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

> Monterey County Water Resources Agency

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

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Monterey County Water Resources Agency

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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.

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SEC	TION 1 – INTRODUCTION	1
1.1	Previous Activity	1
1.2	Objective of this Report	
1.3	Recommendations	
1.4	Explanation of Exemptions	6
1.	.4.1 Municipal water supply wells	
1.	.4.2 CSIP wells	7
1.	.4.3 Monitoring wells	
1.	.4.4 Well repairs	
1.5	Defining the Area of Impact	
SEC	TION 2 – BACKGROUND	
2.1	Geology and Hydrogeology	
2.	1.1 Geology and Geologic Setting	
	2.1.1.1 180/400 Foot Aquifer Subbasin	
	2.1.1.2 East Side Aquifer Subbasin	
2.	.1.2 Hydrogeology	
	2.1.2.1 Shallow Alluvial Aquifer	
	2.1.2.2 Salinas Valley Aquitard	
	2.1.2.3 Pressure 180-Foot Aquifer	
	2.1.2.4 Pressure 180/400-Foot Aquitard	
	2.1.2.5 Pressure 400-Foot Aquifer	
	2.1.2.6 Pressure 400-Foot/Deep Aquitard	
	2.1.2.7 Deep Aquifers	
2.2	Seawater Intrusion	
2.	2.1 Defining seawater intrusion	
2.	.2.2 Monitoring groundwater	
	2.2.2.1 Groundwater levels	
	2.2.2.2 Groundwater quality	
2.	2.3 Pathways of seawater intrusion	
	2.2.3.1 Regional Seawater Intrusion	
	2.2.3.2 Inter-Aquifer Seawater Intrusion	
2.	2.4 Rates of seawater intrusion	
2.3	Castroville Seawater Intrusion Project	27

SECTION 3 - PRESSURE 400-FOOT AQUIFER			
3.1	Recommendations	28	
3.1.1			
3.2	Packground and Disquesion	20	
3.2 3.2.1	Background and Discussion 1 Hydrogeology		
3.2.1			
3.2.3	1		
3.2.4			
3.3	Wells and Vertical Migration of Groundwater		
3.3.2	1 Well Inventory		
3.3.2	2 Interpreting Hydraulic Separation	35	
3.3.3	3 Efforts to Limit Inter-Aquifer Hydraulic Communication	37	
3.4	Enhancement and Expansion of CSIP		
3.4.			
3.4.2	2 Expansion of CSIP	37	
3.5	Findings in Support of Recommendations		
SECTI	ION 4 – DESTRUCTION OF WELLS IN THE CSIP AREA	40	
4.1	Recommendation	40	
4.2	Background	40	
4.2.2	1 Agency Ordinance No. 3790	40	
4.2.2	2 Impetus for Recommendation	41	
4.3	Prioritization of Wells for Destruction	41	
4.3.			
4.3.2	2 Ranking	42	
4.4	Costs and Funding		
SECTI	ION 5 - DEEP AQUIFERS OF THE 180/400 FOOT AQUIFER SUBBASIN	45	
5.1	Recommendations	45	
5.2	Background and Discussion		
5.2.3	<u>.</u>		
5.2.2	2 Geology and Hydrostratigraphy of the Deep Aquifers	46	
5.2.3	3 Spatial Extent of the Deep Aquifers	46	
5.2.4			
5.2.			
5.2.0	6 Trends in Well Construction in the Deep Aquifers	48	

5.2 5.2 5.2	.8	Groundwater Levels in the Deep Aquifers Groundwater Quality in the Deep Aquifers Extraction from Wells in the Deep Aquifers	50
	.10 .11	Recharge and Storage in the Deep Aquifers Data Gaps in Knowledge of the Deep Aquifers	53
5.3	Fin	dings in Support of Recommendations	54
		6 – AGENCY AUTHORITY AND REGULATIONS APPLICABLE TO IMPLEMENTIN ENDATIONS	
6.1	Мо	nterey County Water Resources Agency Act	55
6.2	Мо	nterey County Code Chapter 15.08 Water Wells	56
6.3	20	10 Monterey County General Plan	56
6.4	Мо	nterey County Water Resources Agency Ordinance No. 3709	56
6.5	Мо	nterey County Water Resources Agency Ordinance No. 3790	57
6.6 Cons	-	ecifications for Wells in Zone 6 of the Monterey County Flood Control & Water ion District	57
6.7	Sus	stainable Groundwater Management Act (SGMA)	57
SECT	TION	7 - SUMMARY	59
SECT	ION	8 - REFERENCES	

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

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
Figure 2 - Map of Historical Seawater Intrusion in the Pressure 400-Foot Aquifer
Figure 3 - Total Reported Groundwater Extractions from Wells in the Area of Impact (1995 to 2015)
Figure 4 - Area of Impact
Figure 5 - Monterey County Geologic Setting
Figure 6 - Zone 2C Subareas12
Figure 7 - Stratigraphy and Hydrostratigraphy of the 180/400 Foot Aquifer Subbasin of the Salinas Valley Groundwater Basin
Figure 8 - Generalized Fluvial and Alluvial Fan Facies of the Northern Salinas Valley16
Figure 9 - Illustration of Regional Seawater Intrusion21
Figure 10 - Illustration of Inter-Aquifer Seawater Intrusion22
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
Figure 13 - Annual Groundwater Extractions from Pressure 400-Foot Aquifer Wells in the Area of Impact
Figure 14 - 2015 Extent of Seawater Intrusion
Figure 15 - Degree of Hydraulic Separation in Wells within and near the Area of Impact35
Figure 16 - Criteria and Weighting Approach for Well Destructions in Zone 2843
Figure 17 - Map of Wells Prioritized for Destruction in Zone 2B44
Figure 18- Wells in the Deep Aquifers47
Figure 19 - Timeline of Well Installation in Deep Aquifers of the 180/400 Foot Aquifer Subbasin48
Figure 20 - Depth of Agricultural Wells in Deep Aquifers of the 180/400 Foot Aquifer Subbasin49

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 1
Table 2 - Historical Estimated Acreage Overlying Seawater Intrusion
Table 3 - Aquifer Assignments for Wells in the Area of Impact that Report Groundwater Extractions
Table 4 - Summary of Degree of Uncertainty Observed in Hydraulic Separation for Wells within the Area of Impact
Table 5 - Prioritization Categories and Well Counts for Destructions in Zone 2B4
Table 6 - Well Destruction Costs by Prioritization Category4
Table 7 - Summary of Ordinances, Regulations, and Statutes Applicable to the Recommendations in this Report5

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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).¹ 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.

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

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 wells² in the Pressure 400-Foot Aquifer³ within an identified Area of Impact⁴, 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

 $^{^{2}}$ "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.

³ 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).

⁴ 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 moratorium⁵ 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.

⁵ 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.

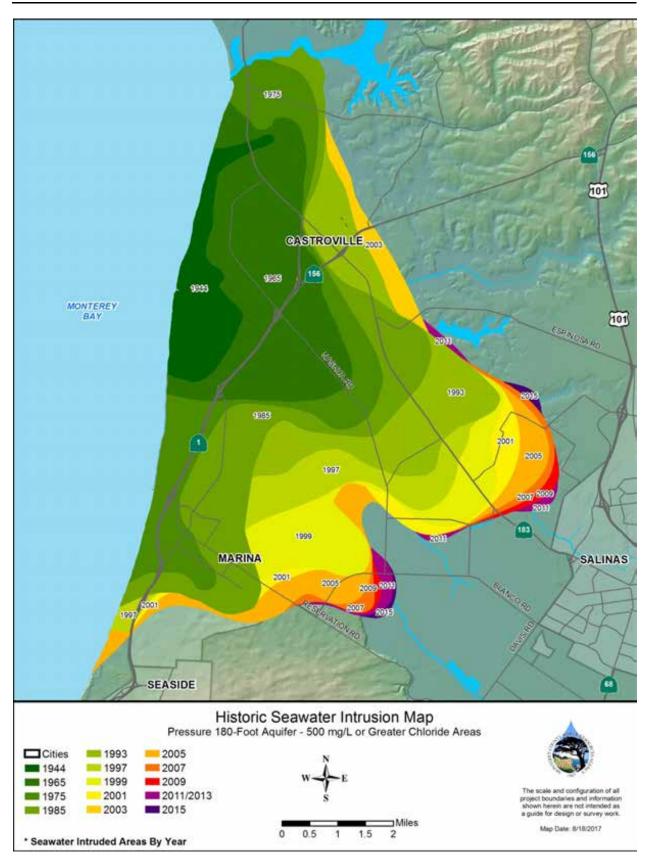


Figure 1 - Map of Historical Seawater Intrusion in the Pressure 180-Foot Aquifer

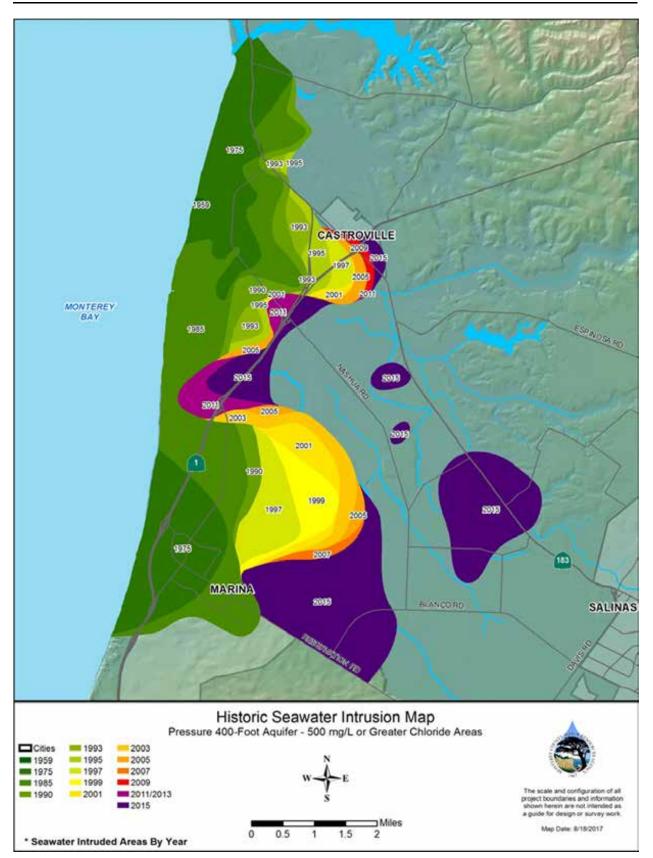


Figure 2 - Map of Historical Seawater Intrusion in the Pressure 400-Foot Aquifer

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.

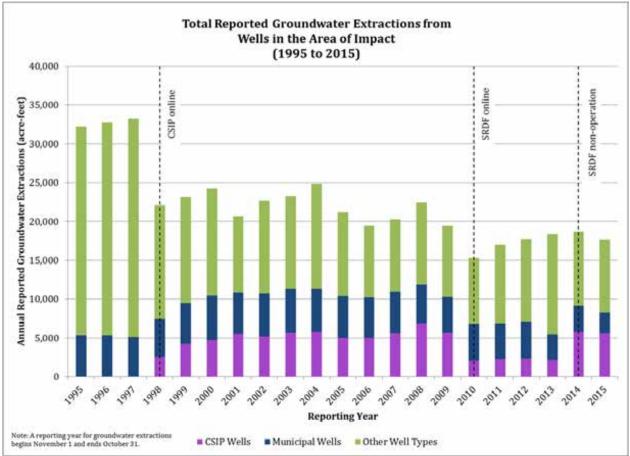


Figure 3 - Total Reported Groundwater Extractions from Wells in the Area of Impact (1995 to 2015)

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.⁶

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

⁶ 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.⁷ 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;

⁷ 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.

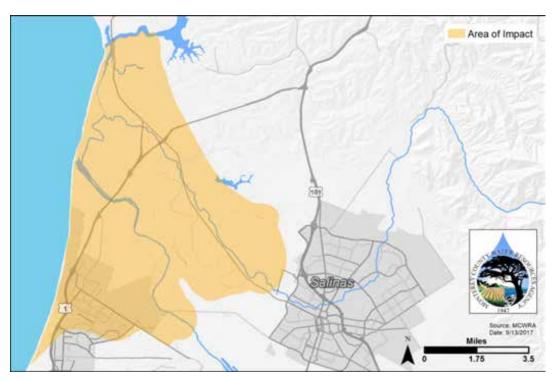


Figure 4 - Area of Impact

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 terranes⁸: 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 alluvial⁹ 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 course 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).

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

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

Era	Period, Syste	m, Subsystem	Epoch	Age estimates of boundaries in millions of years	Monterey County Geologic events, features, and deposits
	Quaternary -		Holocene	0 - 0.010	Floodplain deposits, landslides, beach deposits
Cenozoic			Pleistocene	0.010 - 1.6	Sea level fluctuates, sand dunes, marine terraces, Salinas Valley deposits
(Age of mammals)			Pliocene	1.6 – 5	Uplift of Santa Lucia Range
Ĩ	Tertiary	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
Mesozoic	Cretaceous		_	66 - 138	Salinian granitic rocks intruded
(Age of	Jurassic			138 – 205	Franciscan rocks
reptiles)	Triassic			205 - 240	subducted and accreted
	Per	mian		240 - 290	_
		Pennsylvanian		290 - 330	Curr Courselor
Paleozoic	Systems	Mississippian		330 - 360	Sur Complex formed hundreds
(Age of	Devonian			360 - 410	• of miles south of
fishes)	Silurian			410 - 435	- Monterey County
	Ordovician			435 - 500	
	Cambrian			500 - 570	
Pre- Paleozoic	c pre-Cambrian			570 - 4600	

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

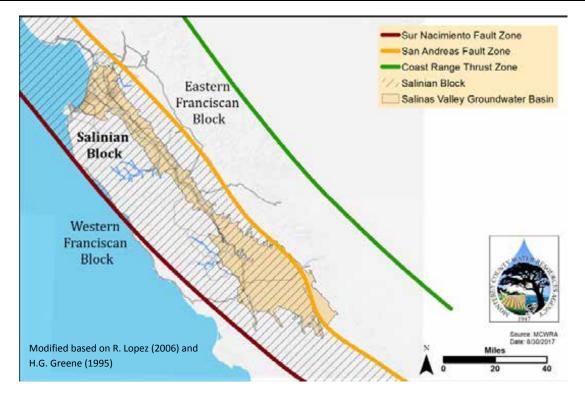


Figure 5 - Monterey County Geologic Setting

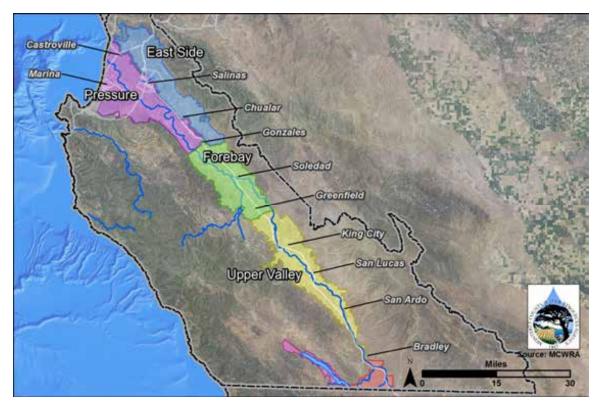


Figure 6 - Zone 2C Subareas

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.

Peri	od/Epoch	Formation	Hydrostratigraphy	
	Holocene	Recent Alluvium	Shallow Aquifer	
t		Valley Fill	Salinas Valley Aquitard	
nary	Û		Pressure 180-Foot Aquifer	
Quaternary 5 MYA to present	Pleistocene	Aromas Sands	Pressure 180/400-Ft Aquitard	
2.5 N	leisto	(near coast)	Pressure 400-Foot Aquifer	
	۵.	Paso Robles	Shallow Aquifer Salinas Valley Aquitard Pressure 180-Foot Aquifer Pressure 180/400-Ft Aquitard Pressure 400-Foot Aquifer Pressure 400-Foot/Deep Aquitard Deep Aquifers Minimally water-bearing	
Tertiary 8 to 2.5 MYA	Pliocene	Purisima / Pancho Rico	Deep Aquifers	
Tertis to 2.5		Santa Margarita		
53	Miocene	Monterey	Minimally water-bearing	
М	esozoic	Granitic basement	Non water-bearing	

MYA = Million Years Ago

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 fluvially¹⁰ 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

¹⁰ 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 Aquitard¹¹, 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).¹²

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.¹³ 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.

¹¹ 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).

¹² 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.

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

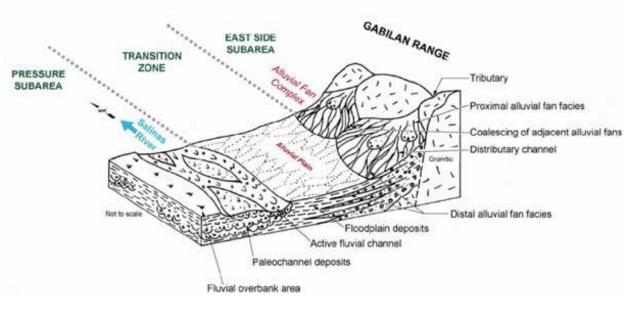


Figure 8 - Generalized Fluvial and Alluvial Fan Facies of the Northern Salinas Valley (Kennedy/Jenks, 2004)

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.¹⁴

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.

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

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.¹⁵ 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.

¹⁵ 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.

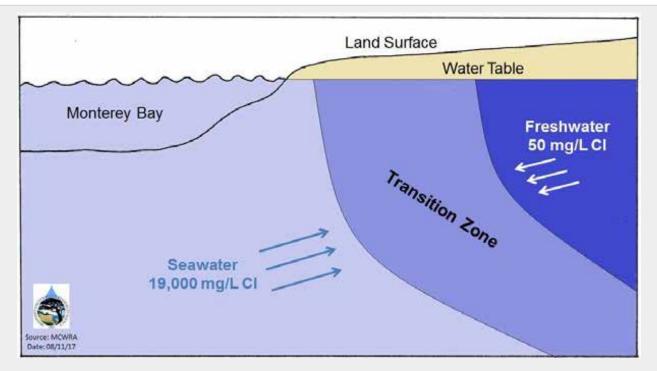


Figure 9A. As seawater intrudes into an aquifer there is a transition zone where seawater and fresh water mix.

