Health Officer" means the Health Officer of the County of Monterey, or his authorized representative, including the Director of Environmental Health.
9. "Inactive well" means a well not routinely operated but capable of being made an operating well with a minimum of effort.
10. "Issuance of Permit." A permit is issued when it is signed by the Health Officer or his authorized representative and is available to be picked up by the applicant or mailed to the applicant.
11. "Monitoring well" means any artificial excavation constructed by any method for the purpose of monitoring fluctuations in groundwater levels, quality of underground waters, or the concentration of contaminants in underground waters.
12. "Person" means any individual, organization, partnership, business, association, corporation or governmental agency.
13. "Property line" means the legally established line separating one piece of property from another or separating a public right-of-way from private properties.
14. "Test Well" means any artificial excavation used for water quality testing, electric logging, water quantity testing and/or other tests to determine aquifer quality and quantity characteristics.
15. "Well" or "water well" means any artificial excavation constructed by any method for the purpose of extracting water from, or injecting water into, the underground. "Well" includes abandoned wells, monitoring wells, observation wells, cathodic protection wells, test wells, and dry wells. "Well" or "water well" does not include:
  - a. Oil and gas wells, or geothermal wells constructed under the jurisdiction of the Department of Conservation, except those wells converted to use as water wells; or
  - b. Wells used for the purpose of dewatering excavation during construction, or stabilizing hillsides or earth embankments.

B. Words used in the present tense include the future as well as the present. Words used in the masculine gender include the feminine and neuter. The singular number includes the plural, and the plural the singular.

- C. Section headings, when contained in this chapter, shall not be deemed to govern, limit, modify, or in any manner affect the scope, meaning, or intent of the provisions of any section. (Ord. §2, 1977; Ord. 1967 §2, 1973.)

#### 15.08.030 PERMIT - REQUIRED.

- A. No person shall construct, repair, reconstruct or destroy any well, abandoned well, cathodic protection well, observation well, monitoring well, or test well unless a written permit has first been obtained from the Health Officer of the county or his authorized representative as provided in this chapter. (Ord. 1967 §3(a), 1973.)
- B. Any person who shall commence any work for which a permit is required by this Chapter without having obtained a permit therefore, shall, if subsequently granted a permit, pay double the permit fee for such work; provided, however, that this provision shall not apply to emergency work when it shall be proved to the satisfaction of the Health Officer that such work was urgently necessary and that it was not practical to obtain a permit before commencement of the work. In all cases in which emergency work is necessary, a permit shall be obtained within three working days after commencement of the work. The applicant for a permit for any such emergency work shall, in any case, demonstrate that all work performed is in compliance with the technical standards of Section 15.08.110 of this chapter. Emergency work includes but is not limited to wells necessary for the operation of a water system or agricultural operation.
- C. Obtaining the permit, pursuant to this Chapter, does not relieve an applicant from obtaining other required permits or following the regulations required by any other Federal, State, or Local Codes.

#### 15.08.040 PERMIT - COMPLIANCE WITH CONDITIONS.

- A. No person to whom a permit has been issued, as provided for in Section 15.08.030, shall fail to comply with all of the terms and conditions of the permit and with the standards specified in this chapter.
- B. No person shall undertake to dig, bore, or drill a "well," including a water well, cathodic protection well, observation well, test well, or monitoring well, or to deepen or re-perforate any water well, cathodic protection well, observation well, test well, or monitoring well, or to abandon or destroy any water well, cathodic protection well, or monitoring well, unless the person responsible for that construction, alteration, destruction, or abandonment possesses a Contractor's license in accordance with the Contractor's License Law (Chapter 9, Division 3, of the California Business and Professions Code) provided, however, that a property owner may construct or destruct a well on his own property, which well serves or will serve the property that is neither being offered for sale nor intended to be so offered. (Water Code §13750.5)

#### 15.08.050 PERMIT - APPLICATION; FEE.



- A. Application for a permit pursuant to this chapter shall be made to the Health Officer, in such form as he may prescribe, setting forth such information as he may reasonably require to secure the purposes of this chapter, and shall contain:
- (1) Property owner's name, home address and telephone number.
  - (2) A description of the property where the work is to be done, sufficient for identification, such as street address, name of subdivisions or tract, lot number, and county assessor's parcel number.
  - (3) Sketched outline of the property, giving dimensions and the direction of north to include:
    - a. Location and nature of any existing sewage disposal installation on the property or within 150 feet of the property.
    - b. Location of any existing well, whether domestic or irrigation, and whether in use or abandoned, either on the property or within 100 feet of the property.
    - c. Location of ocean, lakes, sloughs, streams, springs, water channels and water supplies on or adjacent to the property.
    - d. Location of all recorded easements.
    - e. Location of all recorded well lots on the property or within 200 feet of the property.
  - (4) The type of work to be done and a description of the type of construction.
  - (5) Such additional data as may be necessary, in the judgement of the Health Officer, to insure public health, safety, and welfare.
- B. The application shall be accompanied by a fee as prescribed in Title 10.08, Section 10.08.050 BB, no part of which shall be refundable.

#### 15.08.060 PERMIT - ISSUANCE OR DENIAL.

When the Health Officer issues a permit pursuant to this chapter, he may condition the permit in any manner he deems necessary to carry out the purposes of this chapter. Conditions may include, but are not limited to, proper construction, destruction, reconstruction, sealing methods, and quantity and quality testing methods as the Health Officer finds necessary to carry out the purposes of this chapter. The Health Officer shall deny an application for a permit if, in his judgment, its issuance would tend to defeat the purposes of this chapter. (Ord. 1967 §4(b), 1973.)

#### 15.08.070 PERMIT - EXPIRATION.

Every permit issued pursuant to this chapter shall expire and become null and void if the work authorized thereby has not been completed within one year following its issuance. Upon expiration no further work shall be done unless and until a new permit has been obtained or applicant has received up to a 60 day extension in exceptional circumstances. (Ord. 2980 §1, 1984; Ord. 1967, 1973.)

#### 15.08.080 PERMIT - SUSPENSION AND REVOCATION.



- A. The Health Officer may suspend or revoke any permit issued pursuant to this chapter, whenever he finds that the permittee has violated any of the provisions of this chapter, or has misrepresented any material fact in his application, or any supporting documents, for such permit. Prior to ordering any such suspension or revocation, the Health Officer shall give the permittee an opportunity for a hearing thereon, after reasonable notice. The hearing shall be an informal hearing before the Health Officer or his designated representative. An appeal may be taken as set forth in §15.08.160.
- B. No person whose permit has been suspended or revoked shall continue to perform the work for which the permit was granted until, in the case of suspension, such permit has been reinstated by the Health Officer.
- C. Upon suspending or revoking any permit, the Health Officer may order the permittee to perform any work reasonably necessary to protect the underground waters from pollution or contamination, if any work already done by the permittee has left a well in such condition as to constitute a hazard to the quality of the underground waters. No permittee or person who has held any permit issued pursuant to this chapter shall fail to comply with any such order. (Ord. 1967 §5, 1973.)

#### 15.08.090 VARIANCES.

The Health Officer shall have the power, in specific cases, to grant a variance from any provision of the standards incorporated into this chapter by reference whenever he finds that special circumstances exist in a particular case and that practical difficulties or unnecessary hardship would result from the strict interpretation and enforcement of any such standard, and that the granting of such a variance would not tend to defeat the purposes of this chapter. (Ord. 1967 §6, 1973.) There is no appeal from denial of a variance. The standards incorporated into this chapter are based upon public health standards for the protection of groundwater supplies. Variances are based upon the technical expertise of the Health Officer or his authorized representative, the Director of Environmental Health, and his exercise of discretion in using that expertise.

#### 15.08.100 INSPECTIONS.

Upon receipt of an application, an inspection of the location of the well, test well, or cathodic protection well shall be made by the Health Officer prior to issuance of a well permit. Inspection of monitoring well or observation well locations prior to permit issuance may be made at the discretion of the Health Officer.

The person responsible for construction, reconstruction or destruction of any well shall notify the Health Officer when work commences. All work shall be subject to inspection by the Health Officer to insure compliance with all the requirements of this chapter.

#### 15.08.110 TECHNICAL STANDARDS.

- A. Standards.

Standards for the construction, repair, reconstruction of or destruction of "wells," including abandoned wells, monitoring wells, test wells, observation wells, and cathodic protection wells shall be as set forth in Chapter II and Appendices A, B, C, D of the Department of Water Resources Bulletin No. 74-81, "Water Well Standards" (December, 1981) and the Department of Water Resources Bulletin No. 74-1, "Cathodic Protection Well Standards" (March, 1973), or as subsequently revised or supplemented. Copies of these standards are available in the offices of the Division of Environmental Health or on file with the Health Officer. These standards are incorporated by reference in this chapter, with the following modifications:

1. The minimum distance between wells and subsurface sewage leaching fields or septic tanks shall be 100 feet, and the minimum distance between wells and seepage pits shall be 150 feet.
2. The annular space surrounding the conductor casing of all wells shall be sealed with neat cement, sand cement grout, neat cement/pozzolan/polymer mixture, bentonite clay (in continuously saturated zones), or any other equal or similar compound approved by the Health Officer from the ground level to a minimum depth of 50 feet or as required by the Health Officer for groundwater protection. The annular space shall be at least two inches when measured at any point around the casing.
3. The seal shall do all of the following:
  - a. Restore, as far as feasible, the controlling hydrological conditions that existed before the well was drilled and constructed, including the elimination of physical hazards.
  - b. Prevent pollution of groundwater.
  - c. Conserve the yield and hydrostatic head of aquifers.
  - d. Prevent intermingling of desirable and undesirable waters.
4. Drilling fluids and other drilling materials used in connection with well construction shall not be allowed to discharge onto streets or into waterways; and shall not be allowed to discharge off the parcel on which the well is constructed onto adjacent properties; provided, that adjacent property may be used temporarily for the discharge of such fluids and materials pursuant to a written agreement with the owner(s) of the adjacent property and provided that such fluids and materials are removed and cleaned up within thirty days of completion of the well drilling.
5. Water generated during test pumping of wells shall be dispersed or disposed of in a manner which will not cause significant erosion.
6. Modifications 1 and 2 may not apply to monitoring wells at the discretion of the Health Officer or his authorized representative.

B. Casing.

All wells shall be cased and constructed so as to prevent pollution. The casing shall meet the minimum applicable standards set by the American Petroleum Institute, the American Society for Testing and Materials, the American Water Works Association, and the Plastic Pipe Institute, as they relate to the specifications for water well casing.

C. Capping of a Well.

If a pump is not installed at the time of drilling a well, a tight cap shall be placed over the casing so as to prevent pollution of the well or injury to animals or humans. During this time, as well as after a pump is installed, all openings shall be sealed off to prevent any pollution of the well.

D. Domestic Water Well Sanitization.

All domestic water wells shall be provided with a pipe or other effective means of directly introducing chlorine or other disinfecting agents into the well.

E. Exclusion of Contamination.

All water wells shall be designed and constructed to exclude contamination as follows:

1. All sanitization pipes, for an above surface pump discharge installation, shall extend to a height equal to the pump pedestal that is at least 8 inches above the finished grade. The pipe shall be kept sealed by a threaded or equivalently secure cap.
2. All sanitization pipes for a subsurface pump discharge installation shall be kept sealed by a threaded or equivalently secure cap.
3. All air relief vents at the well head shall terminate downward and be screened and protected against the possibility of contaminating material entering the vent.
4. All entry pipes into gravel packed sections of a well shall be kept sealed by a threaded or equivalently secure cap.

F. Sounding Tube.

A "sounding tube" or similar access for the introduction of water level measuring devices shall be applied to the casing of all water wells. For wells fitted with a "well cap" the cap shall have a removable plug for this purpose. For wells with turbine pumps special sounding tube designs may be required by the Health Officer or his authorized representative.

15.08.120 ABANDONED WELL.



- A. A well is considered "abandoned" when it has not been used for a period of one year, unless the owner can demonstrate his intention to use the well again for supplying water or other associated purpose (such as an observation well, monitoring well, or injection well). The well shall then be considered "inactive." As evidence of his intentions for continued use, the owner shall properly maintain the well in such a way that:

1. The well has no defects which will allow the impairment of quality of water in the well or in the water-bearing formations penetrated.
2. The well is covered such that the cover is watertight and cannot be removed, except with the aid of equipment or the use of a tool.
3. The well is marked so that it can be clearly seen.
4. The area surrounding the area is kept clear of brush or debris.

If the pump has been removed for repair or replacement, the well shall not be considered "abandoned." During the repair period, the well shall be adequately covered to prevent injury to people and to prevent the entrance of undesirable water or foreign matter.

- B. In areas where groundwater problems are known to exist, abandoned wells that penetrate and/or are perforated into two (2) or more aquifers shall be destroyed and shall not be considered "inactive."
- C. On abandonment of a well or on the order of the Local Health Officer, a well shall be destroyed by methods described in Bulletin 74-81 which are incorporated by reference in this chapter with the following modifications:
1. All open wells shall be immediately capped with a fixed cover until the well is properly destroyed.
  2. In areas where groundwater problems are known to exist and where an abandoned well penetrates and/or is perforated in more than one aquifer, the perforations shall be cleaned (when applicable), the casing shall be perforated (when applicable) and neat cement, neat cement/pozzolan/polymer mixture, or any other approved compound by the Health Officer shall be forced out under pressure into the surrounding formation in order to prevent migration of water from one aquifer to another.
- D. Monitoring wells, observation wells or test wells used in the investigation or management of groundwater basins by governmental agencies or engineering or research organizations are not considered "abandoned," so long as they are maintained for this purpose. Such wells, however, shall be covered with an appropriate cap, bearing the label, "OBSERVATION WELL," and the name of the agency or organization, and preferably shall be locked when measurements are not being made. When these wells are no longer used for this purpose or for supplying water, they shall be considered "abandoned." Abandonment shall be the responsibility of the land owner.



- E. All test wells not completed according to these standards shall be destroyed by methods described by Bulletin 74-81.

#### 15.08.130 BACKFLOW PREVENTION.

In addition to the requirements of Bulletin 74-81 (see §15.08.110A), the following shall apply to wells within the San Miguel Canyon Road-Highway 101-Dunbarton Road-San Juan Road Area as depicted on Exhibit A, known as the Prunedale Area.

All pumping equipment where fertilizers, fumigants or pesticides are injected into the irrigation system shall be installed with protective devices to effectively prevent the entrance of foreign matter from back siphonage into the well casing. A properly designed air gap or a double check valve are considered acceptable protective devices. No person shall install any equipment or mechanism, or use any water treating chemical or substance, if it is found that such equipment, mechanism, chemical or substance may cause pollution or contamination of the groundwater supply. Such equipment or mechanism may be permitted only when or if equipped with an approved backflow prevention device or air gap.

Backflow devices or other devices protecting inadvertent injection of chemicals or substances shall be those approved by the Health Officer or his authorized representative.

It is unlawful to place chemicals such as fertilizers, fumigants or pesticides other than chlorine or other disinfection agents and approved well development or well cleaning compounds down a well casing.

#### 15.08.140 SPECIAL GROUNDWATER PROTECTION.

- A. In areas where groundwater quality problems are known to exist and where a well will penetrate more than one aquifer, the Health Officer shall require special well seal(s) to prevent mixing of aquifers. If required by the Health Officer, the applicant shall provide a hydrologist, geohydrologist, engineer or other qualified person approved by the Health Officer to identify strata containing poor water quality and recommend the location and specifications of the seal or seals needed to prevent the entrance of poor-quality water or its migration into other aquifers. Interpretation of aquifers shall be based upon data obtained from the litholog, multiple probe electric log and spontaneous potential logs of the well hole.

If a hydrologist, geohydrologist, engineer or other such qualified person is required, the well shall be completed with the seal or seals specified by the hydrologist, geohydrologist, engineer or other such qualified person. Any person performing and evaluating a multiple probe electric log or spontaneous potential log shall submit copies of the logs and analysis to the Health Officer. The Health Officer may require other types of well logs such as caliper logs, acoustic logs, and cement bond logs.

- B. In Zone 6 of the Monterey County Flood Control and Water Conservation District, well construction shall be subject to the requirements found in the Specifications for Wells in Zone 6 of the Monterey County Flood Control and Water Conservation District which

are on file with the Health Officer and the Monterey County Flood Control and Water Conservation District.

#### 15.08.150 FEDERAL, STATE AND LOCAL REPORTING REGULATIONS.

- A. Nothing contained in this chapter shall be deemed to excuse any person from compliance with the provisions of Article 3 (commencing at Section 13750) of Chapter 10, Division 7 of the Water Code, relating to notices and reports of completion or any other State or Federal reporting regulations.
- B. Upon completion of any well, the owner or his authorized representative shall file with the Health Officer a copy of the report of completion referred to in Section 13751 of the Water Code. (Ord. 1967 §8, 1973.)
- C. Nothing contained in this chapter shall be deemed to excuse any person from compliance with Local codes regarding reporting and registration.

#### 15.08.160 APPEALS.

- A. Any person whose application for a permit has been denied, or granted conditionally, or whose permit has been suspended or revoked, may appeal to the Board of Supervisors, in writing, within ten days after any such denial, conditional granting, suspension, or revocation. Such appeal shall specify the grounds upon which it is taken, and shall be accompanied by a filing fee as set forth herein. The clerk of the Board shall set such appeal for hearing at the earliest practicable time, and shall notify the appellant and the Health Officer, in writing, of the time so set at least five days prior to the hearing.
- B. After such hearing, the Board of Supervisors may reverse, wholly or partly, or may modify the order or determination appealed from. (Ord. 1967 §9, 1973.)
- C. The filing fee may be set from time to time by the Board of Supervisors by ordinance (Fee Ordinance: Monterey County Code §10.08.050 BB).

#### 15.08.170 RIGHT OF ENTRY AND INSPECTION.

The Health Officer shall enforce and administer this chapter, and shall have the right to enter upon any premises at all reasonable times to make inspections and tests for the purpose of such enforcement and administration. If any such premises are occupied, he shall first present proper credentials and demand entry, and if same is unoccupied, he shall first make a reasonable effort to locate the owner or other person having charge or control of same and demand entry. If such entry is refused, he shall have recourse to such remedies as are provided by law to secure entry. (Ord. 1967 §10, 1973.)

#### 15.08.180 CRIMINAL ENFORCEMENT AND PENALTIES.

- A. Violation a Misdemeanor - any person, private agency or public agency who violates any of the provisions of this chapter is guilty of a misdemeanor, and upon conviction thereof is punishable by imprisonment in the county jail for not more than six months, or by a

fine not exceeding five hundred dollars, or by both. Each separate day, or portion thereof, during which any such violation continues shall be deemed a separate offense.

#### 15.08.190 CIVIL ENFORCEMENT - NOTICE OF VIOLATION

- A. Notice of Violation Recordation - Whenever the Health Officer determines that a well has not been completed in accordance with a well permit or the plans and specification relating thereto, or whenever the Health Officer determines that a well has been constructed or destroyed without the required permit, the Health Officer may record a notice of violation with the office of the county recorder. The owner(s) of the property, as revealed by the assessment roll, on which the violation is situated and any other person responsible for the violation shall be notified of the recordation, if their address is available.