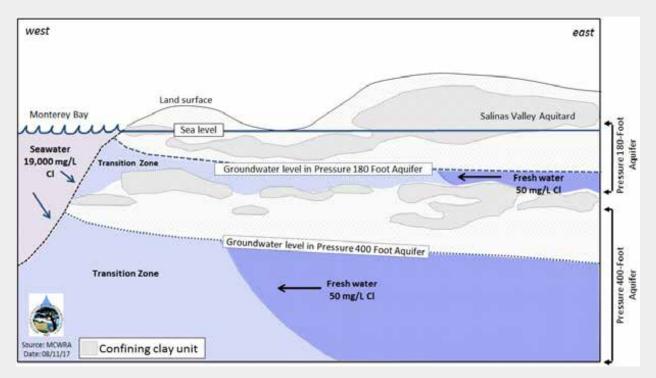


Figure 9B. With regional seawater intrusion, seawater moves inland because there are submarine outcrops of the geologic formations and a landward groundwater gradient.

Figure 9 - Illustration of Regional Seawater Intrusion

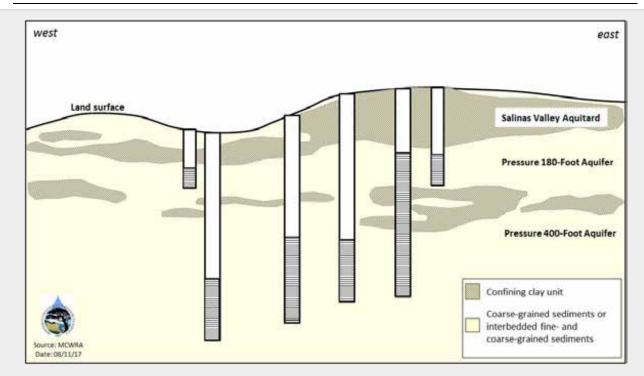


Figure 10A. The 180/400 Foot Aquifer Subbasin contains multiple layers of water-bearing zones interspersed with confining clay units.

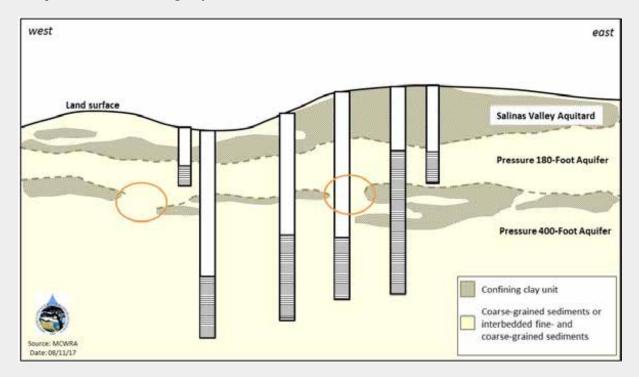


Figure 10B. In some areas of the 180/400 Foot Aquifer Subbasin, the confining clay unit is missing or very thin.

Figure 10 - Illustration of Inter-Aquifer Seawater Intrusion

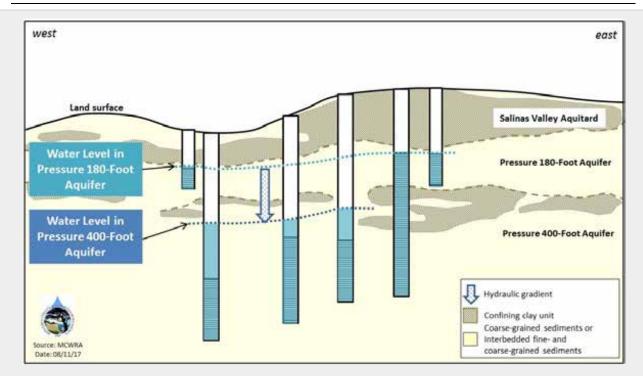


Figure 10C. Water levels in the Pressure 400-Foot Aquifer are lower than in the overlying Pressure 180-Foot Aquifer. This results in a downward hydraulic gradient.

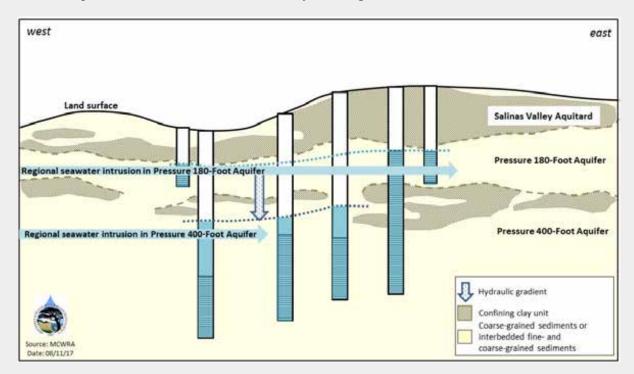


Figure 10D. Regional seawater intrusion has occurred in both the Pressure 180-Foot and Pressure 400-Foot Aquifers, but seawater intrusion extends further inland in the Pressure 180-Foot Aquifer.

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

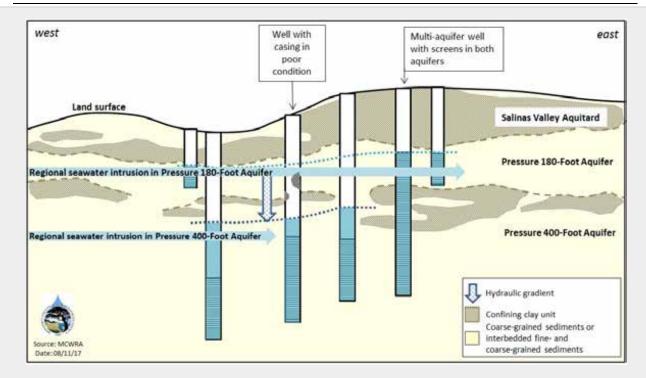


Figure 10E. Some wells in the 180/400 Foot Aquifer Subbasin are installed in multiple aquifers, have casings that are in poor condition, or have been improperly constructed or abandoned.

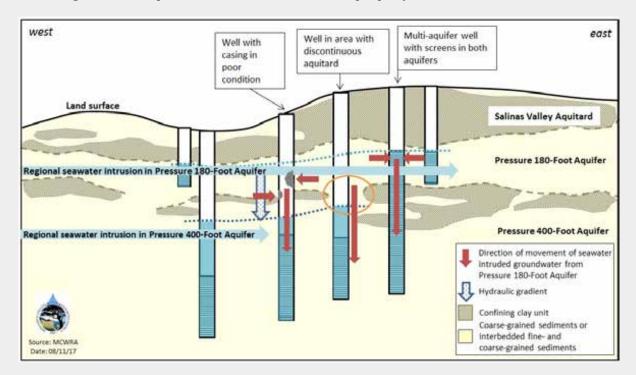


Figure 10F. A combination of the geology, hydraulic gradient, overlying intrusion, groundwater pumping, and well construction/condition allows for inter-aquifer seawater intrusion.

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

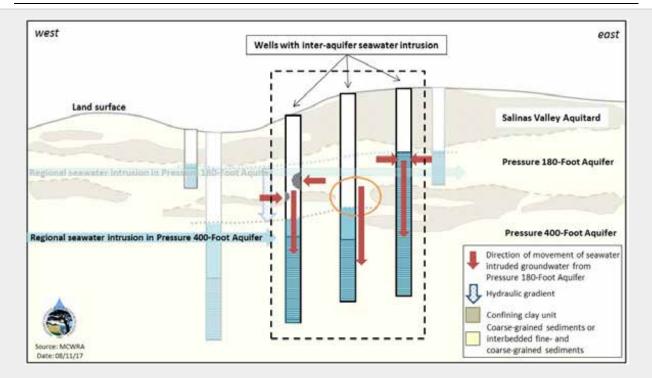


Figure 10G. Seawater intrusion would be detected at the three highlighted wells in the Pressure 400-Foot Aquifer, even though the regional seawater intrusion front has not yet reached them, as a result of movement of seawater intruded groundwater through conduits.

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

Table 2 - Historical Estimated Acreage Overlying Seawater Intrusion									
Water Year	Pressure 180-Foot Aquifer (acres advanced)	Total Acres Advanced in Pressure 180-Foot Aquifer	Pressure 400-Foot Aquifer (acres advanced)	Total Acres Advanced in Pressure 400- Foot Aquifer					
1944	1,833	1,833	NAD*	NAD*					
1959	NAD*	1,833	22	22					
1965	5,839	7,672	NAD*	22					
1975	3,973	11,645	3,695	3,717					
1985	4,576	16,221	3,804	7.521					

1737	IIID	1,055		
1965	5,839	7,672	NAD*	22
1975	3,973	11,645	3,695	3,717
1985	4,576	16,221	3,804	7.521
1990	NAD*	16,221	826	8,347
1993	3,596	19,817	311	8,658
1994	NOC [†]	19,817	NOC [†]	8,658
1995	NOC [†]	19,817	407	9,065
1997	1,802	21,619	896	9,961
1999	2,400	24,019	543	10,504
2001	761	24,780	499	11,033
2003	627	25,407	520	11,523
2005	1,768	27,175	359	11,882
2007	425	27,600	122	12,004
2009	191	27,791	93	12,097
2011	351	28,142	476	12,573
2013	NOC†	28,142	NOC†	12,573
2015	115	28,257	4,552	17,125

^a 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)

 \uparrow = 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)¹⁶ 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.

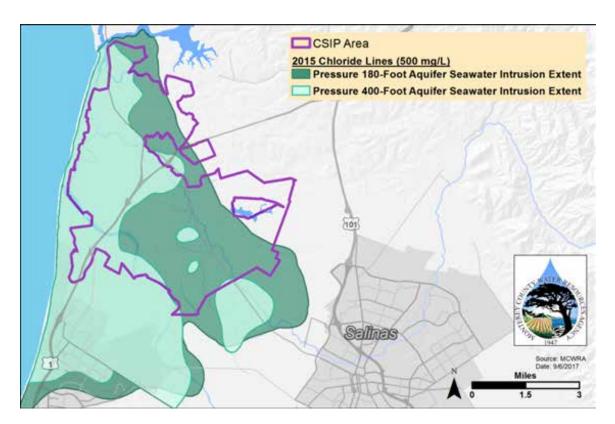


Figure 11- Boundary of the Castroville Seawater Intrusion Project Service Area (Zone 2B)

¹⁶ 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:

- An immediate moratorium on groundwater extractions from new wells¹⁷ in the Pressure 400-Foot Aquifer¹⁸ within an identified Area of Impact¹⁹, 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.

¹⁷ "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.

¹⁸ 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).

¹⁹ 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. Nonintruded 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.

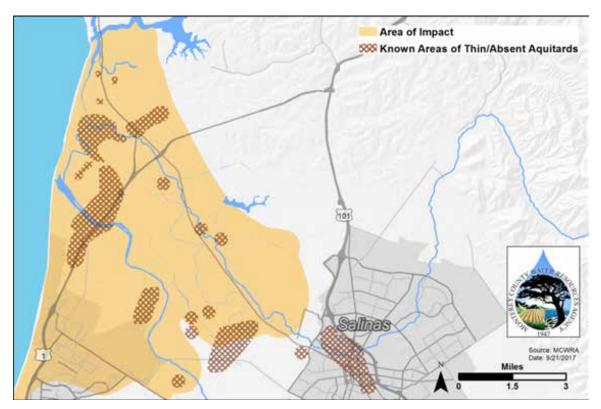


Figure 12 - Areas of Discontinuities in the Pressure 180/400 Foot Aquitard

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 1995.²⁰ 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 ReportGroundwater Extractions				
Aquifer Unit	Number of Wells in Area of Impact Reporting Groundwater Extractions			
Pressure 180-Foot Aquifer	36			
Pressure 400-Foot Aquifer	123			
Pressure 180-Foot and 400-Foot Aquifers	5			
Deep Aquifers	12			
Unknown ²¹	26			
TOTAL	202			

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.

²⁰ 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.

²¹ 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.

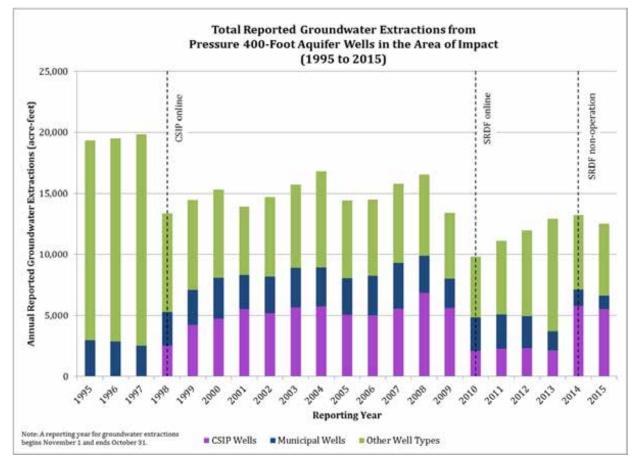


Figure 13 - Annual Groundwater Extractions from Pressure 400-Foot Aquifer Wells in the Area of Impact

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).

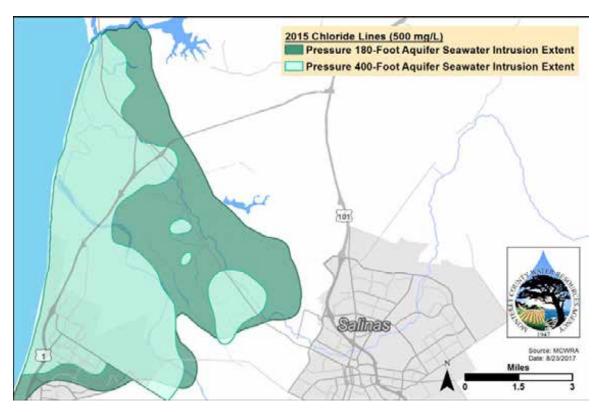


Figure 14 - 2015 Extent of Seawater Intrusion

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.²² 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.

²² 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

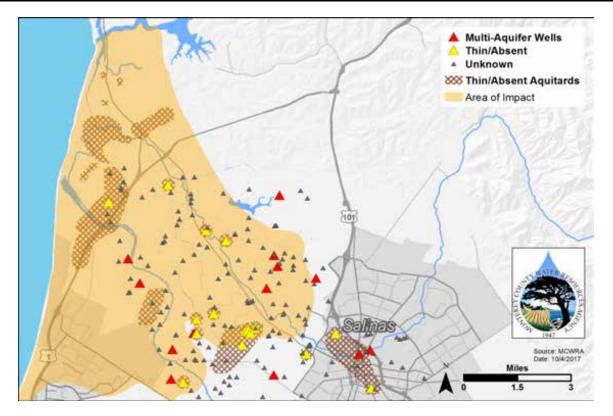


Figure 15 - Degree of Hydraulic Separation in Wells within and near the Area of Impact

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.

Wells within the Area of Impact						
Hydraulic Separation Category	Well Count in Area of Impact**	Well Count within 0.5 miles seaward of 2015 500 mg/L contour line	Well count within 0.5 miles landward of 2015 500 mg/L contour line	Total		
No separation	4	1	1	6		
Poor	4	1	2	7		
Multi-aquifer well	3	1	2	6		
Unknown*	56	10	24	90		
Inconclusive	7	3	1	11		
TOTAL	74	16	30	120		

Table 4 - Summary of Degree of Uncertainty Observed in Hydraulic Separation for

* "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 interaquifer 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 2016-2017²³ 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

²³ 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.

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 anthropogenic²⁴ 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.

²⁴ 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 aquitard²⁵ 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			
Prioritization Category	Number of Wells in Category		
Urgent	8		
High	27		
Medium	39		
Low	45		
Minimal	23		
TOTAL	142		

²⁵ 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.

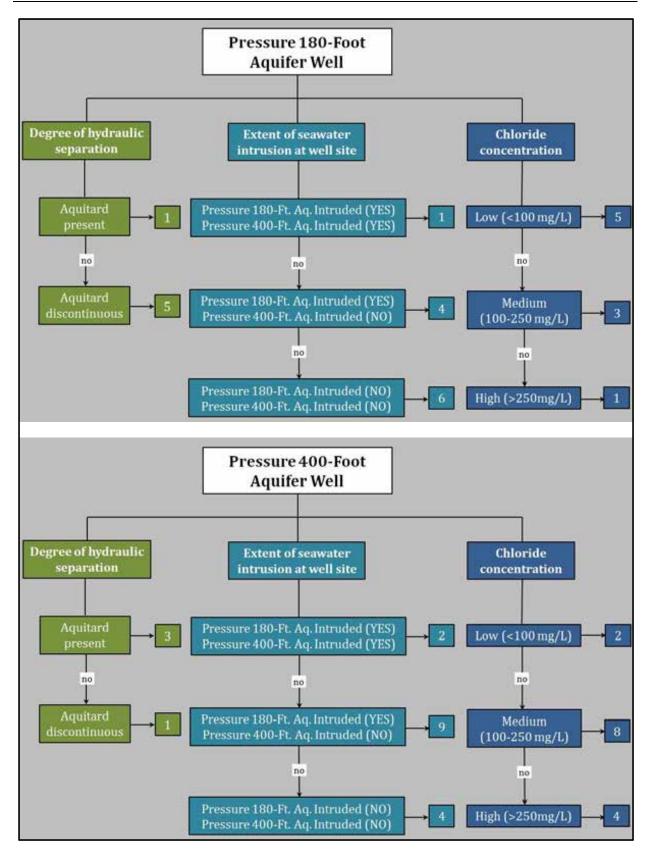


Figure 16 - Criteria and Weighting Approach for Well Destructions in Zone 2B

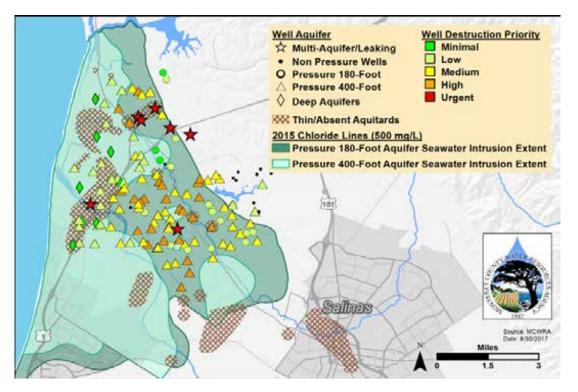


Figure 17 - Map of Wells Prioritized for Destruction in Zone 2B

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		
TOTAL	142	\$7,100,000		

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.