If the property owner(s) or authorized agent disagree with the determination, he may submit evidence to the Health Officer indicating that there is no violation and then shall have a right to appeal on adverse decision of the Health Officer to the Board of Supervisors, in accordance with the provisions of Sections 15.08.190(B).

B. Appeal - Action by Board of Supervisors

1. Upon receipt of the notice of appeal the Board of Supervisors shall, within fifteen days following the filing of the appeal, set a date for public hearing thereon.
2. The evidence presented to the Board of Supervisors on appeal shall be limited to that evidence which is available at the time of the appeal, the application may be returned to the Health Officer for reconsideration.
3. If the basis of the appeal is the adequacy or weight of the evidence to support the decision of the Health Officer, the Board of Supervisors shall affirm if there is substantial evidence to affirm.
4. The Board of Supervisors may reverse or affirm, wholly or in part, or modify the decision or the notice of violation and may make such order as should be made, and such action shall be final.

C. Violation Removal of Notice

1. The Health Officer shall submit a removal of notice of violation to the county recorder when:
  - a. It is determined by the Health Officer or the Board of Supervisors, after review, that no violation of this chapter exists; or
  - b. All required and corrective work has been completed and approved by the Health Officer.



2. The fee for the submittal of removal of notice of violation shall be that set from time to time by the Board of Supervisors (Fee Ordinance: Monterey County Code §10.08.050 BB).

#### 15.08.200 CIVIL ENFORCEMENT - NUISANCE

Violations of this chapter may also be redressed in the manner hereinafter set forth by civil action. (Ord. 2786, 1981.)

##### A. Civil Enforcement Against Nuisance

To the provisions of this chapter, and/or any well operated or maintained contrary to the provisions of this chapter, shall be, and the same is hereby declared to be a violation of this chapter, and a public nuisance.

The county may summarily abate the public nuisance and the County Counsel or the District Attorney upon order of the Board of Supervisors may bring civil suit, or other action, to enjoin or abate the nuisance. (Ord. 2786, 1981.)

##### B. Each Day is a Violation

Each day any violation of this chapter continues shall be regarded as a new and separate offense. The remedies provided in this chapter shall be cumulative and not exclusive. (Ord. 2786, 1981.)

##### C. Cost of Civil Enforcement

Any person, firm or corporation who creates or maintains a public nuisance in violation of this chapter shall be liable for the costs of abatement which shall include, but not be limited to:

1. Cost of investigation;
2. Court costs;
3. Attorney's fees;
4. Costs of monitoring compliance.

Upon a continuation of the public nuisance after notice from the County to cease the nuisance, any person, firm or corporation shall be liable for the costs of abatement set forth above plus a civil penalty of fifty percent (50%) of those costs payable to the County in addition to any other costs of enforcement imposed by the court. (Ord. 2786, 1981.)

##### D. Remedies Cumulative

The remedies available to the County to enforce this chapter are in addition to any other remedies available under ordinance, the Monterey County Code, or statute, and do not replace or supplant any other remedy but are cumulative thereto. (Ord. 2786, 1981.)



15.08.210 SEVERABILITY.

If any section, subsection, paragraph, sentence, clause or phrase of this ordinance is for any reason held to be invalid or unconstitutional by a decision of a court of competent jurisdiction, it shall not affect the remaining portions of this chapter, including any other section, subsection, sentence, clause or phrase therein.

PASSED AND ADOPTED this 19 th day of April, 1988, by the Board of Supervisors of the County of Monterey by the following vote:


AYES: SUPERVISORS Del Piero, Shipnuck, Petrovic, Karas and  
Strasser Kauffman.

NOES: SUPERVISORS (None)

ABSENT: SUPERVISORS (None)

  
Chairperson of said Board

ATTEST: ERNEST K. MORISHITA  
Clerk of said Board

By:   
APPROVED AS TO FORM Deputy

  
County Counsel

EH/230

This page intentionally left blank.

## **APPENDIX I**

### **EXCERPT FROM 2010 MONTEREY COUNTY GENERAL PLAN**

- g. 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.

*(Amended by Board Resolution 13-028)*

PS-3.4 The County shall request an assessment of impacts on adjacent wells and in-stream 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.

*(Amended by Board Resolution 13-028)*

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 salt water 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.



## **APPENDIX J**

### **MONTEREY COUNTY WATER RESOURCES AGENCY ORDINANCE No. 3709**

Monterey County  
Water Resources Agency

Ordinance No. 3709

AN ORDINANCE OF  
THE MONTEREY COUNTY WATER RESOURCES AGENCY  
PROHIBITING GROUNDWATER EXTRACTIONS AND  
THE DRILLING OF NEW GROUNDWATER EXTRACTION FACILITIES  
IN CERTAIN PORTIONS OF THE PRESSURE 180 FOOT AQUIFER  
AFTER JANUARY 1, 1995

County Counsel Summary

After January 1, 1995, this ordinance prohibits the extraction of groundwater from groundwater extraction facilities that have perforations between zero feet mean sea level and -250 feet and are located within the territory between the City of Salinas and Castroville, bounded by Highway 183 and the dividing line between the Pressure Area and the East Side Area. After January 1, 1995, it also prohibits the drilling of new wells with perforations between zero feet mean sea level and -250 feet in the portion of the Pressure Area north of Harris Road to the Pacific Ocean. It provides a variance procedure in case of hardship and penalties for violations.

The Board of Supervisors of the Monterey County Water Resources Agency ordains as follows:

SECTION 1. The following provisions are hereby enacted:

PART I -- INTRODUCTION

1.01.00 AUTHORITY

Under the Monterey County Water Resources Agency Act (Stats. 1990, Chap. 1159), the Agency has jurisdiction over matters pertaining to water within the entire area of the County of Monterey, including both incorporated and unincorporated areas. Under the Act, the Agency is authorized to conserve water in any manner, to prevent the waste or diminution of the water supply within the territory of the Agency, to conserve water for the present and future use within the territory of the Agency, and to prevent groundwater extractions which are determined to be harmful to the groundwater basin. The Agency may further adopt, by ordinance, reasonable procedures, rules, and regulations to

(NOMO180.ORD -- 9/14/93)

implement the Act, and may specify in any ordinance that a violation of the ordinance is an infraction. The Board further has power to perform all other acts necessary or proper to accomplish the purposes of the Act.

#### 1.01.01 FINDINGS

A. Groundwater supplies in the Salinas Valley basin are being diminished in both quantity and quality. This inability to maintain a constant, usable water supply is due to historical overdraft, increases in demand, lack of new water supplies, and contamination of the existing supply.

B. Increases in demand have come from all sectors of the Salinas Valley -- agricultural, residential, industrial, commercial, and others. These increases in demand, coupled with the recent six year drought, have exacerbated water quality impacts and significantly accelerated overdraft.

C. Even without drought, overdraft of the groundwater basin is a constant problem; it depletes the existing water supply and contributes to the intrusion of seawater into the basin along the coast.

D. The location of the seawater intrusion front poses an imminent threat to the municipal water supply for the City of Salinas and to farming operations in the lower Salinas Valley. Restrictions on groundwater pumping are necessary in order to reduce the rate of seawater intrusion and allow recharge to raise groundwater levels. Seawater intrusion is most extensive in the Pressure 180 Foot Aquifer and threatens to contaminate lower aquifers which supply drinking water to thousands of Salinas Valley residents. Because of the extent of seawater intrusion in and near these areas, further extraction of groundwater from the water-bearing strata between zero feet mean sea level and -250 feet, within the territory defined in Section 1.01.03.D of this ordinance, would be harmful to the groundwater basin.

#### 1.01.02 PURPOSE

It is the purpose of this ordinance to prohibit groundwater extractions from extraction facilities located in the northern Salinas Valley with perforations between zero feet mean sea level and -250 feet as of January 1, 1995, so as to reduce the rate of seawater intrusion and allow recharge to raise groundwater levels.

#### 1.01.03 DEFINITIONS

A. AGENCY shall mean the Monterey County Water Resources Agency.

(NOMO180.ORD -- 9/14/93)

B. GROUNDWATER EXTRACTION FACILITY ("Facility") shall mean a groundwater well or facility for the extraction of groundwater which employs a motor-driven pump for the extraction of groundwater and which has a discharge pipe with an inside diameter equal to or greater than 3 inches.

C. PERSON shall mean an individual; a sole proprietorship, corporation, partnership, association, trust, or any other form of business or non-profit entity; or a city, county, state, the United States, or any other federal, state, local or foreign government entity.

D. TERRITORY A shall mean that portion of the northern Salinas Valley bounded by Highway 183 (beginning at Blackie Road) to Davis Road to Laurel Drive to Highway 101 to the Pressure-East Side boundary to Blackie Road back to Highway 183, as more particularly described in Attachment A. The boundary between the Pressure and East Side Areas is described on a map on file with the Clerk of the Board of Supervisors and in the office of the Monterey County Water Resources Agency.

E. TERRITORY B shall mean that portion of the northern Salinas Valley bounded by Highway 183 (beginning at Blackie Road) to Davis Road to Laurel Drive to Sanborn Road to Highway 101 to Harris Road to Zone 2A boundary to Potrero Road to Highway 1 to Highway 183 to Blackie Road, as more particularly described in Attachment B.

F. WATER REPORTING YEAR shall be from November 1 to October 31 of the following year.

G. WATER SUPPLIER shall mean a person who owns or operates a groundwater extraction facility.

H. WATER USER shall mean a person who receives water from a groundwater extraction facility for consumptive use.

## PART II -- PROVISIONS

### 1.01.10 GROUNDWATER EXTRACTIONS PROHIBITED IN TERRITORY A

After January 1, 1995, no person may cause, suffer, or permit the extraction of groundwater from any groundwater extraction facility located in territory A, as defined in Section 1.01.03.D, with perforations between zero feet mean sea level and -250 feet.