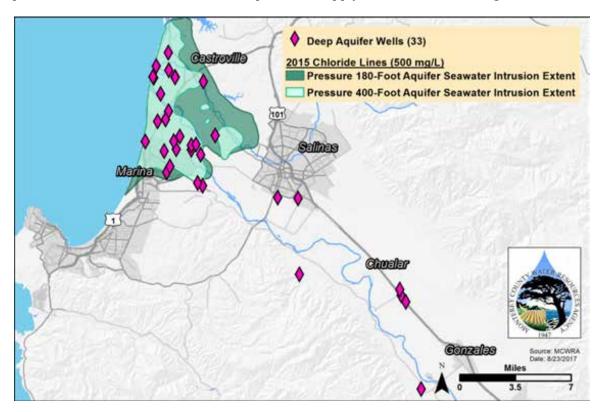


Figure 18- Wells in the Deep Aquifers

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.

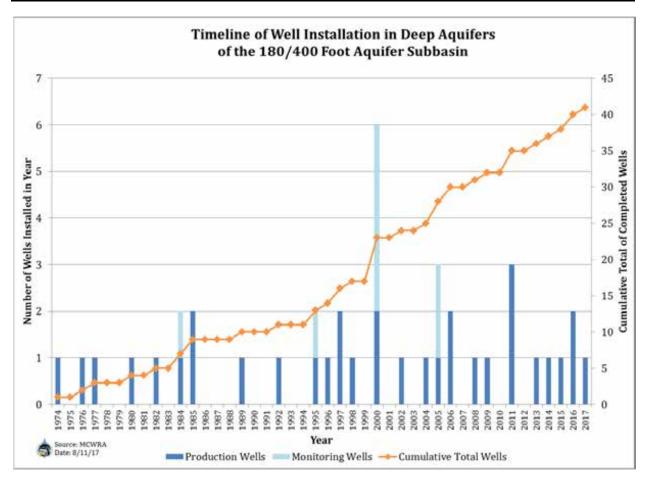
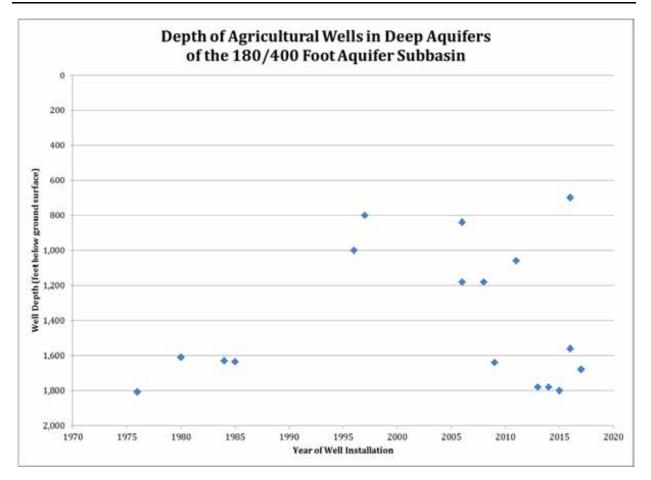


Figure 19 - Timeline of Well Installation in Deep Aquifers of the 180/400 Foot Aquifer Subbasin

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).





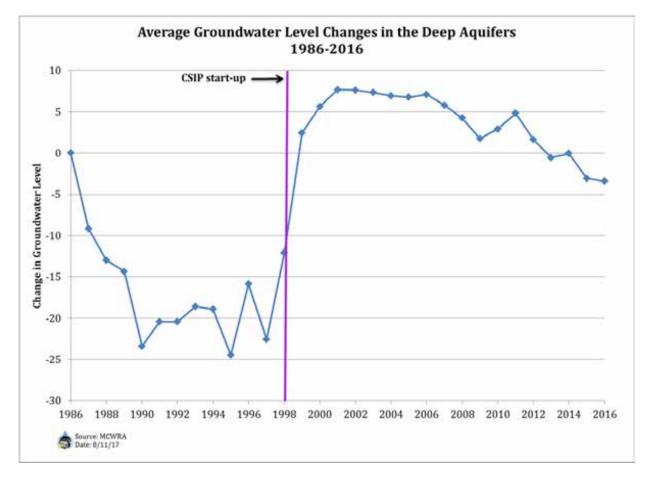
5.2.7 Groundwater Levels in the Deep Aquifers

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).





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.

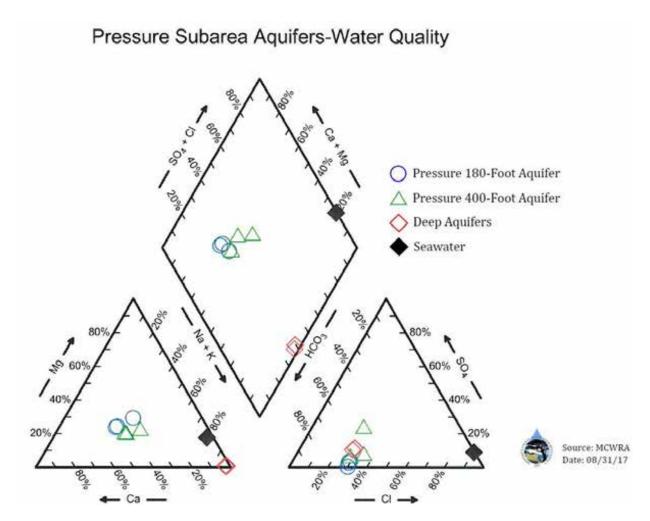
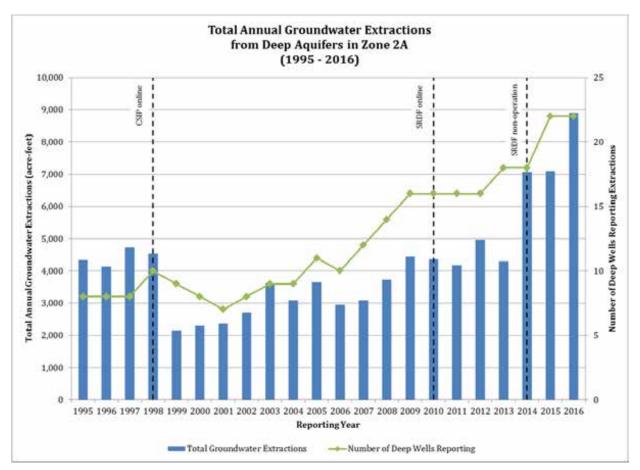


Figure 22 - Piper Diagram of Native Water Quality in Pressure Subarea Aquifers

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).





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.

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.²⁶ 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).²⁷

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.

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

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

²⁶ 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.

²⁷ Sustainable Groundwater Management Act, Chapter 2, 10721.

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 wells²⁸ in the Pressure 400-Foot Aquifer²⁹ within an identified Area of Impact³⁰, 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.

²⁸ "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.

²⁹ 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).

³⁰ 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 moratorium³¹ 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.

³¹ 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

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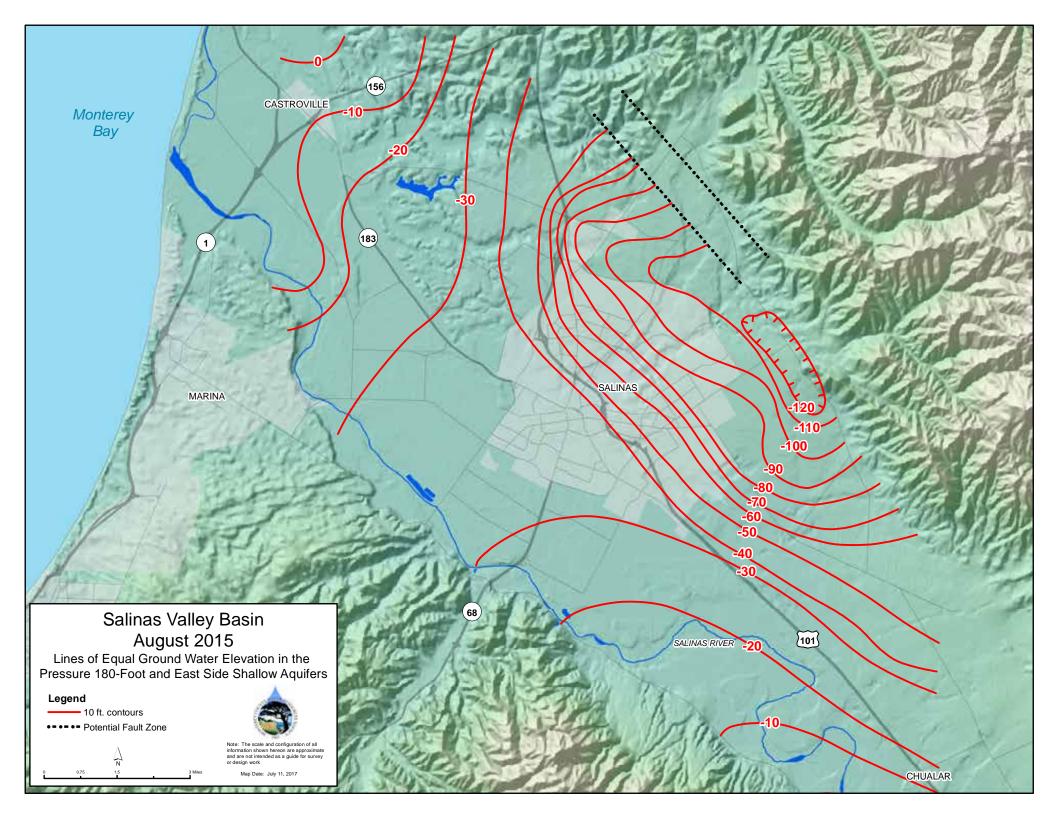
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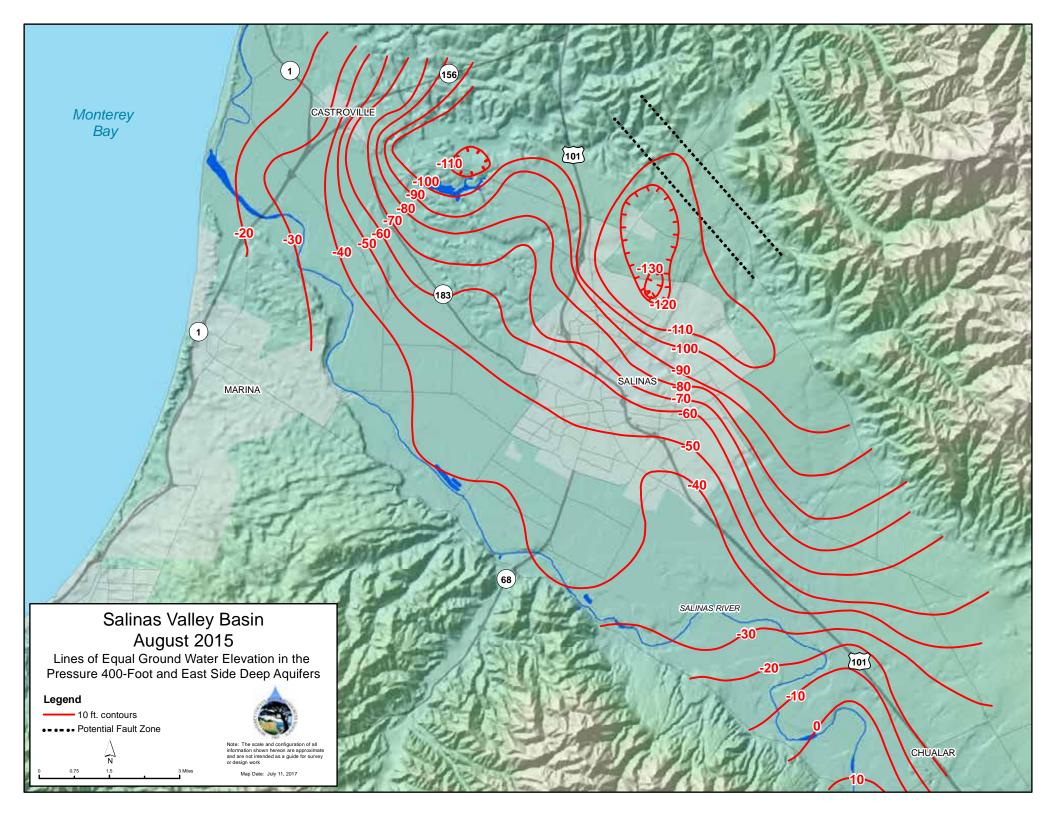
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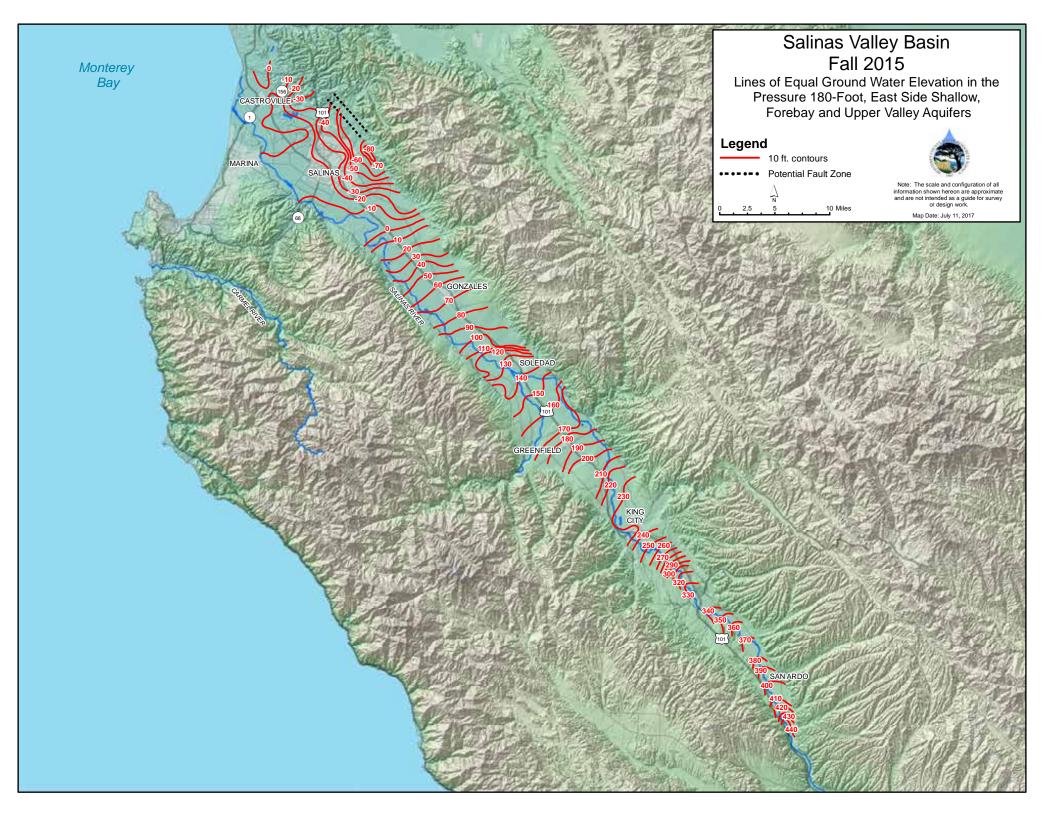
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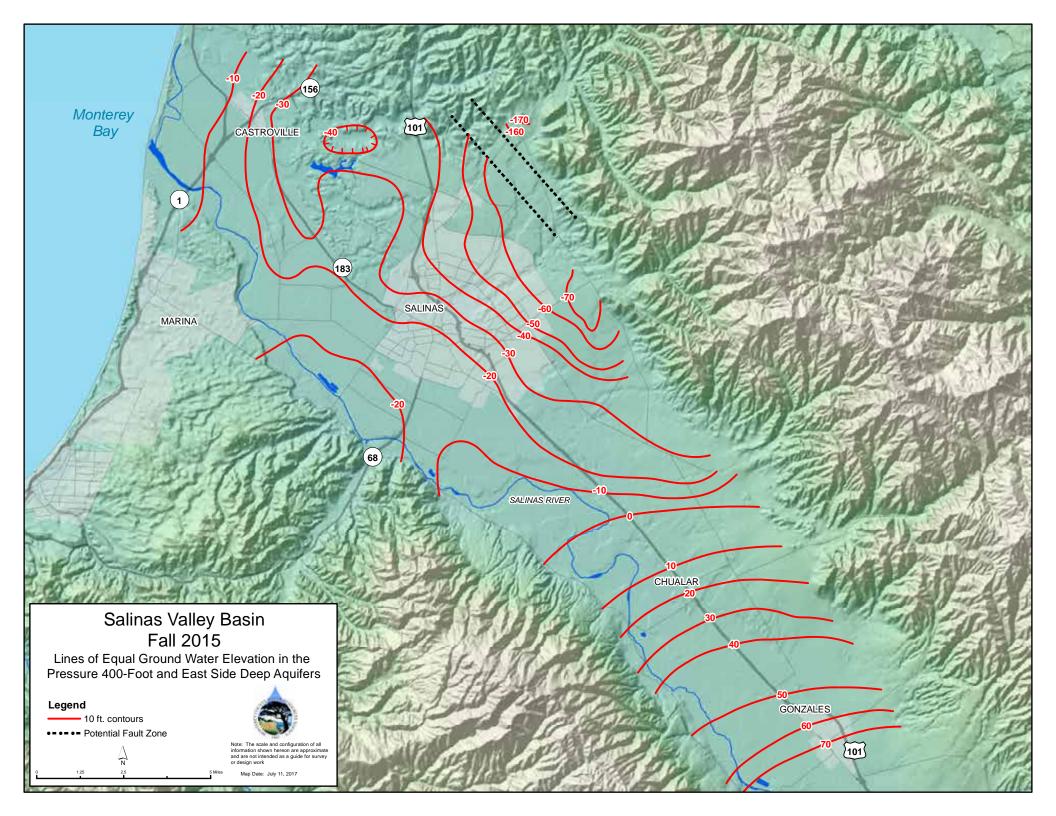
APPENDIX A