**1.01.11 NEW GROUNDWATER EXTRACTION FACILITIES PROHIBITED IN TERRITORY B**

After January 1, 1995, no person may construct within territory B, as defined in Section 1.01.03.E, any groundwater extraction facility with perforations located between zero feet mean sea level and -250 feet.

**1.01.12 REPORTING REQUIREMENTS IN TERRITORY A**

Under Agency Ordinance No. 3663, every water supplier must submit to the Agency an annual groundwater extraction report, following the close of each water reporting year during any part of which the water supplier maintained an operational groundwater extraction facility. The annual report for the 1994-95 water reporting year submitted by each water supplier extracting water from territory A, regardless of the depth from which the water is extracted, shall show extractions for that part of the 1994-95 water reporting year prior to January 1;<sup>3</sup> for that part of the 1994-95 water reporting year after January 1, the report shall accurately reflect no groundwater extractions from between zero feet mean sea level and -250 feet in territory A, as defined in Section 1.01.03.D.

**1.01.15 VARIANCES**

A. Any person may, at any time, apply in writing for a variance from the strict application of this ordinance. The application for the variance shall be filed with the Agency. The General Manager may dispense with the requirement of a written application upon finding that an emergency condition requires immediate action on the variance request.

B. The applicant shall submit an action plan within 30 days after the variance request is filed, describing how and when the applicant will comply with this ordinance without the need for a variance. Compliance with this plan, as presented by the applicant or as modified by the General Manager, shall be a condition of granting the variance.

C. The General Manager may grant a variance to the terms of this ordinance upon making the finding that the strict application of the ordinance would create an undue hardship, or an emergency condition requires that the variance be granted.

D. In granting a variance, the General Manager may impose any conditions in order to ensure that the variance is consistent with the overall goals of this ordinance. Variances may be granted for a limited period of time. The variance and all time limits and other conditions attached to the variance shall be set forth in writing,

(NOMO180.ORD -- 9/14/93)

and a copy of the written variance shall be provided to the applicant.

E. The decision of the General Manager on an application for a variance may be appealed as provided in the section of Ordinance No. 3539, as now in effect or as subsequently amended or superseded, pertaining to appeals.

F. No person shall operate or maintain a groundwater extraction facility or water distribution system for which a variance has been granted hereunder, or use water therefrom, in violation of any of the terms or conditions of the variance.

#### 1.01.20 PENALTIES

A. Any person who violates any provision of this ordinance is guilty of an infraction.

B. Any violation of this ordinance is hereby declared to be a public nuisance.

C. Any violation which occurs or continues to occur from one day to the next shall be deemed a separate violation for each day during which such violation occurs or continues to occur.

D. Any person who violates this ordinance shall be assessed a fine of \$100 for each violation.

E. Any person who violates this ordinance shall be liable for the cost of enforcement, which shall include but need not be limited to:

1. Cost of Investigation
2. Court Costs
3. Attorney Fees
4. Cost of Monitoring Compliance

#### PART II -- CONCLUDING PROVISIONS

#### 1.01.22 SEVERABILITY

If any section, subsection, paragraph, sentence, clause, or phrase of this ordinance is for any reason held to be invalid or unconstitutional by a decision of a court of competent jurisdiction, it shall not affect the validity of the remaining portions of this ordinance, including any other section, subsection, sentence, clause, or phrase therein.

SECTION 2. EFFECTIVE DATE. This ordinance shall take effect 30 days after its final adoption by the Board of Supervisors.

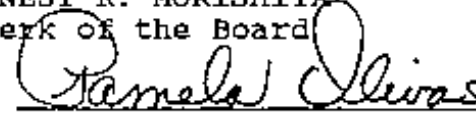
PASSED AND ADOPTED this 14th day of Sept., 1993, by the following vote:

AYES: Supervisors Salinas, Shipnuck, Perkins, Johnsen & Karas  
NOES: None  
ABSENT: None

  
\_\_\_\_\_  
BARBARA SHIPNUCK, Chairwoman  
Board of Supervisors

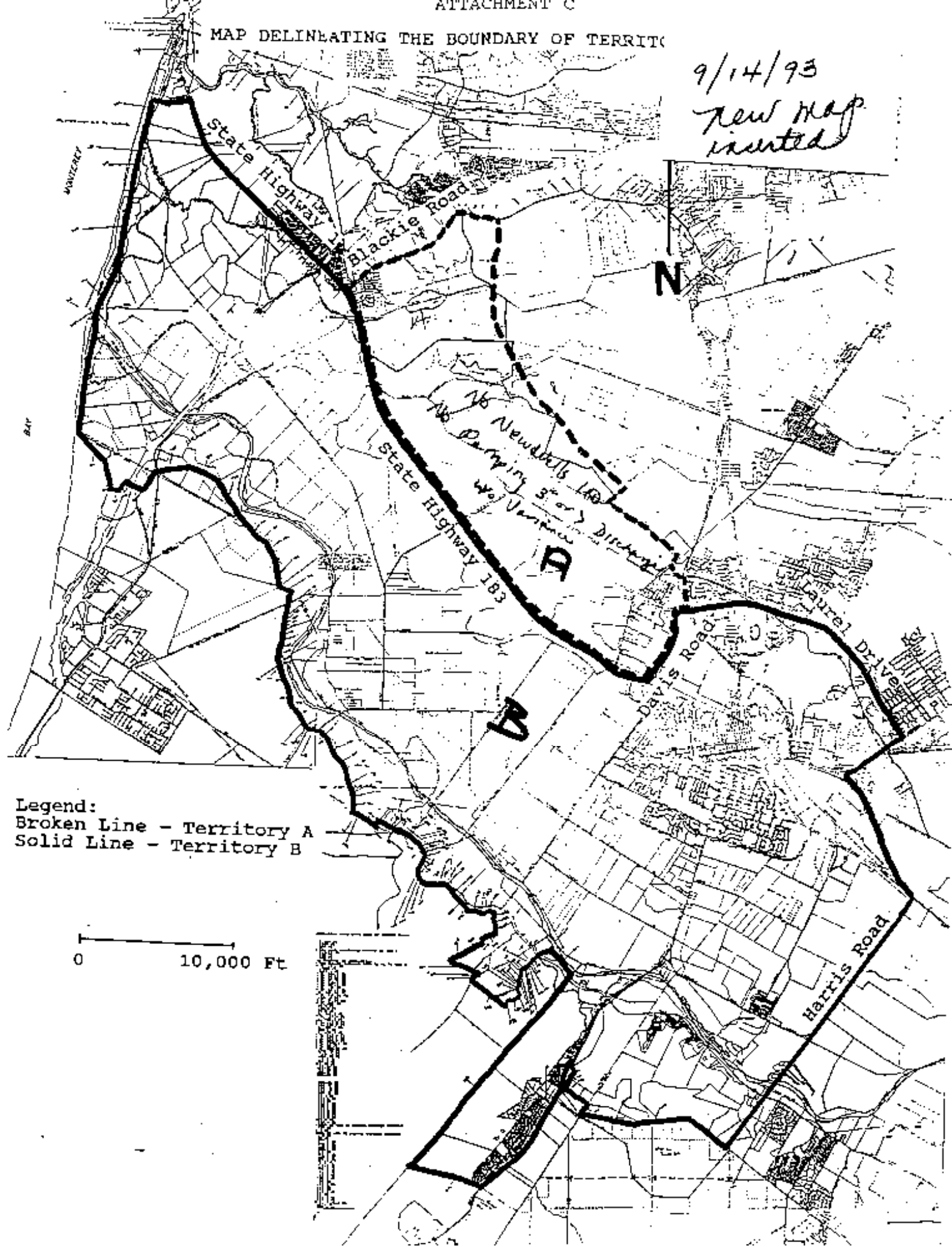
ATTEST:

ERNEST K. MORISHITA  
Clerk of the Board

By   
\_\_\_\_\_  
Deputy

## MAP DELINEATING THE BOUNDARY OF TERRITORY

9/14/93

New Map  
inserted



## **APPENDIX K**

### **MONTEREY COUNTY WATER RESOURCES AGENCY ORDINANCE No. 3790**

Monterey County  
Water Resources Agency

Ordinance No. 03790

AN ORDINANCE OF  
THE MONTEREY COUNTY WATER RESOURCES AGENCY  
ESTABLISHING REGULATIONS FOR THE CLASSIFICATION,  
OPERATION, MAINTENANCE AND DESTRUCTION OF  
GROUNDWATER WELLS IN MCWRA ZONE 2B,  
TO PROTECT THE SALINAS VALLEY GROUNDWATER BASIN  
AGAINST FURTHER SEAWATER INTRUSION

COUNTY COUNSEL SUMMARY

This ordinance provides for the management of all groundwater wells within the Castroville Seawater Intrusion Project area, known as Zone 2B, following completion and start-up of the Castroville Seawater Intrusion Project. It prohibits and otherwise restricts pumping from groundwater wells in Zone 2B, and it provides for the classification of the various wells, for the maintenance and limited operation of standby wells, and for the destruction of abandoned wells, contaminated wells, wells that allow cross-contamination of aquifers in intruded areas, and other wells. The ordinance establishes a procedure for the destruction of wells, a variance procedure, an appeals procedure, and penalties for violations of the ordinance.

The Board of Supervisors of the Monterey County Water Resources Agency makes the following findings:

A. Appropriate studies have been conducted by the Monterey County Water Resources Agency (MCWRA), and based upon those studies, the Board of Supervisors determines that the portion of the Salinas Valley Groundwater Basin that underlies MCWRA Zone 2B is threatened with the loss of a usable water supply as a result of seawater intrusion into that portion of the groundwater basin, in each of the aquifers at all depths underlying Zone 2B.