2015 GROUNDWATER ELEVATION CONTOUR MAPS









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APPENDIX B

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

FY17-18	July-17 578 1,231 1,768	Aug-17	Sep-17	0ct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	FY 17-18 578 1,231 1,768	3,577
FY16-17	July-16 1,412 0 1,941	Aug-16 911 0 1,704	Sep-16 445 0 1,782	Oct-16 228 0 578	Nov-16 325 0 0	Dec-16 211 0 0	Jan-17 62 0	Feb-17 102 0 0	Mar-17 580 0 125	Apr-17 325 0 857	May-17 614 516 1,770	Jun-17 307 1,010 1,559	FY 16-17 5,522 1,525 10,316	17,363
FY15-16	July-15 1,351 0 1,842	Aug-15 1,105 0 1,785	Sep-15 482 0 1,687	Oct-15 38 0 1,217	Nov-15 213 0 57	Dec-15 199 0	Jan-16 96 0	Feb-16 520 0 56	Mar-16 395 0 289	Apr-16 391 0 1,640	May-16 831 0 1,770	Jun-16 1,299 0 1,855	FY 15-16 6,921 0 12,198	19,120
FY 14-15	July-14 1,303 0 2,073	Aug-14 1,025 0 2,033	Sep-14 435 0 1,837	Oct-14 102 0 1,407	Nov-14 303 0 18	Dec-14 38 0	Jan-15 516 0 32	Feb-15 115 0 1,013	Mar-15 411 0 1,542	Apr-15 446 0 1,556	May-15 696 0 1,758	Jun-15 1,066 0 1,761	FY 14-15 6,455 0 15,030	21,485
FY 13-14	July-13 98 1,260 1,786	Aug-13 263 1,220 1,803	Sep-13 248 537 1,725	Oct-13 165 133 1,548	Nov-13 35 0 1,127	Dec-13 730 0 88	Jan-14 490 0 1,240	Feb-14 9 351	Mar-14 214 0 902	Apr-14 240 0 1,431	May-14 1,067 0 1,912	Jun-14 1,261 0 1,940	FY 13-14 4,820 3,150 15,853	23,822
FY 12-13	July-12 214 992 1,834	Aug-12 311 799 1,847	Sep-12 135 314 1,734	Oct-12 16 65 1,168	Nov-12 72 0 731	Dec-12 44 0 0	Jan-13 253 0 0	Feb-13 334 0 692	Mar-13 218 0 1,561	Apr-13 239 501 1,679	May-13 239 1,219 1,799	Jun-13 363 1,224 1,677	FY 12-13 2,438 5,114 14,723	22,275
FY 11-12	July-11 316 1,145 1,869	Aug-11 568 709 1,873	Sep-11 419 0 1,617	Oct-11 54 0 733	Nov-11 238 0 224	Dec-11 723 0	Jan-12 1,067 0 0	Feb-12 162 0 1,031	Mar-12 211 0 929	Apr-12 80 0 1,044	May-12 125 618 1,745	Jun-12 276 906 1,764	FY 11-12 4,239 3,378 12,829	20,446
FY 10-11	July-10 267 1,035 1,889	Aug-10 272 968 1,902	Sep-10 191 478 1,821	Oct-10 20 80 1,006	Nov-10 246 0 179	Dec-10 69 0	Jan-11 333 0 26	Feb-11 100 0 580	Mar-11 154 0 450	Apr-11 544 0 1,650	May-11 284 593 1694	Jun-11 428 1,020 1,713	FY 10-11 2,908 4,174 12,910	19,992
FY 09-10	July-09 1,699 0 1,837	Aug-09 1,107 0 1,839	Sep-09 509 0 1,594	Oct-09 119 0 465	Nov-09 575 0 0	Dec-09 194 0	Jan-10 100 0	Feb-10 143 0 0	Mar-10 529 0 49	Apr-10 143 0 839	May-10 150 375 1737	Jun-10 570 944 1,838	FY 09-10 5,838 1,319 10,198	17,355
FY 08-09	July-08 1,590 0 1,943	Aug-08 969 0 1,906	Sep-08 545 0 1,683	Oct-08 140 0 1,378	Nov-08 35 0 730	Dec-08 29 0 289	Jan-09 485 0 0	Feb-09 235 0 112	Mar-09 408 0 676	Apr-09 1054 0 1702	May-09 822 0 1717	Jun-09 1,391 0 1,750	FY 08-09 7,703 0 13,886	21,589
FY 07-08	July-07 1,517 0 1,957	Aug-07 1,115 0 1,927	Sep-07 380 0 1,616	Oct-07 125 0 1,129	Nov-07 692 0	Dec-07 445 0 0	Jan-08 91 0	Feb-08 171 0 173	Mar-08 520 0 1,602	Apr-08 1,513 0 1,806	May-08 939 0 1,914	Jun-08 1,726 0 1,797	FY 07-08 1 9,234 0 13,921	23,155
FY 06-07	July-06 1,424 0 1,931	Aug-06 1,103 0 1,925	Sep-06 342 0 1,782	Oct-06 172 0 1,509	Nov-06 90 342	Dec-06 119 0	Jan-07 687 0 0	Feb-07 252 0 154	Mar-07 459 0 1099	Apr-07 496 0 1642	May-07 417 0 1907	Jun-07 1,523 0 1,874	FY 06-07 1 7,084 0 14,165	21,249
-02 FV 02-03 FY 03-04 FV 04-05 FV 05-06 FV 06-07 FV 07-08 FV 08-09 FV 09-10 FV 10-11 FV 11-12 FV 12-13 FV 13-14 FV 14	July-05 1,507 0 1,906	Aug-05 770 0 1,838	Sep-05 337 0 1,689	Oct-05 115 0 1,241	Nov-05 330 0 209	Dec-05 85 0	Jan-06 109 0	Feb-06 583 0 0	Mar-06 124 0	Apr-06 195 0 328	May-06 249 0 1751	Jun-06 1,394 0 1,903	FY 05-06 1 5,798 0 10,865	16,663
FY 04-05	July-04 1,565 0 1,957	Aug-04 1,145 0 1,954	Sep-04 727 0 1,821	Oct-04 183 0 862	Nov-04 171 0 0	Dec-04 150 0	Jan-05 83 0	Feb-05 280 0 0	Mar-05 241 0 0	Apr-05 482 0 740	May-05 388 0 1,770	Jun-05 1,402 0 1,833	FY 04-05 1 6,817 0 10,937	17,754
FY 03-04	July-03 1,821 0 1,898	Aug-03 1,283 0 1,889	Sep-03 561 0 1,750	Oct-03 174 0 1,371	Nov-03 134 0 149	Dec-03 40 0	Jan-04 179 0	Feb-04 121 0	Mar-04 455 0 1,121	Apr-04 878 0 1,848	May-04 810 0 1,933	Jun-04 1,653 0 1,913	4	21,982
FY 02-03	July-02 1,363 0 1,900	Aug-02 1,073 0 1,877	Sep-02 793 0 1,435	Oct-02 162 0 1,316	Nov-02 183 0 184	Dec-02 107 0 0	Jan-03 130 0 0	Feb-03 345 0 32	Mar-03 473 0 1,184	Apr-03 190 0 1,381	May-03 535 0 1,722	Jun-03 1,435 0 1,808	FY 02-03 1 6,789 0 12,839	19,628
FY 01-02 I	July-01 1,535 0 1,879	Aug-01 1,105 0 1,944	Sep-01 417 0 1,505	Oct-01 164 0 1,276	Nov-01 11 260	Dec-01 10 0	Jan-02 151 0 0	Feb-02 358 0 385	Mar-02 233 0 791	Apr-02 564 0 1,763	May-02 446 0 1,770	Jun-02 1,256 0 1,664	2	19,487
FY 00-01	Jul-00 1,234 0 1,886	Aug-00 774 0 1,843	Sep-00 517 0 1,460	Oct-00 450 0 475	Nov-00 230 0	Dec-00 397 0	Jan-01 189 0	Feb-01 128 0 0	Mar-01 529 0 422	Apr-01 587 0 1,332	May-01 531 0 1,805	Jun-01 1,359 0 1,877	= _	18,025
FY 99-00	Jul-99 1,318 0 1,870	Aug-99 899 1,772	Sep-99 368 0 1,398	Oct-99 370 0 1,017	Nov-99 82 153	Dec-99 215 0	Jan-00 202 0	Feb-00 43 0	Mar-00 651 0 11	Apr-00 678 0 1,136	May-00 439 0 1,283	Jun-00 1,051 0 1,793	8	16,749
FY 98-99	Jul-98 772 0 1,114	Aug-98 748 0 1,118	Sep-98 226 0 989	Oct-98 309 0 432	Nov-98 77 0 32	Dec-98 72 0	Jan-99 169 0	Feb-99 52 58	Mar-99 138 0 35	Apr-99 601 0 586	May-99 313 0 1,561	Jun-99 743 0 1,615	<u>s</u>	11,782
Source	CSIP-Wells SRDF-River SVRP-Recycled	-	Total acre-feet											

Acre Fe	
Water Production (
(SRDF)	
Facility	
Diversion	
River	
Salinas	
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MCWRP)	
Projects (
ecycling	
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Monterey	

APPENDIX C

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



MONTGOMERY WATSON

May 11, 1994

MAY 1 3 1994 WATER RESOURCES AGENCY

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,

Than

Glen Grant Project Engineer

GG:ap

enclosure

cc: Lyndel Melton Glen Grant

355 Lennon Lane Walnut Creek, California 94598-2427 Tel: 510 933 2250 Fax: 510 945 1760 Serving the World's Environmental Needs



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:

Montgomery Watson May 6, 1994 (93-71-2450)

SGD

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

5- 147 WEIK

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

Sincerely,

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STAAL, GARDNER & DUNNE, INC.

Martin B. Veeney Monterey Branch Manager

MBF:gs

Attachment: Well Destruction Priority List

WELL DESTRUCTION PRIORITY LIST1

	and south a subscription				100000200000000000000000000000000000000	and the statement
WELL REF	WELL NUM	YEAR	AQUIFER	DRILL METHOD	PERF RNG	SEAL DEPT
	Wells Con	nplete	d in More	Than One Ac	quifer	
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	
	Wells Su	spect	ed Of Inte	raquifer Leak	age	
128-1		Seems	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	
	Wells Of	Unkr	iown Com	pletion (Desi	an)	
205-1				A STATUS OF CONTRACTOR STATUS	9,	
			1.964	1998 - 721	228-328	
			55	1.54		
		1963	100 MA 19 7 1	C.P.S.S.C. (1997)		
					362-530	
206-1	13S/02E-21H	1940	No Log	No Log	0000000	
	208-1 216-1 20-1 285-1 284-1 230-1 ND-2 63-1 70-3 157-1 265-1 264-1 126-1 78-1 128-1 128-1 158-2 112-1 158-2 112-1 205-1 9-1 10-1 7-1 5-2 5-3	Wells Con 208-1 13S/02E-27M1 216-1 13S/02E-27Q 20-1 13S/02E-28B1 285-1 13S/02E-28M2 285-1 13S/02E-28M2 230-1 13S/02E-28M2 230-1 13S/02E-36J1 ND-2 14S/02E-07B50 63-1 14S/02E-07B50 70-3 14S/02E-11G1 265-1 14S/02E-12N1 265-1 14S/02E-12N3 126-1 14S/02E-12N3 126-1 14S/02E-11M1 264-1 14S/02E-10R2 126-1 14S/02E-10P50 158-1 14S/02E-10P50 158-1 14S/02E-10P50 158-1 14S/02E-10P50 158-1 14S/02E-10P50 158-1 14S/02E-10R2 158-2 14S/02E-10R2 158-1 14S/02E-10R2 158-2 14S/02E-11M 112-1 14S/02E-11M 112-1 14S/02E-15P1 Wells Colspan="2">Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="	Wells Complete 208-1 13S/02E-27M1 1976 216-1 13S/02E-28B1 1960 285-1 13S/02E-28B1 1990 284-1 13S/02E-28M2 1986 230-1 13S/02E-28M2 1986 230-1 13S/02E-36J1 1961 ND-2 14S/02E-07B50 1991 70-3 14S/02E-07B50 1988 157-1 14S/02E-12N1 1985 265-1 14S/02E-12N1 1988 265-1 14S/02E-12N1 1988 265-1 14S/02E-12N1 1988 265-1 14S/02E-12N2 1947 Wells Suspects 128-1 14S/02E-10R2 1948 158-1 14S/02E-10R2 1948 158-1 14S/02E-10R2 1948 158-2 14S/02E-11M 1948 158-2 14S/02E-10R2 1948 158-2 14S/02E-11M 1948 158-2 14S/02E-148M 1971 9-1 <t< td=""><td>Wells Completed in More 208-1 13S/02E-27M1 1976 P180/400 216-1 13S/02E-27Q 1983 P180/400 20-1 13S/02E-28B1 1960 P180/400 285-1 13S/02E-28E1 1990 P180/400 284-1 13S/02E-28B1 1960 P180/400 284-1 13S/02E-28B1 1961 P180/400 284-1 13S/02E-36J1 1961 P180/400 0230-1 13S/02E-07B50 1991 P400/Deep 70-3 14S/02E-07B50 1991 P400/Deep 70-3 14S/02E-11G1 1985 P180/400 265-1 14S/02E-12Na 1973 SHW/P180 264-1 14S/02E-12Na 1973 SHW/P180 264-1 14S/02E-17B2 1947 P180/400 78-1 14S/02E-10R2 1948 P400 158-1 14S/02E-10R2 1948 P400 158-2 14S/02E-10R2 1948 P400 158-2 14S/02E-15P1</td><td>Wells Completed in More Than One Action 208-1 13S/02E-27M1 1976 P180/400 Rotary 216-1 13S/02E-27Q 1983 P180/400 Reverse 20-1 13S/02E-28B1 1960 P180/400 Reverse 20-1 13S/02E-28B1 1960 P180/400 Reverse 285-1 13S/02E-28B1 1960 P180/400 Reverse 284-1 13S/02E-28M2 1986 P400/Deep Reverse 230-1 13S/02E-36J1 1961 P180/400 Cable ND-2 14S/02E-01T50 1976 P180/400 Cable 63-1 14S/02E-07L50 1988 P400/Deep Reverse 70-3 14S/02E-11G1 1985 P180/400 Rotary 265-1 14S/02E-12Na 1973 SHW/P180 Cable 126-1 14S/02E-17B2 1947 P180/400 No Log 78-1 14S/02E-10R2 1948 P400 No Log 126-1 14S/02E-10R2 1948</td><td>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 270-540 284-1 13S/02E-28M2 1986 P400/Deep Reverse 310-760 230-1 13S/02E-36J1 1961 P180/400 Cable 207-533 ND-2 14S/02E-01T50 1976 P180/400 Cable 242-580 63-1 14S/02E-07E50 1991 P400/Deep Rotary 330-610 157-1 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-17N2 1973 SHW/P180 Robe 96-290 126-1 14S/02E-17B2 1947 P18</td></t<>	Wells Completed in More 208-1 13S/02E-27M1 1976 P180/400 216-1 13S/02E-27Q 1983 P180/400 20-1 13S/02E-28B1 1960 P180/400 285-1 13S/02E-28E1 1990 P180/400 284-1 13S/02E-28B1 1960 P180/400 284-1 13S/02E-28B1 1961 P180/400 284-1 13S/02E-36J1 1961 P180/400 0230-1 13S/02E-07B50 1991 P400/Deep 70-3 14S/02E-07B50 1991 P400/Deep 70-3 14S/02E-11G1 1985 P180/400 265-1 14S/02E-12Na 1973 SHW/P180 264-1 14S/02E-12Na 1973 SHW/P180 264-1 14S/02E-17B2 1947 P180/400 78-1 14S/02E-10R2 1948 P400 158-1 14S/02E-10R2 1948 P400 158-2 14S/02E-10R2 1948 P400 158-2 14S/02E-15P1	Wells Completed in More Than One Action 208-1 13S/02E-27M1 1976 P180/400 Rotary 216-1 13S/02E-27Q 1983 P180/400 Reverse 20-1 13S/02E-28B1 1960 P180/400 Reverse 20-1 13S/02E-28B1 1960 P180/400 Reverse 285-1 13S/02E-28B1 1960 P180/400 Reverse 284-1 13S/02E-28M2 1986 P400/Deep Reverse 230-1 13S/02E-36J1 1961 P180/400 Cable ND-2 14S/02E-01T50 1976 P180/400 Cable 63-1 14S/02E-07L50 1988 P400/Deep Reverse 70-3 14S/02E-11G1 1985 P180/400 Rotary 265-1 14S/02E-12Na 1973 SHW/P180 Cable 126-1 14S/02E-17B2 1947 P180/400 No Log 78-1 14S/02E-10R2 1948 P400 No Log 126-1 14S/02E-10R2 1948	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 270-540 284-1 13S/02E-28M2 1986 P400/Deep Reverse 310-760 230-1 13S/02E-36J1 1961 P180/400 Cable 207-533 ND-2 14S/02E-01T50 1976 P180/400 Cable 242-580 63-1 14S/02E-07E50 1991 P400/Deep Rotary 330-610 157-1 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-17N2 1973 SHW/P180 Robe 96-290 126-1 14S/02E-17B2 1947 P18

1958

P400

No Log

13S/02E-21P1

12-2

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 DEPT
	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 Cost	ructed By Ro	any M	athode W	ith Inadequate	Interacui	for Soals
1	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		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
		THORE	1074	Deep	rioury		500
5	Wells Of	Cable Tool Co	onstru	ction Per	forated 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	

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DESTRUCTION PRIORITY	WELL REF	WELL NUM	YEAR	AQUIFER	DRILL METHOD	PERF RNG	SEAL DEPT
	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 Rota	ry Co	nstructio	n With Adequ	ate 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						

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DESTRUCTION PRIORITY	WELL REF	WELL NUM	YEAR	AQUIFER	DRILL METHOD	PERF RNG	SEAL DEPT
	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	Wel	Is Completed	Only	In The Sha	allow Or 180-1	foot Aquife	rs
	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	
G.	106-1	14S/02E-22F1		P180	No Log		

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the second s	and the second se	WELL		ACC			SEAL	DESCRIPTION
PRIORITY	REF	NUM		L. Bring		RNG	DPTH	walkes in the ended of endering the endering defining the endering of the endering of the endering of the ender
1. S.		135/02E-27M01		the second se		208-628	N/A	Weils Completed In 180-foot And Underlying Aquifer(s)
		135/02E-27002	and the second se		Reverse	248-591	N/A	Wells Completed in 180-foot And Underlying Aquiferts)
OM/IRR		135/02E-28B01	and the second se	and the second se	Rotery	123-640	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
1.	21-2	13S/02E-28E01		P180/400		270-540	240	Wells Completed in 180-foot And Underlying Aquiferts)
2		13S/02E-28H50	and the second se	P180/400	Rotary	193-643	N/A	Wells Completed In 180-foot And Underlying Aquifer(s)
		13S/02E-36J01	1961	Eastside		207-533	N/A	Wells Completed in Eastside Aquifer
OM/IRR		14S/02E-01G50	1974	Eastside	Cable	225-580	52	Wells Utilized For Both Irrigation And Domestic Water Supply
	167-1	14S/02E-11002	1985	P180/400	and the second se	105-335	N/A	Wells Completed in 180-foot And Underlying Aquifer(s)
Victor (Marcola	78-1	14S/02E-17B02	1947	P180/400	and the second se	202-505	N/A	Wells Completed in 180-foot And Underlying Aquifer(s)
OM/IRR	142-1	135/02E-34N01	N/A	SHW/P180	Cable	96-106	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
OM/IRR	154-1	145/02E-02E02	N/A	NA	Cable	N/A	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
1	128-1	145/02E-10P02	1978	P400	Aeverse	330-624	320	Wells Suspected Of Interaquife: Leakage
	112-1	145/02E-15P01	1965	P400	Cable	416-555	N/A	Wells Suspected Of Interaquile: Leakage
Ec	205-1	13S/02E-16R00	1971	No Log	No Log	NIA	N/A	Wells Of Unknown Completion (Design)
	206-1	135/02E-21H00	1940	No Log	No Log	N/A	N/A	Wells Of Unknown Completion (Design)
	214-1	13\$/02E-27N00	1969	No Log	No Log	N/A	N/A	Wells Of Unknown Completion (Design)
	155-2	14S/02E-11D03	1943	No Log	No Log	N/A	N/A	Wells Of Unknown Completion (Design)
	272-b	14S/02E-11H02	N:A	No Log	No Log	N/A	N/A	Wells Of Unknown Completion (Design)
A	7.1	135/02E-20J01	1963	P400	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
A	13-1	13S/02E-21P01	1958	P400	Rotary	350-620	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
A	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
A	25-1	13S/02E-29J01	1957	P400	No Log	350-600	N/A	Wells Assigned To Aquifer By MCWRA, But No Log is Available
A	35-1	135/02E-32A02	1958	P400	No Log	300-600	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
A	139-1	135/02E-33J00	N/A	P400	No Log	N/A	N/A	Wells Assigned To Aquiter By MCWRA, But No Log Is Available
A	140-1	135/02E-33R01	1942	P180	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
A	65-1	145/02E-07K01	N/A	P400	No Log	344-422	N/A	Wells Assigned To Aquifer By MCWRA, But No Log is Available
A	82-1	14S/02E-08L01	1961	P400	Rotary	300-500	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
A	123-1	14S/02E-09C02	1945	P400	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log is Available
	98-1	14S/02E-09C03	1972	P400	Cable	339-485	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
A	105-1	145/02E-21J01	N/A	P180	No Log	N/A	N/A	Wells Assigned To Aquifer By MCWRA, But No Log Is Available
B	5-2	13S/02E-20M02	1949	P400	Not Given	362-530	N/A	Wells Of Known Completion, But Construction Method is Unknown
В	12-1	13S/02E-21N01	1950	P400	Not Given	369-550	N/A	Wells Of Known Completion, But Construction Method Is Unknown
8	22-1	135/02E-29F02	1855	P400	Not Given		N/A	Wells Of Known Completion, But Construction Method is Unknown
в	57-1	135/02E-31N02	1947	P400	Not Given	the state is not the latest or some statest	N/A	Wells Of Known Completion, But Construction Method Is Unknown
3	37.1	13S/02E-32J03	1962	P400	Not Given	and the second se	N/A	Wells Of Known Completion, But Construction Method Is Unknown
8		14S/02E-04B01	1973	P400	Not Given	the second se	N/A	Wells Of Known Completion, But Construction Method is Unknown
В	61.2	145/02E-06J03	1948	P400	Not Given	in the second	N/A	Wells Of Known Completion, But Construction Method is Unknown
8	132-3	14S/02E-09H02	1972	P400	Not Given	and the second	N/A	Wells Of Known Completion, But Construction Method is Unknown
B	256-1	145/02E-12801	1947	P400	Unknown		N/A	Wells Of Known Completion, But Construction Method Is Unknown
8	121.1	145/02E-16C51	1967	P400	Not Given	and the second se	N/A	Wells Of Known Completion, But Construction Method Is Unknown
	56-1	145/02E-05C03	1988	P-400	Rotary	310-575	74	Wells Constructed By Rotary Methods With inadequate Interapular Seals

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DEST	WELL	WELL	YEAR	AQC	DRILL	PERF	SEAL	DESCRIPTION
1		145/02E-12L02		P400	Rotary	435-580	50	Wells Constructed By Rotary Methods With Insdequate Interaquifer Seals
	114-1	145/02E-16H01	1976	P400	Reverse	449-599	40	Wells Constructed By Rotary Methods With Inadequate Interaquifer Seals
1	74-1	14S/02E-18C01	1976	P400	Rotary	330-598	0	Wells Constructed By Rotary Methods With Inadequate Interaquifer Seals
5	284-1	13S/02E-28M02	1986	P400/Deep	Reverse	310-760	300	Weils 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		145/02E-07L05	1988	P400/Deep	Rotary	330-610	300	Wells Completed In Unintruded Area OF 400-foot Aquiter And Underlying Aquiter(s)
6	216-1	135/02E-27P01	1969	P400	Cable	412-572	N/A	Wells Of Cable Tool Construction Completed in 400-foot Aquifer
3	44-1	13S/02E-33N03	1966	P400	Cable	395-547	362	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
5	135.1	145/02E-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	145/02E-04H01	1973	P400	Cable	418-487	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	95-1	145/02E-04N03	1983	P400	Cable	400-656	306	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	64-1	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	452-508	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aguifer
DOM/IRR	91-1	145/02E-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	148/02E-05P02	1965	P400	Cable	464-588	308	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
8	94-1	14S/02E-05R03	1964	P400	Cable	385-648	N/A	Wells Of Cable Tool Construction Completed in 400-foot Aquifer
6	86-1	14S/02E-08A01	1957	P400	Cable	400-506	300	Walls 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 Complated 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 Aquiler
6	and the second se	14S/02E-09L02	1956	P400	Cable	400-609	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	122-2	145/02E-09N01	1963	P400	Cable	412-627	N/A	Wells Of Cable Tool Construction Completed In 400-foot Aquifer
6	129-1	145/02E-10F50	1976	P400	Cable	372-570	N/A	Wells Of Cable Tool Construction Completed in 400-foot Aquiter
DOMARR	129-2	14S/02E-10M02	1985	P400	Cable	330-545	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
В	111-1	145/02E-16N51	1971	P400	Cable	309-464	60	Wells Of Cable Tool Construction Completed In 400-foot Aguitar
6	119-1	14S/02E-16A02	1973	P400	Cable	430-618	48	Wells Of Cable Tool Construction Completed In 400-foot Aguifer
6	118-1	145/02E-16C50	1971	P400	Cable	394-488	60	Wells Of Cable Tool Construction Completed In 400-foot Aguiler
DOM/IRR	80-1	14S/02E-17A02	1979	P400	Cable	351-505	N/A	Weils Utilized For Both Irrigation And Domestic Water Supply
DOM/IRR	15-1	135/02E-19Q03	1980	Deep S	Reverse	1280-1550	560	Walls Utilized For Both Irrigation And Domestic Water Supply
7	28-2	13\$/02E-31A02	1985	Deep	Rotary	850-1600	850	Wells Of Rotary Construction With Adequate Interguifer Seals
7	41-2	135/02E-32M02	1984	Deep	Rotary	780-1590	780	Wells Of Rotary Construction With Adequate Interguifar Seals
7		135/02E-33M50	1966	P400	Rotery	314-590	313	Wells Of Rotary Construction With Adequate Interquifer Seals
7	45-1	135/02E-33N04	1967	P400	Rotary	338-502	325	Wells Of Rotary Construction With Adequate Interguifer Seals
9	283-1	14S/02E-02H50	1991	Eastside	Rotary	330-630	260	Wells Completed in Eastside Aquifer
7	149-2	145/02E-03K02	1981	P400	Reverse	338-559	300	Wells Of Rotery Construction With Adequate Interguifer Seals
7	132-2	145/02E-04R02	1965	P400	Rotary	302-566	300	Wells Of Rotary Construction With Adequate Interguiller Seals
7	64-1	145/02E-06L01	1976	Deep	Rotary	880-1540	800	Wells Of Rotary Construction With Adequate Interquiter Seals
7	60.2	14S/02E-07A01	1974	P400	Rotery	390-600	385	Wells Of Rotary Construction With Adequate Interquifer Seals

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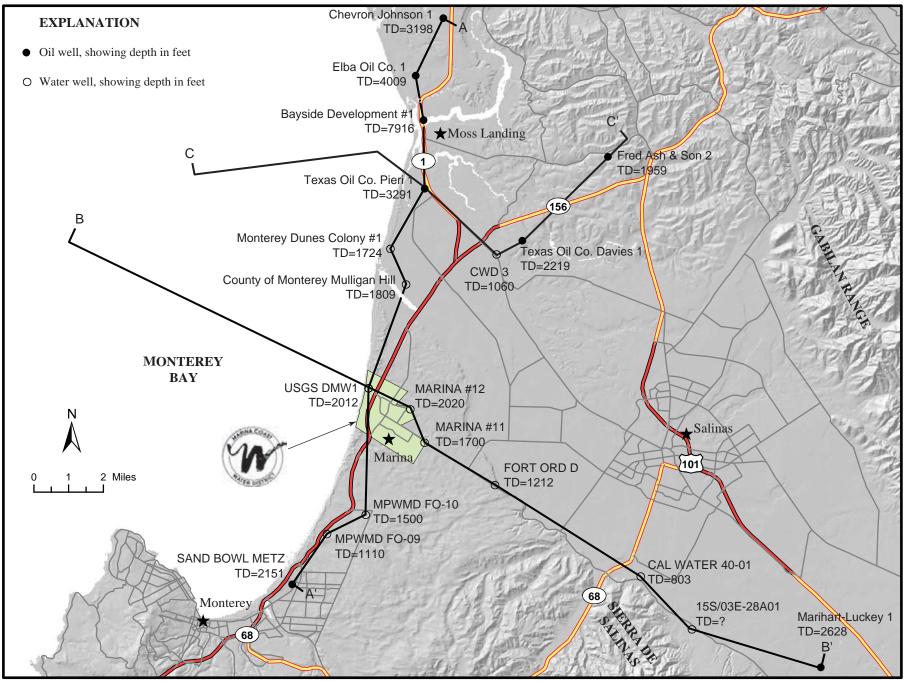
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DEST	WELL	WELL	YEAR	ADC	DRILL	PERF	SEAL	DESCRIPTION
7	70-2	14\$/02E-07L04	1983	P400	Reverse	360-560	330	Wells Of Rotary Construction With Adequate Interquifer Seals
7	131-1	14S/02E-10C01	1974	P400	Rotary	378-554	340	Wells Of Rotery Construction With Adequate Interguiter 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	145/02E-11C01	1990	P180	Cable	165-220	50	Wells Completed Only In The Shallow Or 180-foot Aquifer(s)
DOM/IRR	155-1	145/02E-11D01	1946	P180	Not Given	N/A	N/A	Wells Utilized For Both Irrigation And Domestic Water Supply
8	272-8	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	145/02E-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	95-290	N/A	Wells Completed Only In The Shallow Or 180-foot Aquiferis)
DOM/IRR	268-1	14\$/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-в	145/02E-14A02	1972	P180	Rotary	180-262	N/A	Wells Completed Only In The Shallow Or 180-foot Aquileris
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	552-828	52	CSIP Supplemental Wells
SUPP	231-2	145/02E-01C01	1981	EastSide	Reverse	350-591	300	CSIP Supplemental Wells
SUPP	258-2	14S/02E-01P50	1983	EastSide	Reverse	200-510	N/A	CSIP Supplemental Wells
SUPP	222-1	145/02E-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	145/02E-03R02	1992	P400	Cable	552-526	52	CSIP Supplemental Wells
7	95-1	14S/02E-04P50	1989	P400	Reverse	450-710	400	Walls 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	439-640	410	CSIP Supplemental Wells
SUPP	100-1	145/02E-10N61	1991	P400	Cable	416-558	300	CSIP Supplemental Wells
SUPP	167-2	14S/02E-11B01	1992	P400	Cable	466-546	52	CSIP Supplemental Wells
SUPP	158-3	145/02E-11M03	1990	P400	Rotary	400-660	380	CSIP Supplemental Wells
6	266-1	145/02E-12N51	1989	P400	Cable	502-597	52	Wells Of Cable Tool Construction Completed In 400-foot Aguifar
SUPP	273-3	14S/02E-14A01	N/A			N/A	N/A	CSIP Supplemental Walls
SUPP	125-4	145/02E-14L03	1990	P400	Reverse	382-512	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-15801	1982	P400	Cable	337-620	52	CSIP Supplemental Wells
SUPP	101-1	145/02E-15C02	1978	P400	Reverse	328-550	320	CSIP Supplemental Wells
SUPP	124-1	14S/02E-22B01	1991	P400	Rotary	410-670	385	CSIP Supplemental Wells
SUPP	106-2	145/02E-22L01	1991	P400	Rotary	420-680	400	CSIP Supplemental Wells
SUPP	95-3	NEW WELL						CSIP Supplemental Wells
SUPP	98-2	NEW WELL	1.11	1		1.	1000	CSIP Supplemental Wells
SUPP	122-3	NEW WELL						CSIP Supplemental Wells
SUPP	226-1	14\$/02E-02A02	1987	Easteide	Rotary	360-810	340	CSIP Supplemental Wells

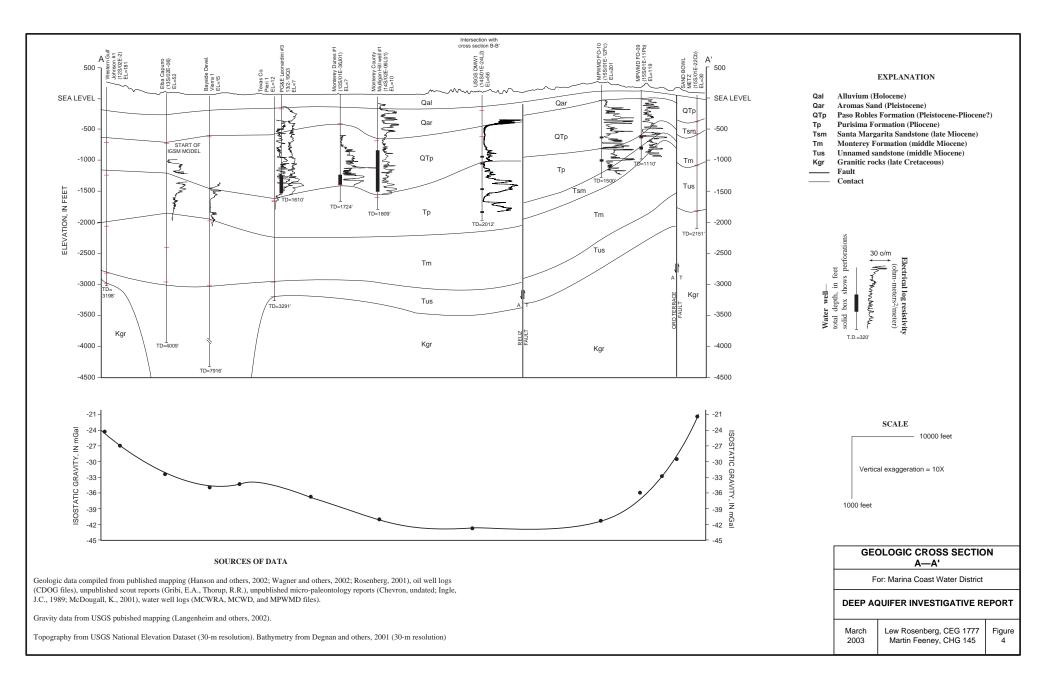
APPENDIX D

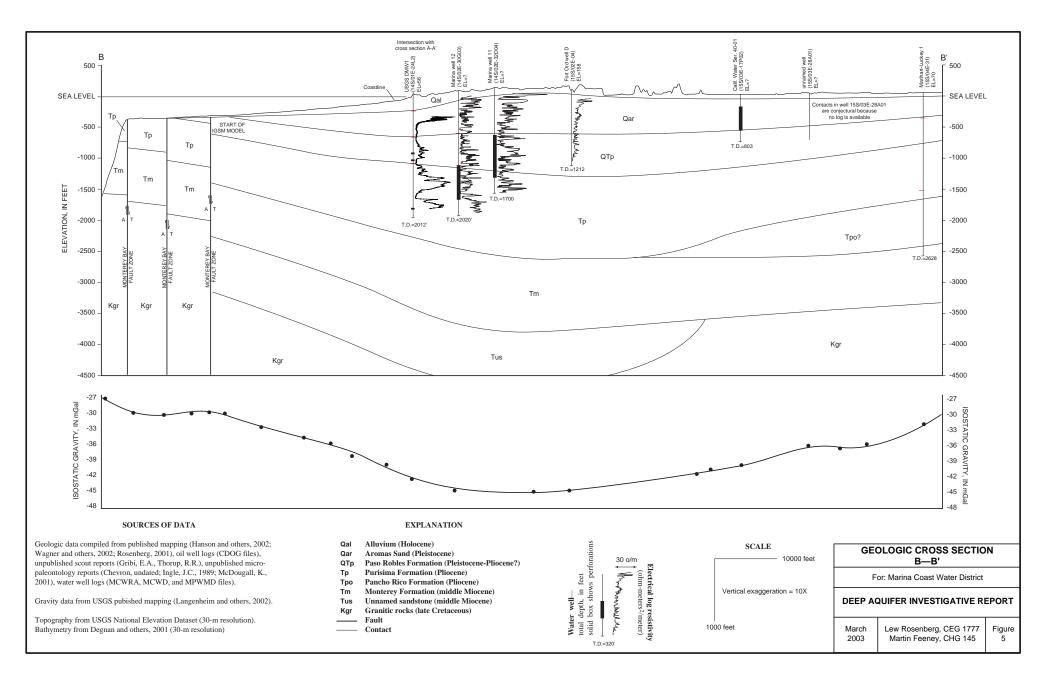
GEOLOGIC CROSS SECTIONS FROM FEENEY AND ROSENBERG (2003)