B. Pursuant to the MCWRA Act, West's Water Code Appendix, Chapter 52, section 52-22, the Board determines that it is necessary to take steps prohibiting and otherwise restricting the withdrawal of water from the portion of the Salinas Valley Groundwater Basin underlying Zone 2B, in order to deter the further intrusion of underground seawater in Zone 2B, by establishing and defining the area and depth from which the further extraction of groundwater is prohibited.

(WELLORD8.ORD - 11/1/94)

C. The Board has conducted a public hearing upon the proposed determination, with notice of the hearing given in the manner prescribed in Government Code Sec. 6065. At the hearing, the Board accepted evidence showing the nature and extent of the threat of seawater intrusion and the facilities proposed in order to provide to the area threatened a substitute supply of surface water.

D. Said hearing having been concluded, the Board determines that a threat of seawater intrusion exists which will be aggravated by continued groundwater extraction in the 180-foot aquifer, the 400-foot aquifer, and the deep aquifer, at all depths therein underlying Zone 2B, and that the prohibitions and restrictions on the pumping of groundwater in these aquifers are necessary in order to alleviate the seawater intrusion problem. The Board further determines that the Castroville Seawater Intrusion Project (CSIP) will provide a substitute water supply that will be adequate to replace the water supply previously available from the wells that will be affected by the prohibition against pumping.

E. The CSIP is designed to supply all of the agricultural water needs in Zone 2B. This water will be obtained from the Salinas Valley Reclamation Project (SVRP) and from the supplemental wells that will be maintained and operated by the MCWRA as part of the CSIP. Water from the SVRP will provide the basic water supply for the CSIP, and water from the supplemental wells will be used to meet peak demands during the heavy irrigation season and to provide a backup water supply when the SVRP does not produce its full quota of water.

F. Property owners and growers in Zone 2B have requested that additional wells be maintained as standby wells, as an additional assurance that an adequate water supply will be available at all times. The ultimate success of the CSIP depends upon the reduction of groundwater pumping from Zone 2B. However, the maintenance of standby wells at the expense of owners is an appropriate action and will not compromise the success of the CSIP if such standby wells are maintained and operated under the limitations set forth in this ordinance.

G. The CSIP and the regulations set forth in this ordinance are designed as measures to protect the groundwater supply in the northern part of the Salinas Valley Groundwater Basin. They are not intended to effect any diminution in the basic groundwater rights held by overlying owners in the area subject to regulation but are put into effect in furtherance of the MCWRA's duty to manage the Salinas Valley Groundwater Basin and to protect the water supplies therein. By complying with these regulations and by participating in the CSIP, the overlying owners do not waive or prejudice any water rights held by them, now or in the future. If at some time in

(WELLORD8.ORD - 11/1/94)

the future, these regulations or any successor regulations are no longer necessary to protect the groundwater basin and are then modified or removed, then the groundwater rights of the overlying owners in Zone 2B will be exercisable in conformity with such laws as may then be in effect, and the overlying owners will suffer no prejudice in that regard because of the CSIP, these regulations, or any successor regulations.

H. On April 7, 1992, in Resolution No. 92-126, the Board of Supervisors described and approved the Castroville Irrigation System (now known as the Castroville Seawater Intrusion Project or CSIP), as a separate project within the Salinas Valley Seawater Intrusion Program, and certified that the Final EIR for the project (CSIP EIR) was complete and was prepared in compliance with the California Environmental Quality Act. As so described and approved, the project included the proposed enactment of an ordinance to prohibit or restrict the further pumping of groundwater from within Zone 2B. The present ordinance is consistent with the ordinance described and approved in Resolution No. 92-126 and in the CSIP EIR certified therein; it is proposed as part of the CSIP and is within the scope of the project described in the CSIP EIR; it will cause no new environmental effects beyond those considered in the CSIP EIR and no new mitigation measures need be considered for this ordinance; and it does not require further environmental review.

NOW, THEREFORE, the Board of Supervisors of the Monterey County Water Resources Agency ordains as follows:

SECTION 1. The following provisions are adopted:

#### PART I -- DEFINITIONS

##### **1.01.01. GENERAL APPLICATION**

As used in this ordinance, the following words shall have the meaning provided in this part.

##### **1.01.02 ABANDONED WELL**

"Abandoned Well" means any well whose original purpose and use have been permanently discontinued or which is in such a state of disrepair that it cannot be used for its original purpose. A well is deemed to be an abandoned well when it has not been used for a period of one year, unless the owner demonstrates his or her intent to use the well again for supplying water or other associated purposes. A well classified under this ordinance as a standby well shall not be deemed to be an abandoned well for as long as such classification remains in effect, despite any period of non-use of such well.

(WELLORD8.ORD - 11/1/94)

#### 1.01.03    AQUIFER STORAGE AND RECOVERY (ASR) WELL

An "aquifer storage and recovery (ASR) well" is a well proposed, maintained, or operated by the MCWRA or by the Monterey Regional Water Pollution Control Agency as part of an aquifer storage and recovery project.

#### 1.01.04    CATHODIC PROTECTION WELL

"Cathodic Protection Well" means any artificial excavation in excess of fifty feet in depth constructed by any method for the purpose of installing equipment or facilities for the protection electronically of metallic equipment in contact with the ground, commonly referred to as cathodic protection.

#### 1.01.05    COMMERCIAL OR INDUSTRIAL WELL

"Commercial or industrial well" means any well used to supply water for commercial or industrial purposes, excluding any well that is used in whole or in part to supply water for agricultural irrigation. A commercial or industrial well may also be classified as a domestic well, provided that it shall not also be classified as a standby well.

#### 1.01.06    DOMESTIC WELL

"Domestic well" means a well used for the supply of groundwater for potable uses. A domestic well may also be classified as a standby well for agricultural use.

#### 1.01.07    GENERAL MANAGER

"General Manager" means the MCWRA General Manager or his or her designee.

#### 1.01.08    GENDER, NUMBER, AND TENSE

Words used in any gender include any other gender. The singular number includes the plural, and the plural the singular. Words used in the present tense include the future as well as the present.

#### 1.01.09    MONITORING WELL

"Monitoring Well" means any artificial excavation constructed by any method for the purpose of monitoring fluctuations in groundwater levels, quality of underground waters, or the concentration of contaminants in underground waters.

(WELLORDS.ORD - 11/1/94)



**1.01.10 PERSON**

"Person" means any individual, organization, partnership, business, association, corporation or governmental agency.

**1.01.11 PROJECT START-UP**

"Start-up of the Castroville Seawater Intrusion Project" or "project start-up" means the date on which the General Manager declares that the project known as the Castroville Seawater Intrusion Project is operational after reclaimed water is first delivered or deliverable through the project pipeline to all customers in MCWRA Zone 2B for agricultural irrigation.

**1.01.12 PROJECT WATER**

"Project water" means water supplied to property in Zone 2B by the Castroville Seawater Intrusion Project for use in the irrigation of crops.

**1.01.13 SEAWATER INTRUDED**

An aquifer is "seawater intruded" at any particular location of measurement when, at the location of measurement, the chloride ion concentration in the aquifer exceeds 500 mg/liter, and the General Manager determines that the contamination is not a localized contamination.

**1.01.14 SECTION HEADINGS**

Section headings used in this ordinance shall not be deemed to govern, limit, modify, or in any manner affect the scope, meaning, or intent of the provisions of any section.

**1.01.15 STANDBY WELL**

"Standby Well" means a well not routinely operated but maintained by the well-owner for purposes of providing a water supply to the well-owner's property under emergency conditions.

**1.01.16 SUPPLEMENTAL WELL**

"Supplemental Well" means any well maintained or operated by the MCWRA as a part of the Castroville Seawater Intrusion Project.

**1.01.17 TEST WELL**

"Test Well" means any artificial excavation used for water quality testing, electric logging, water quantity testing and/or

other tests to determine aquifer quality and quantity characteristics.

**1.01.18 WELL**

"Well" or "water well" means any artificial excavation constructed by any method for the purpose of extracting water from, or injecting water into, the underground. "Well" or "water well" does not include wells used for the purpose of dewatering excavation during construction or for the purpose of stabilizing hillsides or earth embankments.

**1.01.19 ZONE 2B**

"MCWRA Zone 2B" or "Zone 2B" means the zone of benefit identified as Zone 2B and established by the MCWRA Board of Supervisors for the Castroville Irrigation System, now known as the Castroville Seawater Intrusion Project, in MCWRA Ordinance No. 3635, Section 4. The initial boundaries of Zone 2B are described in MCWRA Board of Supervisors Resolution No. 92-363 and may be amended from time to time.

**PART II -- BASIC RULES.**

**1.02.01 COMPLIANCE WITH ORDINANCE**

No person shall construct, own, operate, or maintain any water well located within the boundaries of MCWRA Zone 2B, as those boundaries may exist from time to time, except in compliance with this ordinance.

**1.02.02 OPERATION OF WELLS IN ZONE 2B**

After the expiration of 30 days following the date on which project water becomes available to any particular property within Zone 2B, no person shall operate any well within Zone 2B to provide water to such property for agricultural irrigation except when:

A. the well is a supplemental well operated by the MCWRA, or

B. the well is a standby well operated in conformity with this ordinance.

**1.02.03 IMPORTING GROUNDWATER INTO ZONE 2B**

After the start-up of the Castroville Seawater Intrusion Project, no well located anywhere in the Salinas Valley Groundwater Basin shall be used to supply water for use in the irrigation of

(WELLORD8.ORD - 11/1/94)

agricultural lands located within Zone 2B, and no person shall cause, suffer, or permit such use of such water, unless:

A. the well from which such water is obtained is a supplemental well operated by the MCWRA as part of the Castroville Seawater Intrusion Project or the well is operated by the MCWRA as part of another water supply project, or

B. the well from which such water is obtained is a standby well operated in conformity with this ordinance.

#### **1.02.04 EXPORTING GROUNDWATER FROM ZONE 2B**

After the start-up of the Castroville Seawater Intrusion Project, no well located anywhere within the external boundaries of Zone 2B (including wells that are located within Zone 2B and wells that are located within island exclusions from Zone 2B that are surrounded by Zone 2B) shall be used to supply water for use outside of the external boundaries of Zone 2B, and no person shall cause, suffer, or permit such use of such water, except that water from wells within the external boundaries of Zone 2B may be used outside the external boundaries of Zone 2B under the following circumstances:

A. The water is used for domestic purposes on parcels that are immediately adjacent to the external boundaries of Zone 2B; or

B. The water is used for domestic purposes on other parcels where the use has been established and water delivery pipelines are in place for such delivery on or before the effective date of this ordinance.

#### **1.02.05 DESTRUCTION OF WELLS**

After the start-up of the Castroville Seawater Intrusion Project, no person shall own, operate, or maintain a well in Zone 2B if such well is required to be destroyed, in violation of such destruction requirement, and no person shall interfere with actions taken by the MCWRA to accomplish the destruction of such a well in conformity with this ordinance.

#### **1.02.06 COMPLIANCE WITH CHAPTER 15.08 STANDARDS**

Except as otherwise expressly provided herein, all wells located in Zone 2B shall conform with all of the provisions of Chapter 15.08 of the Monterey County Code.

#### 1.02.07 CONSTRUCTION OF WELLS

No person may construct a well in Zone 2B without first obtaining a permit from the General Manager. The General Manager shall not issue a permit for construction of a well unless he or she finds that the construction will be consistent with the purposes of this ordinance and that the proposed well will be of a type specified in section 1.02.08.C, subsections 1-8.

#### 1.02.08 CLASSIFICATION OF WELLS

A. Prior to the start-up of the Castroville Seawater Intrusion Project, the General Manager shall classify all wells located in Zone 2B and notify all well owners of the classification of their well.

B. At any time, the owner of a well may apply to the General Manager for a change in classification, pursuant to this ordinance. Upon receipt of new information or upon evidence of changed conditions, the General Manager may, on his or her own initiative, change the classification of a well, upon giving 30 days' advance notice in writing to the owner thereof. Before making any reclassification, the General Manager must find that the well no longer qualifies for its existing classification, or that the existing classification was made in error. The General Manager may, and at the request of the well owner, shall hold a public hearing to determine the appropriate classification or reclassification of any well.

C. The well classifications are as follows:

1. Supplemental well.
2. Aquifer storage and recovery (ASR) well.
3. Domestic well.
4. Commercial or industrial well.
5. Monitoring well.
6. Test well.
7. Cathodic protection well.
8. Standby well.
9. Abandoned well.
10. Other well.

(WELLORD8.ORD - 11/1/94)

D. When a well is classified or reclassified as a domestic well or as a commercial or industrial well, the General Manager shall identify by parcel number and/or street address the place where water from such well may be used, and may restrict the use of such water to a portion of the identified parcel.

### PART III -- WELL DESTRUCTION

#### **1.03.01 GENERAL RULE GOVERNING DESTRUCTION OF WELLS**

Except as otherwise provided herein, all wells which are located in Zone 2B shall be destroyed in conformity with the provisions of this ordinance. The destruction of any well located in MCWRA Zone 2B shall be governed by this ordinance, and Chapter 15.08 of the Monterey County Code shall not be construed to require the destruction of any well located in Zone 2B. Chapter 15.08 of the Monterey County Code shall apply to the destruction of wells in Zone 2B only to the extent that reference is made herein to such Chapter 15.08.

#### **1.03.02 WELLS EXEMPT FROM DESTRUCTION**

The following wells which have not been abandoned and which do not fit within the description in Section 1.03.04.B are exempt from destruction, for as long as they are so classified:

- A. Supplemental wells.
- B. ASR wells.
- C. Domestic wells.
- D. Commercial or industrial wells.
- E. Monitoring wells.
- F. Test wells.
- G. Cathodic protection wells.
- H. Standby wells.
- I. A well for which an application is pending for a classification that would exempt the well from destruction, provided that the applicant makes every reasonable effort to have the application determined promptly.



### **1.03.03 PREVIOUSLY ABANDONED WELLS**

A. Each well abandoned prior to the start-up of the Castroville Seawater Intrusion Project shall be destroyed by the owner thereof in accordance with the methods prescribed or referenced in Monterey County Code Chapter 15.08. All costs associated with destruction of such wells shall be borne by the well owner.

B. If any well required to be destroyed by its owner pursuant to this section is not destroyed before the expiration of two years after project start-up, then the General Manager may cause the well to be destroyed, pursuant to the procedures specified below, in section 1.03.06, except that the cost of such destruction shall be charged to the property owner. The MCWRA may file a civil action against the owner to collect such cost, or the amount may be collected in any criminal proceeding against the owner for failure to destroy the well.

### **1.03.04 CONTAMINATED AND CROSS-CONTAMINATING WELLS**

Each well meeting any of the criteria set forth below, other than wells which are required to be destroyed pursuant to Section 1.03.03, shall be destroyed by the MCWRA within two years after start-up of the Castroville Seawater Intrusion Project. All costs for destruction of such wells shall be borne by the MCWRA. The General Manager may extend the time for destruction of such wells when funds are not available or budgeted for such purpose. The criteria for such wells are as follows:

A. Any well that is found by the General Manager to be perforated in both the 180-foot aquifer and any underlying aquifer.

B. Any well that is found by the General Manager to have perforations in two aquifers, improper seals, or other improper construction or condition of the well, such that the well provides an actual or potential conduit for water in a seawater intruded area of an aquifer to enter a non-intruded area of a separate aquifer.

### **1.03.05 DESTRUCTION OF NON-EXEMPT WELLS**

Each well that is not exempt from destruction, and that is not required to be destroyed pursuant to section 1.03.03 or 1.03.04, shall be destroyed pursuant to this section in conformity with a schedule adopted by the MCWRA Board of Directors. Said schedule shall provide that the destruction of such wells shall not begin (a) until the Castroville Seawater Intrusion Project has established a satisfactory record of water deliveries, as determined by the Board of Directors, or (b) until at least one year after the start-up of the Castroville Seawater Intrusion Project, whichever occurs later.

(WELLORD8.ORD - 11/1/94)

Said schedule may provide for destruction to be completed within three years after project start-up. The Board of Directors may delegate authority to the General Manager to amend the schedule from time to time. Said wells shall be destroyed by the MCWRA in accordance with the methods prescribed or referenced in Monterey County Code Chapter 15.08. The MCWRA shall bear the cost of such destruction.

#### **1.03.06 PROCEDURE FOR DESTRUCTION OF WELLS**

At least 90 days before the MCWRA destroys any particular well, the General Manager shall give written notice to the owner of the well that the well will be destroyed. Notice shall be deemed sufficient if sent by registered or certified U.S. mail, return receipt requested, to the name and address shown as that of the owner of the real property on which the well is located, in the latest available official records of the Monterey County Assessor. The notice shall identify the well in question and the property on which it is located and shall advise the owner of the proposed action to be taken, the proposed timing of the action, and his or her right of appeal as provided herein. The notice shall further state that if the property on which the well is located is leased, the owner must provide a copy of the notice to the tenant, and tenant on the property will also have a right of appeal.

### **PART IV -- STANDBY WELL CLASSIFICATION.**

#### **1.04.01 CRITERIA FOR CLASSIFICATION AS STANDBY WELL**

The General Manager shall classify a well as a standby well, whether on the initial classification or on a change in classification, if he or she makes both of the following findings:

A. The well does not meet any of the criteria for destruction described in Section 1.03.04 of this ordinance.

B. The owner of the well will comply with all of the requirements of this ordinance applicable to standby wells.

#### **1.04.03 INSPECTIONS**

The MCWRA may at any time inspect any standby well and any well for which the owner submits an application for classification as a standby well, to ensure that the well and its appurtenant facilities do or will comply with this ordinance. Access to the well site shall be maintained by the well owner, and the MCWRA shall have the right of access to inspect the well at all times.

PART V -- STANDBY WELL REGULATIONS.

**1.05.01 GENERAL RULE**

A well that has been classified as a standby well shall immediately thereupon be subject to the regulations set forth below.

**1.05.02 FLOWMETER**

A flowmeter shall be installed on all of the standby wells at the expense of the well owner and shall be fully maintained by the owner in accordance with MCWRA requirements.

**1.05.03 ACCESS**

Access to the standby well site shall be maintained by the well owner, and the MCWRA shall have the right of access to inspect the well at all times.

**1.05.04 USE OF STANDBY WELLS DURING FIRST TWO YEARS AFTER PROJECT START-UP**

During the first 24 months after project start-up, standby wells may be used intermittently to supply irrigation water to lands within Zone 2B, without regard to whether an emergency exists. The purpose of this section is to enable growers and the Agency to make the transition from reliance on well water to reliance on project water with a minimum of interruption in the grower's water supply.

**1.05.05 AUTHORIZED PURPOSES FOR OPERATION OF STANDBY WELLS**

Standby wells may be operated only for the following purposes:

- A. To perform routine maintenance on the standby well;
- B. To provide an irrigation water supply for property in Zone 2B in an emergency as described in section 1.05.06;
- C. To provide potable water when the standby well is used as a domestic well.
- D. To provide a water supply for the irrigation of any crop or crops for which irrigation with water supplied by the project is prohibited by any law, rule or regulation established by any entity or agency with authority over the irrigation of such crops.