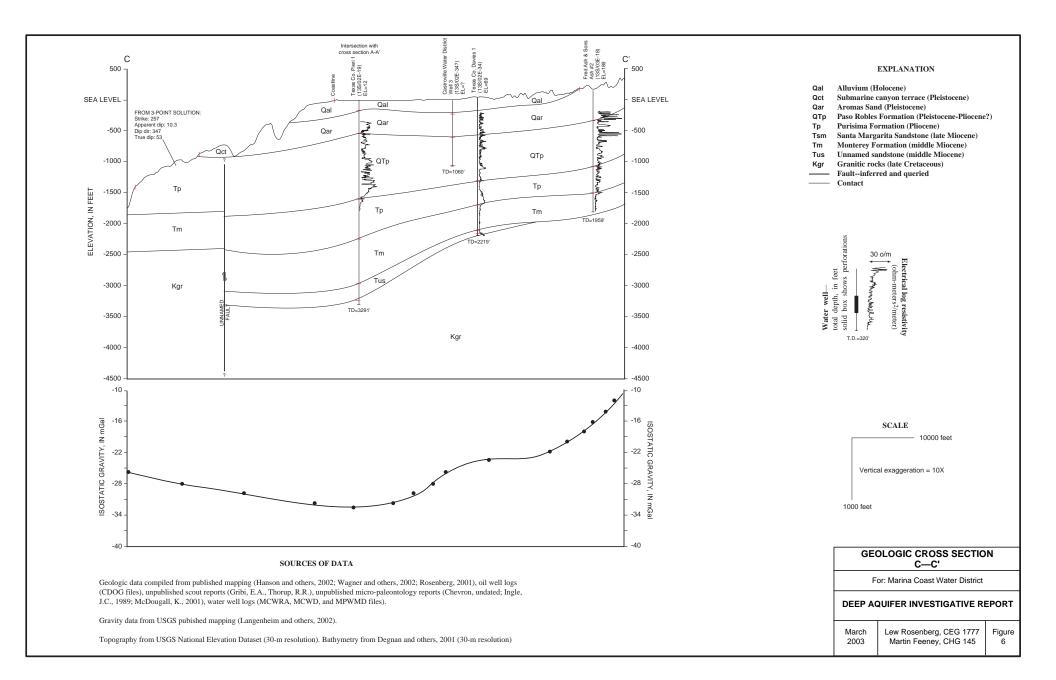


Base: USGS 30-meter National Elevation Dataset (2001)

Figure 3. Cross section location map







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APPENDIX E

Well Completion Reports for Wells in the Deep Aquifers

ORIGINAL File, with DWR Page 1 of 1 Owner's Well No.											10	I E	1-1-	
Date Work Began	1-1	7-9	2	-	. Ended	1-20-92	- 4	113	223	LATIT	JDE			LONGITUDE
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	1		19			100							MO	DIFICATION/REPAIR
	-													Deepen Other (Specify)
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		-	-	-				-					202	Procedures and Materia Under "GEOLOGIC LOG
				-				WEST				101	2 PL	ANNED USE(5) (∠)
	:	_	-					_≥				19	- 1	MONITORING
	1		_										WAT	TER SUPPLY
														X Domestic
			_	_									1	Irrigation
		_												Industrial
		_	_	_				-					1.	"TEST WELL"
				-				-		SOUTH				CATHODIC PROTEC
								such	as Roads, Bu	ibe Distance of Well fr ildings, Fences, Rivers, o CURATE & COMPLE	ntc.	lmarks	1_	TION OTHER (Specify)
1			-	-				DRILL	ING POTO	Potoru		oane		
1		_							- WATER	rse Rotary LEVEL & YIELI	OF	COMP	LETI	ED WELL
								DEPT	H OF STATIC	42 (Ft.) & C		EASIIDS	0 2	2-6-92
								ESTIN	MATED YIELD	• (GPM) &	TEST	TYPE	Cont	. flow
TOTAL DEPTH OF					And the second se					2_ (Hrs.) TOTAL DR				
TOTAL DEPTH OF	COMPLET	TED V	WEL.	ι.	1393(F	set)		* Ma	y not be repre	semative of a well's lo	ng-term	yield.		4 0 224
DEPTH				1		CASING(S)			DEATH	1	ANNU	LAR	MATERIAL
FROM SURFACE	BORE- HOLE		PE (4	1		1			DEPTH FROM SURFACE	-		131120	YPE
Ft. to Ft.	DIA. (Inches)	BLANK	SCREEN CON-	DUCTOR-	GRADE			ALL	SLOT SIZE IF ANY (Inches)	Ft. to Ft.		BEN TONITE (∠)		FILTER PACK (TYPE/SIZE)
0 80	36	11	3	4	steel	30				0 1250	x		<u></u>	
0 310	26	+	+	×	"	20				1250 1255	-	х		
0 : 300	18	x	-	+		8			(a.)	1255 : 1400	-	-		8 x 16
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ATTACH	MENTS) -	-			-	- CF	RTIFICA	TION STATEME	T -	<u> </u>	-	
_X Geologic _X Well Cons		aoram						this rep	ort is compl	ete and accurate to		st of my	/ know	rledge and belief.
Geophysic Soil/Wate	cal Log(s)	9			P.0	Layne-W PERSON, FIRM, OR 1 . Box 132				95776				
X_ Other V	icinit	y r	nap		ADORESS	Jumes	A	1	1-1	OIY	11- ATE SIGN	-5-93		219 510011 0.57 LICENSE NUMBER

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DWE INSREY 7:00 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

135/28-30NI 135/16-25RI

SAMPLE LOG - WELL NO. 3

Interval (Feet)	Description
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

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135/01 F-25ROI

Interval (Feet)	Description
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

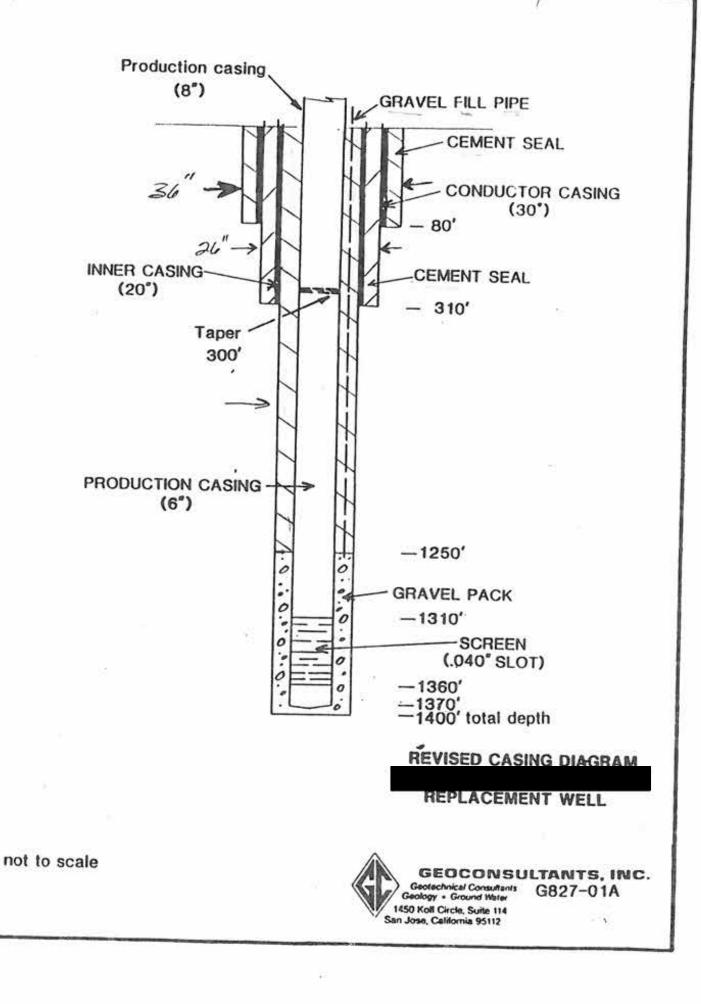
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135/0/F-25R01

Interval (Feet)	Description
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

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

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STATE OF SALIFORNIA HP DESCHIPTS AGENCY DEPARTMENT OF WATER RESOURCES

Destroyed 4-07-04 NS

ORIGINAL

File with DWR

WALLS MALL DRILLERS REPORT

Nº 111774

Do Not Fill In

Other Well Iso

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SKETCH LOCATION OF WELL ON REVERSE SIDE

1.3. 144

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tunis Z g	2004								
File with DWR RESOURCE PRO	TECTIONET T CONTRACT	CALIFORNIA	OWR IPSI	ONLY -	DO NOT FILL IN -				
		ETION REPORT	135/0	ATE WELL NO	316151012				
Owner's Well No. <u>#4</u> Date Work Began 01/24/04		e011049 - 7	1111						
LOCAL FEIRIT Agency Monto	TOU Dunner II ALL				LONGITUDE				
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and rock		Hausin	G-		ACTIVITY (=) -				
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	ay cse sand & gravel	WATER ACCU	RATE & COMPLETE	in the second se	OTHER (SPECIFY)				
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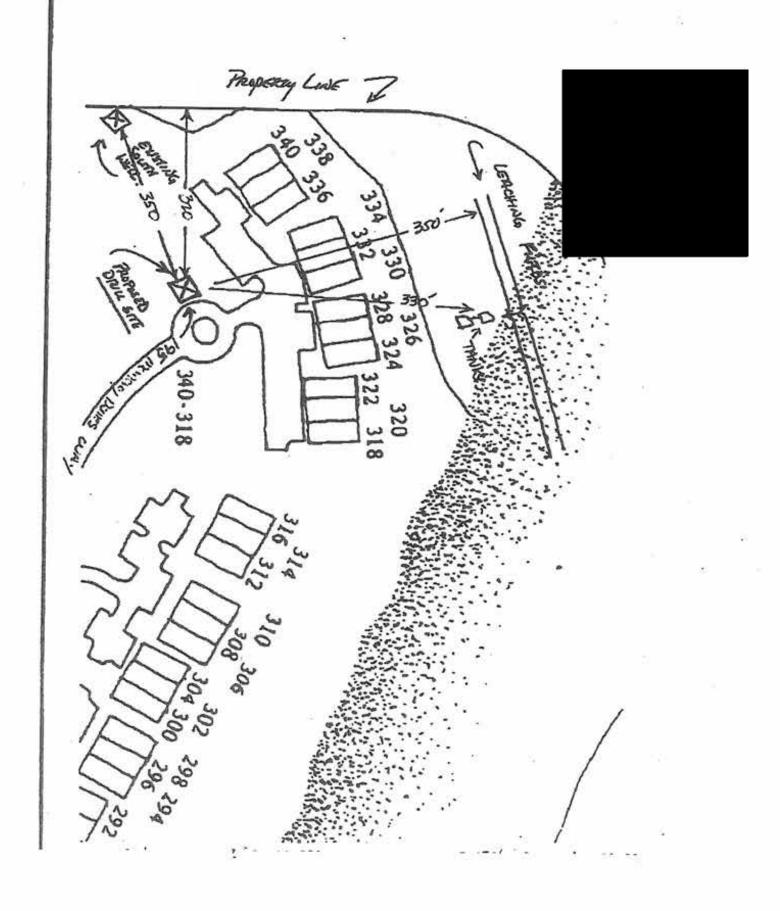
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Page 2 of 2						- 19 (Second Second	istruction P					OSTATI			
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			_	_		(inches)	THICKNES	5 (inches)	FL to FL	(≤)	(≤)	0.0000000	(TYPE/SIZE)		
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0 60 0 321 +2 1221 221 1301 301 1361 361 1364	28 18 18 18 18	XXX	x		304ss	and the second se							OXIO		
0 60 0 321 +2 1221 221 1301 301 1361	28 18 18 18 18	XXXXX	x		304ss 304ss 304ss	<u>8"</u>	XXHD . 322	- CERTIFIC/	TION STATEMENT						
0 60 0 321 +2 1221 1221 1301 301 1361 361 1364	28 18 18 18 18 18 MENTS	XXXX	x		304ss 304ss 304ss	8" 8" ersigned, ce	XXHD 322 ruly that this	- CERTIFIC/ s report is comple	TION STATEMENT	best of	l my kn				
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0 60 0 321 +2 1221 1221 1301 1301 1361 1361 1364 	28 18 18 18 18 MENTS Log struction D call Log(s)	lagra	x		304ss 304ss 304ss 1, the under NAME R PRBS	ersigned, ce cottma	XXHD .322 nuly that this n Dri ORPOSATION (- CERTIFIC/ s report is comple lling Co meto os PROTEDO	TION STATEMENT e and accurate to the	best of					
0 60 0 321 +2 1221 221 1301 301 1361 361 1364 ATTACH Geologic Weil Cone X_Geophyse	28 18 18 18 18 MENTS Log struction D	lagra	x		304ss 304ss 304ss 1, the under	ersigned, ce cottma	XXHD .322 nuly that this n Dri ORPOSATION (- CERTIFIC/ s report is comple	TION STATEMENT e and accurate to the	best of					

DWR 158 BEV, 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

135/PIE-36342



Owner's Copy

Intent No.

Locas remit No. or Date.

W-2612

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

Do not fill in No. 071658

State Well No. 135 2E-1903

Other Well No.

	Other Well No. 900 FT AD
	(12) WELL LOC. 1610
	(12) WELL LOG: Total depth 1610 ft. Depth of completed well 1562,
	from ft, to ft Formation (Describe by color, character, size or material)
(2) LOCATION OF WELL (See instructions):	12 - 22 Sandy Clay
Owner's Well Number #2	22 - 36 Sand & Gravel
Well address if different from above	36 - 39 Yellow Clay
Township 135 Range 2E Section	39 - 60 Fine Sand W/Bock
Distance from cities, roads, railroads, fences, etc. 0.25 mile west of ict	60 - 70 Blue Sandy Clay
of Molera Rd. & Hey. 1., 200' ENE of	70 - 83 Blue Clay
Leonardini #2.	83 - 131 Sand Gravel & Rock
the second se	131 - 220 Yellow & Blue Clay
(3) TYPE OF WORK:	
New Well XX Deepening	
	315 412 Blue Sandy Clay
	412 - 433 Sand wellay
Reconditioning ·	4433 - 975 Blow Saledy Clay ? To stol
New Well N Destruction (Describe	975 - 1095 Sand Gravel & Rock
	10950 - 1142 Drup Sandy Chay
Leonardini II destruction materials and procedures in Item 12	1142 - 1155 Clay Blue
#3 7 \s (4) PROPOSED WE	1155 - NYO Sand & Shate)
Domestic Interation	1170 - 1195 Blue Flax
RA Irrigation	1170 1195 Blue Flay
Alrandoned leie kn - Industrial - II Nole kn - Industrial Test Well	1195 - 1247 Sand & Blue Clay 1247 1295 Blue Clay 1295 - 1308 Sand & Blue Clay
Test Well	1295) - 1308 Sand & Blue Clay
site tot	1300 1313 Oct at at
	1308 - 1317 Sandy Blue Clay
Municipal Q	1317 - 1380 Sand Shale, Blue Clay
WELL LOCATION SKETCH Other	1380 - 1995 Sandy Blue Clay
(5) EQUIPMENT: (6) GRAVED PACK:	1395 - 1475 Sand, Shale, Rock good
Rotary D Reverse D Nes D No Size 12 1 20	145 -1488 Sandy Blue Clay
Cable Air Despiter of bore 28	(488) - 1500 Sand & Clay
Other D Bucket D Recked from 1190' 10 1610 a	1500 - 1519 Fine Sand & Clay
(7) CASING INSTALLED	1519 - 1610 Fine Sandy Clay
Steel D Plastic D Concepter Type of perforation or vize of screen	
From To Dia. Gage or From To Slot size	
	the second s
	- Current and a second se
566 1220 12 11 1200 1550	÷ 1550
1250 1262 12 11	- (1562
9) WELL SEAL:	Construction of the second
Was surface sanitary seal provided? Yes X No 🗆 If yes, to depth 170 ft.	
Were strata sealed against pollution? Yes 🕅 No 🗆 Intervalft.	-
Method of sealing Concreta 560' to 600' & 1080' to 1190	Work started 10 Feb. 1980 Completed 2 May 1980
(10) WATER LEVELS: 18 ¹	WELL DRILLER'S STATEMENT:
The second s	This well was drilled under my jugisdiction and entire oport is true to the pest of my
	Court I line to
(11) WELL TESTS: Was well test made? Yes X No I If yes, by whom? Luhdorff	SIGNED
Type of test Pump 🗙 Bailer 🗌 Air lift 🗍	NEME. Luhdorff Co./DIV. of Layne-Western Co., In
Donth to water at start of test +1.5 ft. At end of test 233.8 ft	
e 1500 gal/min after 24 hours Water temperature 92°F	Address P.O. Box 1326, 275 Co. Rd. 98
Lormical analysis made? Yes X No I If yes, by whom? P.G. & E.	City_ Woodland, CA zin 95695
Was electric log made? Yes No I If yes, by whom? rade of Ea	334205 5-20-80
tes up to i it yes, attach copy to this report	License NoDate of this reportDate

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED. USE NEXT CONSECUTIVELY NUMBERED FORM

)R	IG	IN	AI	1

ile with DWR

of Intent No. 3628 Ren Permit No. or Date_

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

135/2E-3/AZ 2. Do not fill in No. 064000 State Well Not RIAZ Other Well No.