#### 1.05.06 EMERGENCY JUSTIFYING OPERATION OF STANDBY WELL

An emergency exists and justifies use of standby wells when all of the following circumstances occur:

A. The grower has given advance notice of his or her need for project water and a schedule for delivery of water to the grower's property has been set, in conformity with procedures established by the MCWRA; and

B. The MCWRA fails to deliver project water on schedule; and

C. The grower then makes contact with the MCWRA by telephone and the MCWRA confirms that the water will not be delivered on the day scheduled for delivery.

#### 1.05.07 COMPLIANCE WITH HEALTH DEPARTMENT REGULATIONS

No standby well shall be used as a domestic well unless such use is in compliance with applicable health regulations, and unless the well is maintained in compliance with such health regulations.

#### 1.05.08 OWNERSHIP

Standby wells shall remain under private ownership, and are not the property of the MCWRA.

#### 1.05.09 COSTS OF MAINTENANCE AND OPERATION

All costs associated with maintenance and operation of standby wells shall be borne by the owner or operator of said well, or by such other person as may agree to assume such costs.

### PART VI -- VARIANCES.

#### 1.06.01 APPLICATION

Any person may, at any time, apply in writing for a variance from the strict application of this ordinance. The application for the variance shall be filed with the MCWRA. The General Manager may dispense with the requirement of a written application upon finding that an emergency condition requires immediate action on the variance request.

#### 1.06.02 PLAN FOR COMPLIANCE

The applicant shall, as part of the variance application, submit a plan describing how and when the applicant will comply with this ordinance without the need for a variance. Compliance with

(WELLORD8.ORD - 11/1/94)

this plan, as presented by the applicant or as modified by the General Manager, shall be a condition of granting the variance. The General Manager may waive the requirement for such a plan if he or she finds that compliance would not be feasible.

#### **1.06.03 FINDINGS FOR GRANT OF VARIANCE**

The General Manager may grant a variance from the terms of this ordinance upon making the finding that the strict application of the ordinance would create an undue hardship, or that an emergency condition requires that the variance be granted.

#### **1.06.04 CONDITIONS ON GRANT OF VARIANCE**

In granting a variance, the General Manager may impose any conditions in order to ensure that the variance is consistent with the overall goals of this ordinance. Variances may be granted for a limited period of time. The variance and all time limits and other conditions attached to the variance shall be set forth in writing, and a copy of the written variance shall be provided to the applicant.

#### **1.06.06 COMPLIANCE WITH TERMS OF VARIANCE**

No person shall operate or maintain a groundwater well for which a variance has been granted hereunder, or use water therefrom, in violation of any of the terms or conditions of the variance.

### **PART VII -- APPEALS**

#### **1.07.01 PUBLIC HEARING RIGHTS OF APPLICANTS AND INTERESTED PARTIES**

Applicants may attend all public meetings and public hearings held by the General Manager on their applications and may submit such written and documentary evidence as may be relevant to the consideration of an application, whether or not a public meeting or hearing is held. Any interested person, other than an applicant, may also attend the public meetings or public hearings at which the General Manager considers an appealable decision and may submit such written and documentary evidence as may be relevant to the consideration of an application, whether or not a public meeting or hearing is held, provided that such party shall simultaneously submit copies of all such information to the applicant and shall show proof of such submittal to the General Manager along with the written information provided to the General Manager. Any such interested person may then, in writing, request a copy of the General Manager's written decision.



## 1.07.02 RIGHT OF APPEAL

Any applicant or interested party may appeal any decision by which the General Manager (a) orders the destruction of any privately owned well under this ordinance, (b) grants or denies a variance, permit, classification, or reclassification under this ordinance; (c) gives or withholds any consent when such consent is established by this ordinance as a prerequisite to further action; or (d) imposes conditions on any such variance, permit, classification, reclassification, or consent. No person may file an appeal of a decision made after a public meeting or hearing on the issue unless that person attended the meeting or hearing upon which the appealable decision was based and expressed his or her concerns orally or in writing at that meeting or hearing, or unless such person filed papers with the general manager setting forth such person's concerns prior to such meeting or hearing.

## 1.07.03 PROCEDURE ON APPEAL

A. Any appeal authorized by this ordinance shall be filed and processed as provided in the section of Ordinance No. 3539, as now in effect or as subsequently amended or superseded, pertaining to appeals, and as further supplemented in this ordinance. Any appeal must be in writing and must state the grounds upon which the appeal is made.

B. Any appeal must be filed with the general manager no later than ten days after the date the general manager issues an appealable decision, except that an appeal from a decision ordering the destruction of a privately owned well must be made no later than 60 days after the date the general manager issues the decision. A decision is issued when the decision is set forth in writing and personally delivered to the applicant, or on the fifth day after mailing said decision to the applicant, to the address provided by the applicant for such mailing. As to an interested person (other than an applicant) who has requested a copy of the written decision, the General Manager's written decision is issued when it is personally delivered to such person or on the fifth day after mailing said decision to such person, to the address provided by such person for such mailing.

C. The appeal of any decision made by the General Manager following a public meeting or public hearing shall be limited to the issues raised at the public meeting or hearing and thereafter specified in the written appeal. The appeal of any decision made by the General Manager without a public meeting or public hearing may consider any issue that might have been raised at a public hearing or meeting, provided that such issue must be specified in the written appeal.

D. At the hearing on appeal, the hearing board will consider de novo the issues that are before the board on the appeal.

#### PART VIII -- PENALTIES.

##### **1.08.01    INFRACTION**

Any person who violates any provision of this ordinance is guilty of an infraction.

##### **1.08.02    PUBLIC NUISANCE**

Any violation of this ordinance is hereby declared to be a public nuisance.

##### **1.08.03    CONTINUING VIOLATIONS**

Any violation which occurs or continues to occur from one day to the next shall be deemed a separate violation for each day during which such violation occurs or continues to occur.

##### **1.08.04    FINE**

A. Any person who violates any provision of this ordinance which prohibits or restricts the pumping of groundwater shall be assessed a fine of \$100 for each acre-foot (or portion thereof) of water pumped in violation of this ordinance.

B. Any person who violates any other provision of this ordinance shall be assessed a fine of \$100 for each violation.

##### **1.08.05    LIABILITY FOR COSTS OF ENFORCEMENT**

Any person who violates this ordinance shall be liable for the cost of enforcement, which may include but need not be limited to the following:

- A. Cost of investigation
- B. Court costs
- C. Attorney fees
- D. Cost of monitoring compliance

PART IX -- CONCLUDING PROVISIONS

**1.09.01 SEVERABILITY**

If any section, subsection, paragraph, sentence, clause, or phrase of this ordinance is for any reason held to be invalid or unconstitutional by a decision of a court of competent jurisdiction, it shall not affect the validity of the remaining portions of this ordinance, including any other section, subsection, sentence, clause, or phrase therein.

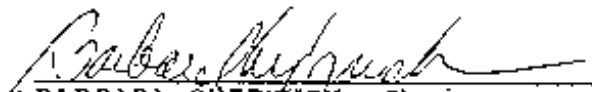
SECTION 2. EFFECTIVE DATE. This ordinance shall take effect 30 days after its final adoption by the Board of Supervisors.

PASSED AND ADOPTED this 8th day of November, 1994, by the following vote:

AYES: Supervisors Salinas, Shipnuck, Perkins, Johnson & Karas.


NOES: None.

ABSENT: None.

  
BARBARA SHIPNUCK, Chairwoman  
Board of Supervisors

ATTEST:

ERNEST K. MORISHITA  
Clerk of the Board

By   
Deputy Clerk

## **APPENDIX L**

### **SPECIFICATIONS FOR WELLS IN ZONE 6 OF THE MONTEREY COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT**

SPECIFICATIONS FOR WELLS IN ZONE 6 OF THE  
MONTEREY COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Adopted: \_\_\_\_\_  
Monterey County Health Department  
Division of Environmental Health



The purpose of these specifications is to protect groundwater quality and prevent corrosion of the well casing caused by seawater intrusion in Zone 6 of the Monterey County Flood Control and Water Conservation District.

- SECTION A: For wells drilled in Zone 6 the following is required prior to obtaining a water well drilling permit from the Health Officer:
- 1) Plans and specifications for the construction of the well, to include but not limited to: sealing materials and procedures, drilling fluids, description of casing, and proposed use of electrical logs. and approved
  - 2) The application shall be reviewed/by the Monterey County Flood Control and Water Conservation District.

SECTION B: For wells drilled in Zone 6, the following standards shall apply in addition to Bulletin 74-81.

- (1) Cable tool construction into the 400' aquifer:
  - a) Well construction shall consist of at least a double cased well: a conductor or outer casing which must be lodged at least 10 feet into the clay lense separating the P-180 and P-400 Aquifers, and a production casing.
  - b) The conductor casing shall be a minimum of 4 inches in diameter larger than the production casing.
  - c) The annular space between the conductor casing and the production casing shall be pressure grouted from the bottom to the top in one continuous operation. The sealing material and pumping equipment shall as specified in Section E & F below.
- (2) Cable tool construction into the deep aquifer:
  - a) Well construction shall consist of a double cased well: a conductor or outer casing which must be lodged at least 10 feet into the clay lense separating the P 400 and deep aquifer, and a production casing.
  - b) The conductor casing shall be a minimum of 6 inches in diameter larger than the production casing.
  - c) The annular space between the conductor casing and the production casing shall be pressure grouted from the bottom to the top in one continuous operation. Sealing material and pumping equipment shall be as specified in Section E & F below.