	-	from ft to the Section of Completed well 1600
	_	The romation (Describe by color, character size or motion)
	- cop	S DIACK LOP SOIL
2) LOCATION OF WELL (See instruction	ions):	3 - 8 Sandy yellow clay
		8 - 40 brown clay
'ell address if different from above		40 - 79 soft blue caly
winship Castrovilkenge	Section	79 - 95 fine sand
istance from cities, roads, railroads, fences, etc.		95 - 121 soft blue clay & sand
		121 - 142 fine sand
		tare band & pea gravel
/	(3) TYPE OF WORK:	tan citay a salla
	New Well Deepening	
	10 A A A A A A A A A A A A A A A A A A A	Jone Jone City
	Presentation	too Sand
		La ha
.10	Horizontal Well	- 490 grave, coarse sand
	Destruction [] (Describe destruction materials and	490 - 578 gravel & coarse sand, sktYel c
N I	procedures in Item 12	JIOV - JOH VELIOW CLAVS
2	(4) PROPOSED LE	584 - 645 coarse sand colored
man	Domestic	645 - 650 coarse sand & red clay
- 2	Irrigation	656 - 705 coarse sand, yellow & gravel
1 Mass	Industrial /// Initiation	705 790 sandy vellow & blue clay
1 51.	Test Well	290 - 894 yellow clay skts blue clay
- 1111 10. 1 3	Stock	ALL CIAY
MWW	Municipal	A A A A A A A A A A A A A A A A A A A
		950 QBABLUE & vellow clay
EQUIPMENT: (6) GRAVED P	Other	- CIAV
in the second se	EVAN DOM	a serie oraș a seriow abrin
	267 \\)	1030 1092 Blue clay & fine blk sand
	50 1600	(AXA) 1114 Coarse sand & fine aand
- Hites	11 10	114 -1180 blk fine sand & blue clay
CASING INSTALLED: (8) PERFORA	TONS:	die 1270 blue clay & fine cand on around
el A Plastic Concepter Type of per an		and since clay & line sand, sm grave
the a bellered	on or size of screen	1312 Dive clay & blk sand
From To Dia. Case or From	ion or are of screen	1312 1334 blk sand & blue clay sm gravel
from To Dia. Gage or From ft. ft in. Wall ft		1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand
From To Dia. Captor From ft. ft Din. Wall ft. 0 400 16 3/8 850	To Stor	1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand
from To Dia. Cautor From ft. ft Dia. Wall ft 0 400 16 3/8 850	To ft. 1/600 332	1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay
From To Dia. Captor From ft. ft Din. Wall ft. 0 400 16 3/8 850	To Star	1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay
From ft. To ft Dia. in. Care Wall From ft 0 400 16 3/8 850 00 1600 12 5/16 16	To Sky It. Size 1/600.332	1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay
From To Dia. Care From ft. ft Dia. Care From Wall ft 0 400 16 3/8 850 00 1600 12 5/16 WELL SEAL:	To Sign ft. Sign 1/600 332	1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay 1532 1635 blue & wht clay & blk sand
From To Dia. Care or From ft. ft in. Wall ft 0 400 16 3/8 850 00 1600 12 5/16 WELL SEAL: a surface sanitary seal provided? Yes No 🗆 If	To Sign ft. Sign 1/600 332	1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay 1532 1635 blue & wht clay & blk sand
From To Dia. Care or From ft. ft Dia. Care or From ft. gradient ft Dia. Care or From Wall ft Dia. Care or From ft Dia. Care or From Wall ft Dia. Care or From ft Dia. Care o	To Sign ft. Sign 1/600 332	1312 1312 blue clay & blk sand 1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay 1532 1635 blue & wht clay & blk sand
From To Dia. Care or From ft. ft in. Wall ft 0 400 16 3/8 850 00 1600 12 5/16 WELL SEAL: s surface sanitary seal provided? Yes No I If re strata sealed against pollution? Yes No I thod of sealing CODCRETE	To Sign ft. Sign 1/600 332	1312 1312 1312 blue clay & blk sand 1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay 1532 1635 blue & wht clay & blk sand - -
From To Dia. Care or From ft. ft Dia. Care or From ft. ft Dia. Care or From Wall ft 0 400 10 3/8 850 00 1600 12 5/16 WELL SEAL: a surface sanitary seal provided? Yes No I If the strata sealed against pollution? Yes No I If thod of sealing CONCRETE 0) WATER LEVELS: 4"	To Sign ft. Sign 1/600 332	1312 1312 bile
From To Dia. Care or From ft. ft Dia. Care or From ft. ft Dia. Care or From Wall ft 0 400 10 3/8 850 00 1600 12 5/16 WELL SEAL: a surface sanitary seal provided? Yes No I If the strata scaled against pollution? Yes I No I If the strata scaled against pollution? Yes I No I the strata scaled again scaled again strata scaled again strata scaled again scaled again strata scaled again strata scaled again scaled	To Sign ft. Sign 1/600 332	1312 1312 1312 blue clay & blk sand 1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay 1532 1635 blue & wht clay & blk sand - -
From To Dia. Care or From ft. ft Dia. Care or From ft. ft Dia. Care or From Wall ft 0 400 10 3/8 850 00 1600 12 5/16 WELL SEAL: a surface sanitary seal provided? Yes No I If or strata scaled against pollution? Yes No I If thod of sealing COncrete 0) WATER LEVELS: 4 pub of first water, if known 267 nding level after well completion 267 1) WELL TESTS:	t yes, to depth 850 ft. http://www.interval0=850 ft. http://wwww.interval0=850 ft. http://www.interval0=850 ft. http://www	1312 1334 blk sand & blue clay, sm gravel 1312 1334 blk sand & blue clay, sm gravel 1334 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay 1532 1635 blue & wht clay & blk sand
From To Dia. Carge From ft. ft Dia. Carge From ft. ft Dia. Carge From Wall ft 0 408 16 3/8 850 00 1600 12 5/16 WELL SEAL: Well SEAL	To ft. Sign 1/600 332 1/600 332 1/600 332 1/600 520 ft. Sign 1/600 532 ft. Sign 1/600 520 ft. Sign 1/600 ft. S	1312 1312 Diffee Clay & bik sand 1312 1334 bik sand & bige clay, sm gravel 1334 1422 big clay & bik sand 1422 1420 red coarse sand 1422 1450 red coarse sand 1450 1532 bik sand & big clay 1532 1635 big wht clay & bik sand
From To Dia. Cetal or From ft. ft Dia. Cetal or From ft. ft Dia. Cetal or From Wall ft 0 400 10 3/8 850 00 1600 2 5/16) WELL SEAL: as surface sanitary seal provided? Yes No I H ft Dia State of Sealing Concrete 0) WATER LEVELS: pth of first water, if known difference nding level after well completion 26' 1) WELL TESTS; s well test made? Yes No I H yes, by we pe of test Pump R 26' 10 10 11 1	To ft. Sign 1/600 332 1/600 332 1/600 332 1/600 512 1/600 51	1312 1312 Difference Difference <td< td=""></td<>
From To Dia. Construct from fit. To Dia. Construct from fit. To Dia. Construct from fit. The fit wall fit. The fit wall fit wall fit. The fit wall fit wall fit wall fit wall fit wall fit. The fit wall fit wall fit wall fit. The fit wall fit wall fit. The fit wall fit wall fit wall fit wall fit. The fit wall fit wall fit wall fit wall fit. The fit wall	To ft. Sign 1/600 332 1/600 332 1/600 332 1/600 332 1/600 50 ft. Interval 0=850 ft. ft. ft. Sign 1/600 ft. Interval 0=850 ft. ft. ft. Sign 1/600 ft. ft. ft. Sign 1/600 ft. ft. ft. Sign ft. ft. ft. Sign ft. ft. ft. ft. ft. ft. ft. ft.	1312 1312 Difference Difference <td< td=""></td<>
From To Dia. Construct From ft. ft. in. Wall ft. 0 400 16 3/8 850 400 1600 2 5/16) WELL SEAL: as surface sanitary seal provided? Yes No I H ere strata scaled against pollution? Yes No I H ph of first water, if known 26' s well test made? Yes No I H yes, by w pe of test Pump X Yes Bailer I pth to water at start of test 26' ft. A re 3000 gal/min after 48 hours	To ft. J600. 332 t yes, to depth 850 ft. Interval 7850 ft. Interval 7850 ft. ft. kt end of test ft Water temperature Warm	1312 1312 Difference Difference Difference 1312 1334 Difference Difference Difference Difference 1334 1422 Difference Difference Difference Difference Difference 1334 1422 Difference Differe Differe
From ft. To ft Dia. (Nall Construct From ft 0 400 16 3/8 850 400 1600 12 5/16 as surface sanitary seal provided? Yes No 16 0) WELL SEAL: as surface sanitary seal provided? Yes No 16 as surface sanitary seal provided? Yes No 16 16 16 0) WELL SEAL: as surface sanitary seal provided? Yes No 16 ere strata scaled against pollution? Yes No 16 0) WATER LEVELS: 4* 9 No 16 0) WATER LEVELS: 4* 9 16 16 17 1) WELL TESTS; as well test made? Yes No 16 yes, by w 16 pth to, water at start of test 26* ft. A	To ft. To ft. J600. 332. 1/600. 332. 1/600. 332. 1/600. 332. 1/600. 332. 1/600. 332. 1/600. 332. 1/600. 332. 1/600. 1/600. 332. ft. Interval 0-850. ft. ft. ft. Interval 0-850. ft. ft. ft. Market ft. ft. ft. ft. ft. ft. ft. ft.	2270 1312 blue clay & blk sand 1312 1334 blk sand & blk sand 1334 1422 blue clay & blk sand 1334 1422 blue clay & blk sand 1422 1422 blue clay & blk sand 1422 1450 red coarse sand 1450 1532 blk sand & blue clay 1532 1635 blue & wht clay & blk sand

6.

TRIPLICATE Owner's Copy

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

Do not fill in

No. 176635

nit No. or Date_____

State Well No. 185/2E-32E5 Other Well No.____

	(12) WELL LOG: Total depth 1650 it. Depth of completed weil 1605
	from ft. to ft. Formation (Describe by color, character, size or material)
	-O 4 Black top soll
LOCATION OF WELL (See instructions):	4 - 60 Sandy brown clay
Monterey County Owner's Well Number	60 - 70 Clay
Il address if different from above	70 - 90 Sand
wnahip 13S Range_2E Section 32E	90 - 115 Clay
tance from cities, roads, railroads, fences, etc	115 - 140 Graval & Soud
1 mile northwest of Molera Rd., 1/2 mile nor	th 140 - 150 Clay
east in field	150 - 180 Sand
	180 - 245 Sandy clay
(3) TYPE OF WOR	K: 245 7290 Gravel (large) & sand mix
New WellXX Deepening	290 -310 Clay
Reconstruction	0 310 - 340 Sand & Gravel
Reconditioning	340 - 410 Sandy clay
Horizontal Well	D 410 - 425 Sand & Gravel
Describe	405 _ 440 Elou
destruction materials and procedures in Item 12)	440 - 485 Sand & Gravel
(4) PROPOSED USE	
Dumestic	and the second sec
Meconstruction Reconditioning Horizontal Well Destruction III (Describe destruction materials and procedures in Item 12) IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	July July Sailo
Industrial Industrial	100 Clay WILL Sallo SLICaks
Test Well	
Stock	200 Diay with occassional sand strea
	Q 960 - 975 Sand
	975 - 1105 Clay
Monterey	1115 - 1430 Clay with some sand streaks
W GALGEE HILL B AND BUILD TO	1430 1460 Sand
	1460,0 - 1470 Clay
	1470 - 1530 Sand
CASING INSTALLED: (8) PERFORATIONS: 6 5/8X1/4	
Re Plastic Concrete [] Type of perforation or size of screen No.	11 1540 - 1570 Sand
rom To Dia Gage or From To Slot	1570 - 1650 Clay
ft. ft. Sin. Wall ft. ft. size	
- 120 8x3/16 775 1585 050-06	<u>is </u>
0 123= B-6"reducer	
3 775 6"	
WELL SEAL casing cont; 1585'- 1605'Plain	
winace semiarly sear provided? Tes in two in the to depth. 155-	.ft
e strata sealed against pollution? Yes 🗌 No 🗍 Interval	_tt
hod of sealing Cement	Work started 8-10 1984 Completed 10-15- 19.84
) WATER LEVELS: th of first water, if known	WELL DRILLER'S STATEMENT:
ding level after well completion	.tt. This well was drilled under my jurisdiction and this report it true to the best of a knowledge and belief.
) WELL TESTS:	
s well test made? Yes D No D If yes, by whom?	(Well Driller)
e of test Pump D Bailer D Air lift D	NAME EATON DRILLING CO
oth to water at start of testft. At ead of test	_ft (Person, firm, or corporation) (Typed or printed)
gegal/min afterhours Water temperature	Address P.O. BOX, 975
analysis made? Yes No I If yes, by whom?	City City CA Zip \$5595
ectric log made? Yes [] No [] If yes, attach copy to this report	License No133783 C57 Date of this report 11-15-84

JWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED. USE NEXT CONSECUTIVELY NUMBERED FORM

DRIGHA AL

N L

File with DWR

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

900'A,

CAVGC/MRRP O'A. Do not fill in NO. 225551 State Well No. <u>135/26-32M</u>2

of Intent No.

N. of Intent No WITH LAR WELLE DI	Other Well No.
	(12) WELL LOG: Total depthft Depth of completed wellft.
	from ft to ft. Formation (Describe by color, character, size or material)
	0 - 75 Blue
	75 - 90 Sand & gravel
(2) LOCATION OF WELL (See instructions):	A
CountyOwner's Well Number	
Well address if different from above	115 - 120 Sand
TownshipRangeSection	120 - 124 Wood
Distance from cities, roads, railroads, fences, etc	124 - 145 Sand & gravel
	145 - 154 Blue Lay
	\$154 - 21 Sand Sgravel & boulders
	211 - 260 Clay brown, hard
(3) TYPE OF WORK:	260 289 Brown sandy clay
New Well K Deepening	289 295 Cemented cobbles & sand
Reconstruction	295 - 308 Sticky an & gray clay
Peconstruction □ Reconstruction □ Reconstruction □ Reconstruction □	308 - 321 Sandy brown clay with some gravel
I DODIZODILI WED	1 - 337 Style lay & shale, some br. clay
	202 - 342 Companied sant gravel
1 mi. destruction materials achi procedures in Item Ma	
	342 - 350 Brown sandy clay 350 352 Brown stack clay
Highway Domestic	
Industrial D	441 Sticky gray clay
Tee Well	44 - 540 Sand & gravel, streaks white clay
Castroville Stock	940 - 570 Say & small gravel
Castroville / Municipal	570 - 620 Coarse sand
WELL LOCATION SKETCH Other	620 - 655 Reddish brown sandy clay
(5) EQUIPMENT: (6) CRAVEL PACK:	665 740 Tan & gray sticky clay
Rotary DF Revene D No B Sizes 0010	760 Blue clay
790 1630	765 - 765 Sticky gray clay 765 - 780 Tan clay
Unier D Ducker D The The The	V VV
A REAL FINGE	
From To Dia. Cage or From To Sha	847 - 962 Blue clay
ft. ft. Vin. Wall ft. It. size	962 - 980 Sand & gravel
0 400 18 5/16 780 1590 060	980 -1020 Blue clay
400 780 12 "	1020 -1050 Streaks of sand, gravel & bl. clay
1590 1610 12 "	1050 -1068 Sand & gravel
(9) WELL SEAL:	1068 -1102 Blue clay
Was surface sanitary seal provided? Yes S No D If yes, to depth 780! ft.	1102 -1150 Hard cemented sand & gravel
Were strata sealed against pollution? Yes D No D Intervalft.	1150 -1160 Blue sandy clay
Method of sealing Cement grout	Work started 19 Completed 19
(10) WATER LEVELS:	WELL DRILLER'S STATEMENT:
Depth of first water, if known 19	This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Standing level after weil comparison	and the town
(11) WELL TESTS:	SIGNED (Well Driller)
Was well test made? Yes No I if yes, by whom? Type of test Pamp Bailer Air lift [NAME Cofferdam Unwatering Corporation
I' to water at start of tast 19 ft. At end of test 190 ft	(Parson, firm, or corporation) (Typed or printed)
pr - 2260 gal/min after 3 hours Water temperature	Address 3362 Fitzgerald Road
(al analysis made? Yes [] No @ If yes, by whom?	Chy Rancho Cordova, California 240 95670
Wa electric log made? Yes B No I If yes, attach copy to this report	License No. 292555 Date of this report 12-5-84
	EXT CONSECUTIVELY NUMBERED FORM

	AL
/th	<i>LWR</i>

3.