(3) Rotary construction into the 400' aquifer:

- a) Prior to drilling a pilot hole, a conductor casing shall be set in clay to minimum of 60 feet. The conductor shall have a minimum wall thickness of 1/4", shall be made of steel, with welded steel collars. The borehole shall be a minimum of 4 inches in diameter larger than the conductor casing.
- b) The annular space between the conductor casing and the borehole shall be pressure grouted from the bottom to the top in one continuous operation. The sealing material shall be specified in Section E & F below.
- c) The minimum thickness of the production casing shall be 1/4". The casing shall be steel and manufactured in accordance with ASTM standards with welded steel collars.
- d) Centralizers shall be installed between the conductor and production casing to maintain alignment.
- e) The conductor casing shall be a minimum of 8 inches in diameter larger than the production casing.
- f) The annular space between the conductor casing and the production casing shall be pressure grouted from a depth of 10 feet minimum below the clay layers separating the P-180 and P-400 aquifers to ground level. The grouting shall be done in one continuous operation using sealing material and pumping equipment as specified in Sections E and F below.

(4) Rotary construction into the deep aquifer:

- a) Prior to drilling a pilot hole, a conductor casing shall be set a minimum of 10 feet into the clay layer separating the P-180 and P-400 aquifers. The conductor shall have a minimum wall thickness of 1/4", shall be made of steel, with welded steel collars. The borehole shall be minimum of 4 inches in diameter larger than the conductor casing.
- b) The annular space between the conductor casing and the borehole shall be pressure grouted from the bottom to the top in one continuous operation. The sealing material and equipment shall be specified in Section E and F below.
- c) The minimum thickness of the production casing shall be 5/16". The casing shall be steel and manufactured in accordance with ASTM standards with welded or threaded steel collars.

- d) Centralizers shall be installed between the conductor and production casing to maintain alignment.
  - e) The production borehole shall be a minimum of 8 inches in diameter larger than the production casing.
  - f) The annular space between the production borehole and the production casing shall be pressure grouted from a depth of 10 feet minimum below the clay layers separating the P-400 and deep aquifers to ground level. The grouting shall be done in one continuous operation using sealing material and pumping equipment as specified in Section E and F below.
- (5) In rotary drilled wells, in order to determine appropriate well construction to protect the quality of water within separate aquifers, the following well logs shall be provided by the well driller in addition to the State "report of completion" required under Sections 13751 of the California Water Code:
- a) An electric log of the test hole consisting of a multiple electrode resistivity log and spontaneous potential log for reviewing water quality, bed thickness, and formation porosity.
  - b) A caliper log of the final hole in order to determine appropriate quantities of sealing materials and gravel pack and to detect any abnormalities in the drill hole walls.
  - c) Any additional logs which may be required by the Health Officer or his authorized representative to determine appropriate well seal placements.
  - d) If required by the Health Officer or his authorized representative, the applicant shall provide a hydrologist, geologist, or engineer at the applicant's expense to identify strata containing poor water quality and recommend the location of the seal or seals needed to prevent the entrance of poor quality water.

SECTION C: When the rotary method of drilling is employed, the well driller shall conduct drilling on a 24 hour, 7 day a week basis until well has been gravel packed and the seals are set in place.

SECTION D: The drilling fluid for direct rotary construction shall be made up of high quality bentonite clays and/or organic polymer additives, in common usage in the water well industry, and shall possess such characteristics as to maintain borehole integrity.

SECTION E: Sealing and grouting materials shall be limited to the following:

- 1) Neat cement grout
- 2) A blended mix of 50% neat cement and 50% pozzolan plus polymer additives.
- 3) Or as approved by the Health Officer.

SECTION F: Equipment for placing seals shall have the following capabilities:

- 1) On site, continuous mixing of sealing materials from dry bulk form to liquid form.
- 2) Continuous operation sealing supplied from continuous mixing equipment.
- 3) Continuous monitoring of material density and quantities being placed with visible dial or gauge read-out.
- 4) Positive pressure pumping equipment capable of 300 to 2,000 PSI shall be used for the placement of the seal.

SECTION G: The driller shall keep the Health Officer or this authorized representative appraised of progress on the well and shall provide, at least 24 hours in advance, an estimate of the date and time when the conductor casing will be set, the gravel pack will be completed, and the seals will be pumped.

SECTION H: Upon completion of the well, the driller shall submit a report to the Health Officer and the Monterey County Flood Control and Water Conservation District which includes, but not limited to, as built plans, the State report of completion, electric logs, spontaneous potential logs, and caliper logs.

SECTION I: The following well destruction standards will apply for wells penetrating the P-400 aquifer within Zone 6 of the Monterey County Flood Control and Water Conservation District, in addition to Bulletin 74-81.

- 1) The location of the clay layers between the P-180, P-400 and deep aquifers must be determined and the casing opposite the separating clay lense must be perforated prior to placement of the sealing material.
- 2) Sealing material and equipment for placement of seals shall be as specified above in Sections E and F.
- 3) Upon completion of the abandonment, the driller shall submit a detailed record of the procedure and materials used on the State report of completion.

SECTION 3: During well construction in Zone 6, the Health Officer or his authorized representative shall be available during normal office hours and on "standby" duty after normal office hours to:

- 1) Review the location of the conductor casing and cement seals prior to well construction.
- 2) Inspect the gravel pack elevation prior to cementing.
- 3) Witness and inspect the cement sealing processes.

During well reconstruction or destruction in Zone 6 the Health Officer or his authorized representative shall be available during the normal office hours to:

- a) Review reconstruction and destruction procedures and well data.
- b) Witness and inspect the cement sealing processes.

AF:krf

11/10-1

APPROVED AS  
TO FORM

MAR 30 1988  
*J.R. Ramos*  
J.R. RAMOS  
SENIOR DEPUTY COUNTY COUNSEL



This page intentionally left blank.

## **APPENDIX M**

### **EXCERPTS FROM SUSTAINABLE GROUNDWATER MANAGEMENT ACT**

## State of California

### WATER CODE

#### Section 10721

---

10721. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) “Adjudication action” means an action filed in the superior or federal district court to determine the rights to extract groundwater from a basin or store water within a basin, including, but not limited to, actions to quiet title respecting rights to extract or store groundwater or an action brought to impose a physical solution on a basin.

(b) “Basin” means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Chapter 3 (commencing with Section 10722).

(c) “Bulletin 118” means the department’s report entitled “California’s Groundwater: Bulletin 118” updated in 2003, as it may be subsequently updated or revised in accordance with Section 12924.

(d) “Coordination agreement” means a legal agreement adopted between two or more groundwater sustainability agencies that provides the basis for coordinating multiple agencies or groundwater sustainability plans within a basin pursuant to this part.

(e) “De minimis extractor” means a person who extracts, for domestic purposes, two acre-feet or less per year.

(f) “Governing body” means the legislative body of a groundwater sustainability agency.

(g) “Groundwater” means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

(h) “Groundwater extraction facility” means a device or method for extracting groundwater from within a basin.

(i) “Groundwater recharge” or “recharge” means the augmentation of groundwater, by natural or artificial means.

(j) “Groundwater sustainability agency” means one or more local agencies that implement the provisions of this part. For purposes of imposing fees pursuant to Chapter 8 (commencing with Section 10730) or taking action to enforce a groundwater sustainability plan, “groundwater sustainability agency” also means each local agency comprising the groundwater sustainability agency if the plan authorizes separate agency action.

(k) “Groundwater sustainability plan” or “plan” means a plan of a groundwater sustainability agency proposed or adopted pursuant to this part.

(l) “Groundwater sustainability program” means a coordinated and ongoing activity undertaken to benefit a basin, pursuant to a groundwater sustainability plan.

(m) “In-lieu use” means the use of surface water by persons that could otherwise extract groundwater in order to leave groundwater in the basin.

(n) “Local agency” means a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin.

(o) “Operator” means a person operating a groundwater extraction facility. The owner of a groundwater extraction facility shall be conclusively presumed to be the operator unless a satisfactory showing is made to the governing body of the groundwater sustainability agency that the groundwater extraction facility actually is operated by some other person.

(p) “Owner” means a person owning a groundwater extraction facility or an interest in a groundwater extraction facility other than a lien to secure the payment of a debt or other obligation.

(q) “Personal information” has the same meaning as defined in Section 1798.3 of the Civil Code.

(r) “Planning and implementation horizon” means a 50-year time period over which a groundwater sustainability agency determines that plans and measures will be implemented in a basin to ensure that the basin is operated within its sustainable yield.

(s) “Public water system” has the same meaning as defined in Section 116275 of the Health and Safety Code.

(t) “Recharge area” means the area that supplies water to an aquifer in a groundwater basin.

(u) “Sustainability goal” means the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield.

(v) “Sustainable groundwater management” means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.

(w) “Sustainable yield” means 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.

(x) “Undesirable result” means one or more of the following effects caused by groundwater conditions occurring throughout the basin:

(1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. 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.

(2) Significant and unreasonable reduction of groundwater storage.

(3) Significant and unreasonable seawater intrusion.

(4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

(5) Significant and unreasonable land subsidence that substantially interferes with surface land uses.

(6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

(y) “Water budget” means an accounting of the total groundwater and surface water entering and leaving a basin including the changes in the amount of water stored.

(z) “Watermaster” means a watermaster appointed by a court or pursuant to other law.

(aa) “Water year” means the period from October 1 through the following September 30, inclusive.

(ab) “Wellhead protection area” means the surface and subsurface area surrounding a water well or well field that supplies a public water system through which contaminants are reasonably likely to migrate toward the water well or well field.

(Amended by Stats. 2015, Ch. 666, Sec. 2. (AB 617) Effective January 1, 2016.)