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

Do not fill in

No. 225552

		1201	105	-20
tate Well	No	1221	60	-26

J of Intent No WATE	WELL DRILLERS REPORT State Well No. 135/2E-32.M2
.s. Permit No. or Date	Other Well No
WNER: Name_	18) WELL LOC
	(12) WELL LOG: Total depthft. Depth of completed wellft.
Address	from ft to ft. Formation (Describe by color, character, size or material)
	Zip 1160- 1172 Hard cemented sand & gravel
(2) LOCATION OF WELL (See instructions):	1172-1195 Blue clay
CountyOwner's Well Number	
Well address if different from above	1220- 1282 Blue sandy clay
TownshipRangeSection	1282-1340 Hard shale, Streaks of sand &
Distance from cities, roads, railroads, fences, etc	- gravel
	1340-1353 Blue lay
	1353-135% Cemented sand & gravel
	1357-1360 Blue clay
2011 798385	S OF WORK: 1360 1517 Semented sand & gravel, streaks
New Well	Deepening O of shale
Reconstruc	
Reconditio	
Horizontal	Well - Rand gravel
Destruction	D (Describe
destruction procedures	a item 14
(4) PRC	POSED NOR - CO
Domestic	- US AV AS
Irrigation	a 1- 4 . 02 4
Industrial	III a OFA NO
Tehu Well	
Stock	
- Municiph	a la color
WELL LOCATION SKETCH Other	
5) EQUIPMENT: (6) GRAVED PACK:	all the
lotary 🗆 Reverse 🗌 No 🖉 Size	H) () ()
able Air Changer of bore	
ther D Bucket D Redeodrom	n
7) CASING INSTALLED	10 -
teel D Plastic D Concrete Type of performance or wize	I Kreep
From To Dia. Greeor From To	
ft. ft vin. Wall ft ft.	(size -
	-
	-
9) WELL SEAL:	
Vas surface sanitary seal provided? Yes 🗌 No 🖂 If yes, to d	pthft
Vere strata sealed against pollution? Yes 🗋 No 🗋 Interva	
lethod of scaling	Work started 19 Completed 19
10) WATER LEVELS:	WELL DRILLER'S STATEMENT:
lepth of first water, if known	ft. This well was drilled under my jurisdiction and this smooth in true to the best of mu
tanding level after well completion	h. knowledge end bouer.
11) WELL TESTS: Vas well test made? Yes No I If yes, by whom?	SIGNED (Well Defiller)
	MAC NAME
to water at start of testft. At end of	testft (Person, firm, or corporation) (Typed or printed)
be unin after hours Water ten	persture
1. al analysis made? Yes O No O If yes, by whom?	City Zip
Ver 'ric log made? Yes No If yes, attach copy to	is report License NoDate of this report

IF ADDITIONAL SPACE IS NEEDED. USE NEXT CONSECUTIVELY NUMBERED FORM -8 (REV. 7-76)

RIGINAL

File with DWR

of Intent No.___

Bernait No. or Date W-2189

THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES WATER WELL DRILLERS REPORT

Do not fill in No. 232071 State Well No. 135/25-34M

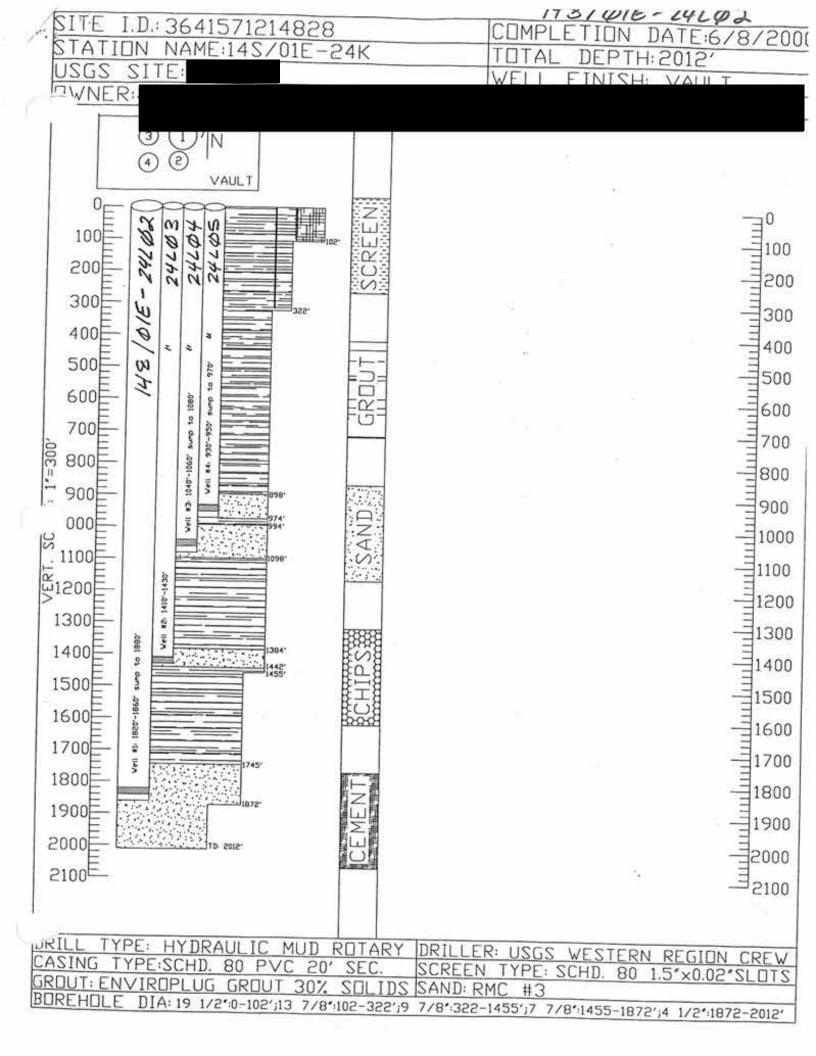
email No. of Date_W-2189	Other Well No. 135/2E-34
(1) OWNER: N	
Address	(12) WELL LOG: Total depth 645 ft. Depth of completed well 630
City	to it. Formation (Describe by color, character, size or material)
(2) LOCATION OF WELL (See instructions):	s stary
CountyOwner's Well Number30-262-05	o ou onnu
Well address if different from above	concernation and the second se
T	85 - 115 Coarse Sand
Pistance from cities, roads, railroads, fences, etcSection	115 - 175 Coarse Sand Clay
Corner of Railroad Ave & Hwy 183	175 - 325 Coarse Sand
younda of the store a nwy 103	325 - 370 Coarse Sand & Gray Clay
.20	370 490 Gravelo
(3) TYPE OF WORK:	490 - 505 Gravel & Clay
New Well 2 Deepening	Las ver sravel 2
Reconstruction	565 -580 Clay
Reconditioning Horizontal Well Destruction (Describe destruction materials and	
Horizontal Well	
Destruction (Describe destruction materials and	625 -645 Sand & Clay
File Procedures in item 122	V - 6
W E (4) PROPOSED DEE	Test Hole Porton Continued
Domestic	645 -655 Sand
Jerrigation	
AE Industrial	The second second second second
FH Test. Well	A DIAVEL
A HE Stock 15	(11) (termine order)
S Municipal	Cidy
WELL LOCATION SECTOR	in the second seco
DEQUIPMENT: (6) GRAVEL PACK:	Con bide ciay & Gravel
stary 2 Reverse 2 Yes 2 No B Size # Sand	880 5910 Blue Clay & Sand
able D Air D Disenter of bore 28%	910 955 Sandy Clay
her D Bucket D Packed from 350 to 630 ft	(955) 965 Hard Sandstone
) CASING INSTALLED: (8) PERFORATIONS:	The Bille Clay & Sand
rel 19 Plastic O Concrete Type of performance of Steel Type 304	970 -985 Brown & Blue Sand
	Data And Data Rock & Sand
From To Dia. Gage-of From To Slot	1000 1060 Brown Sandy Clay & Hard Rock
	and the second
	· · · · · · · · · · · · · · · · · · ·
50 510 16 310 3/0 450 50	· · · · · · · · · · · · · · · · · · ·
18 538 12 316 340 340 1.50	
WELL ⁶ SEAL: 16 .312 590 610 .50	
is surface sanitary seal provided? Yes 🖾 No 🗆 If yes, to depth60_ft.	2 C
ere strata sealed against pollution? Yes XX No D Interval_0=350_ft.	· · · · · · · · · · · · · · · · · · ·
thod of sealing Pumped Grout Seal	Work started 6-28 19.82 Completed 7-9 1982
0) WATER LEVELS: pth of first water, if knownft	WELL DRILLER'S STATEMENT:
inding level after well completion ft.	This well way drilled under my jurisdiction and this report is true to the best of m
1) WELL TESTS:	
as well test made? Yes XX No C If yes he whom Maggin own Dreed	SIGNED / Well Drgler)
as well test made? Yes XX No I If yes, by whom? <u>Maggiora Bros</u> pe of test Pump XY Bailer Air bift I See Attached Report Bailer Air bift I auth to water at start of test ft. At end of test ft.	NAME Maggiora Bros Ded 114
with to water at start of testft. At end of testft	(Person, firm, or corpditation) (Typed or printed)
V Re gal/min afterhours Water temperature	Address 595 Airport Boulevard
al analysis made? Yes X 1 No 1 If yes, by whom? Soil Control	CityWatsonville, CAZip_ 95076
electric log made? Yes No D If yes, attach copy to this report	License No. C-57-249957 Date of this report Sept -29 100

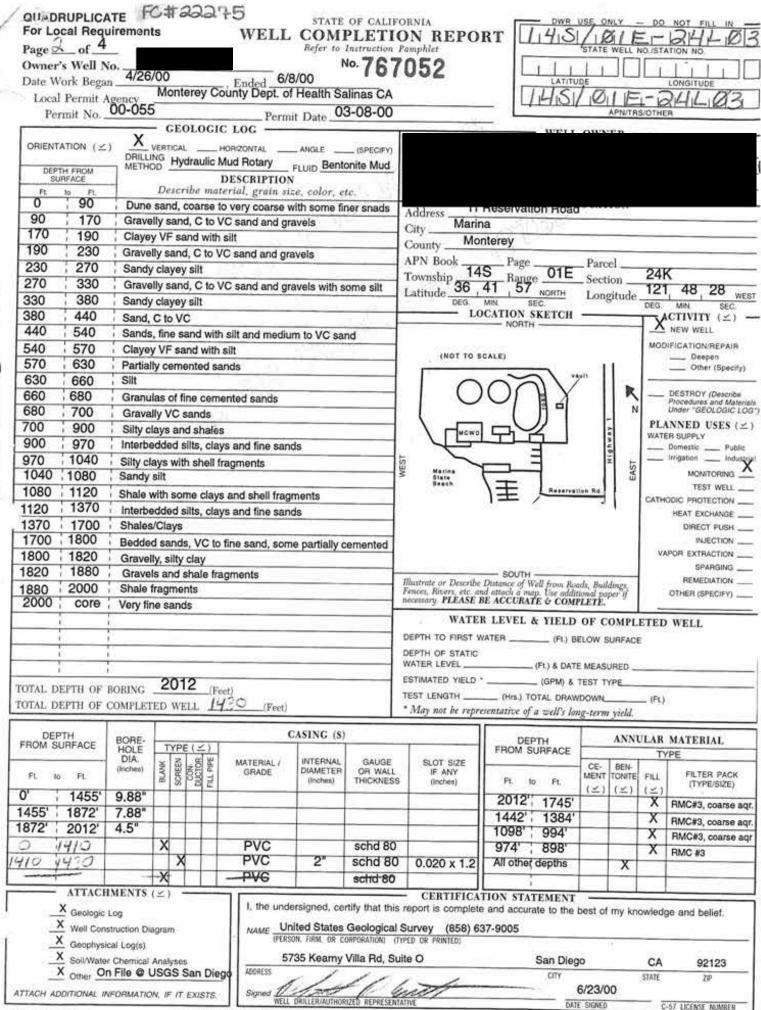
DWR 188 (REV. 7.76) IF ADDITIONAL SPACE IS NEEDED. USE NEXT CONSECUTIVELY NUMBERED FORM

Date W	's Well N Vork Bega	n 4/26/0	00 Mont	erev Cr	Ended 6/8/	N 00	Instruction 1 Io. 767			LI I			LONGITUDE
Loca	l Permit A rmit No. (Igener.	with the	city of		it Date 03				101	APN/TRS		the local distance of
		Tarar	G	EOLOG	IC LOG				WELL	OWN	E.D		
ORIENT	TATION (VERTIC		HORIZONTAL	13420.000	(SPECIFY)						
	TH FROM	METHO	DO HY	draunc N	Mud Rotary DESCRIPTION	FLUIDBentor	nite Mud						
PL SI	to Ft.	-	Des	cribe m	sterial, grain siz	ze, color, e	ic.						
0	90	Dune s			o very coarse wit	a state of the sta	and the second se	Address11 F	leservation Road	00.11	10.1		
90	170	and the second s	Sector Se	And the Party of t	/C sand and grav	vels	1991	CityMarina					
170	190		the second second	and with	the second	10-00		County Mon	terey				
190	230	-			/C sand and grav	vels		APN Book	Page	Parce	el		
230	270	Sandy	ALC: NO. OF COMPANY	and the second se				Township 145	S_Range 01E	Secti		24K	and the second sec
270	330			the second se	/C sand and grav	vels with so	me silt	Lautude	1 57 NORTH	Long	itude .	121	48 28
330	380	Sandy	2010/01/02					DEG.	MIN. SEC. CATION SKETCH		10000	DEG.	MIN. SE
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	540		the lot of	CONTRACTOR OF THE OWNER OWNER OF THE OWNER	n silt and medium	to VC san	d					MOD	FICATION/REPA
540 570	630	Partially		and with	the second se	6.00		(NOT TO SC	ALE)	101			Deepen Other (Spe
630	660	Silt	cem	ented sa	ands				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0	100	-	- Course Cable
660	680	1	ho at	fine com	ented sands			()	ONY	1	R	-	DESTROY (Desc Procedures and M
680	700	Gravall			ented sands						Ν		Under "GEOLOG
700	900			nd shale	e					7		10.000	ANNED USES
900	970		-	the second se	ys and fine sand	s			TIGU	1.41			Domestic F
970	1040	-			ragments			Marine T	=	HIG	ta	-	Irrigation I
1040	1080	Sandy s			agnene			01818			EAST		MONITORIN
1080	1120	Shale w	ith so	me clav	s and shell fragm	nents		Reach)主 人	n Rd.		CATH	TEST WEL
120	1370				ys and fine sand				/		,		HEAT EXCHANG
1370	1700	Shales/											DIRECT PUS
1700	1800	Bedded	sand	ds, VC to	fine sand, some	partially ce	emented					1.03	INJECTIO
1800	1820	Gravel										v/	APOR EXTRACTIO SPARGIN
1820	1880	Gravels	s and	shale fr	agments			Illustrate at Describe	Distance of Well from Roe	1 10 11			REMEDIATIO
1880	2000	Shale fr	ragm	ents				Fences, Rivers, etc. a	nd attach a map. Use addit BE ACCURATE & COM	ional pa	per if	1.1	OTHER (SPECIFY
2000	core	Very fin	e sar	ids		_	-	Contraction and Contraction and Contraction	essandes area des assas essantes	1.1.2.2.		1.14	
	<u> </u>	1	_						R LEVEL & YIELD) WELL
								DEPTH TO FIRST V	VATER (Ft.) B	ELOW S	URFACE	ŧ.,	
	1	1	-					WATER LEVEL	(FL) & DAT	E MEASI	URED		
22225404	P-	1 second sec	20	10	0.0				۰ (GPM) ۸				
	DEPTH OF			12	Feet)			TEST LENGTH	(Hrs.) TOTAL DRAW	DOWN		(Ft.)	6
TOTAL I	DEPTH OF	COMPLET	ED A	VELL _	(Feet)			* May not be repr	esentative of a well's los	ng-term	ı yield.		
DE	РТН	-			(CASING (S)		Departure 1	1	ANN	ULAP	MATERIAL
	SURFACE	BORE- HOLE		(PE (∠)					FROM SURFACE				YPE
I page 1		DIA. (Inches)	XX	SCREEN 000- 0UCTOR	MATERIAL / GRADE	INTERNAL DIAMETER	GAUGE OR WALL	SLOT SIZE		CE-	BEN-	1	FILTER PA
FL 1	to FI.	1.111.1125	BL	SCR SCR	SIMUE	(inches)	THICKNESS		FL to FL	MENT (∠)	TONITE (∠)	FILL (±)	(TYPE/SIZ
0'	1455'	9.88"							2012' 1745'		1-1		RMC#3, coars
Contract of Contract of Contractory	1872'	7.88"							1442' 1384'			and the second	RMC#3, coars
1872'	2012'	4.5"							1098' 994'	1			RMC#3, coars
2	150		X		PVC		schd 80		974' 898'				RMC #3
I tak to	1250			X	PVC	2"	schd 80	0.020 x 1.2	All other depths		X		
12.0	1990		X		PVC		schd 80						
the second second second	ATTAC	HMENTS	(\preceq)	-		le colore a d		- CERTIFICA	TION STATEMENT		0.575.54	10/0540	ethilision serve
isto					it me und	ersigned, ce	ering that this	s report is complet	e and accurate to the	best of	t my kn	owled	ge and belief.
1960	X Geologic												
)]]	X Geologic X Well Cor	nstruction Di	iagram	1.:		ited States	Geological	Survey (858) 63	37-9005				
)	X Geologic	nstruction Di sical Log(s)	5		NAME Un		Geological CORPORATIONO O Villa Rd, Su	Survey (858) 63	37-9005 San Dieg		2	CA	92123

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

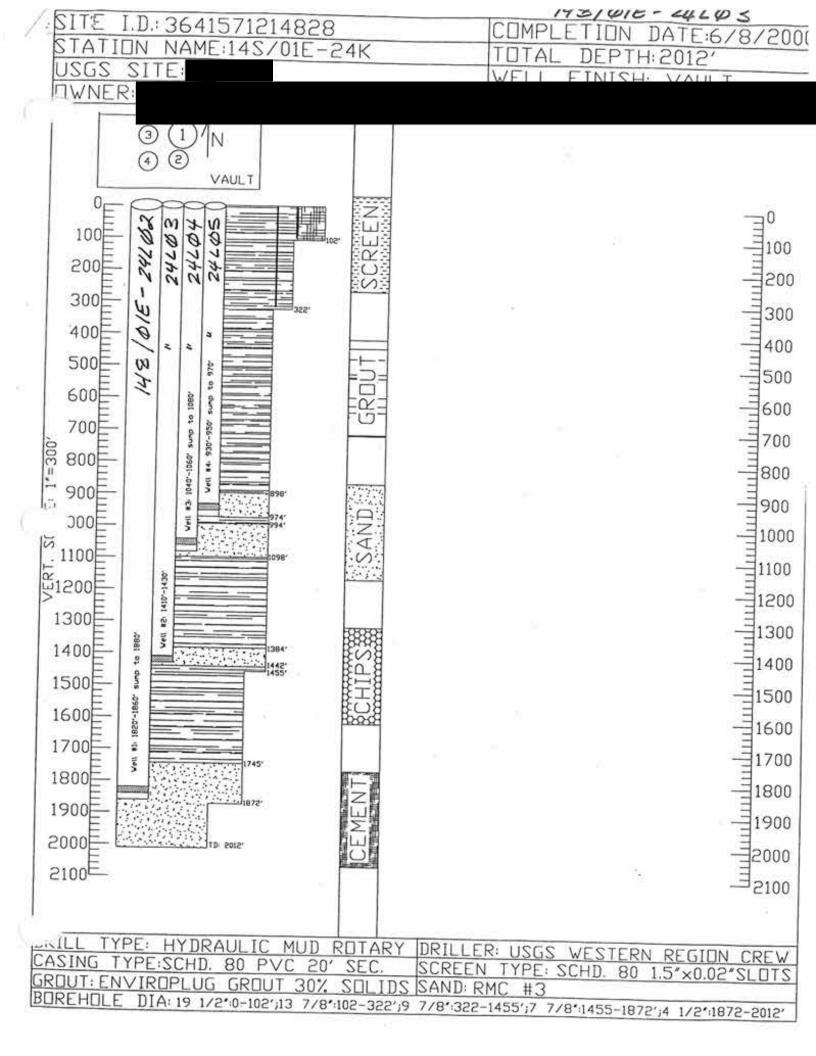




145/02 E- 24 LD

DWB 158 REV. 11-97

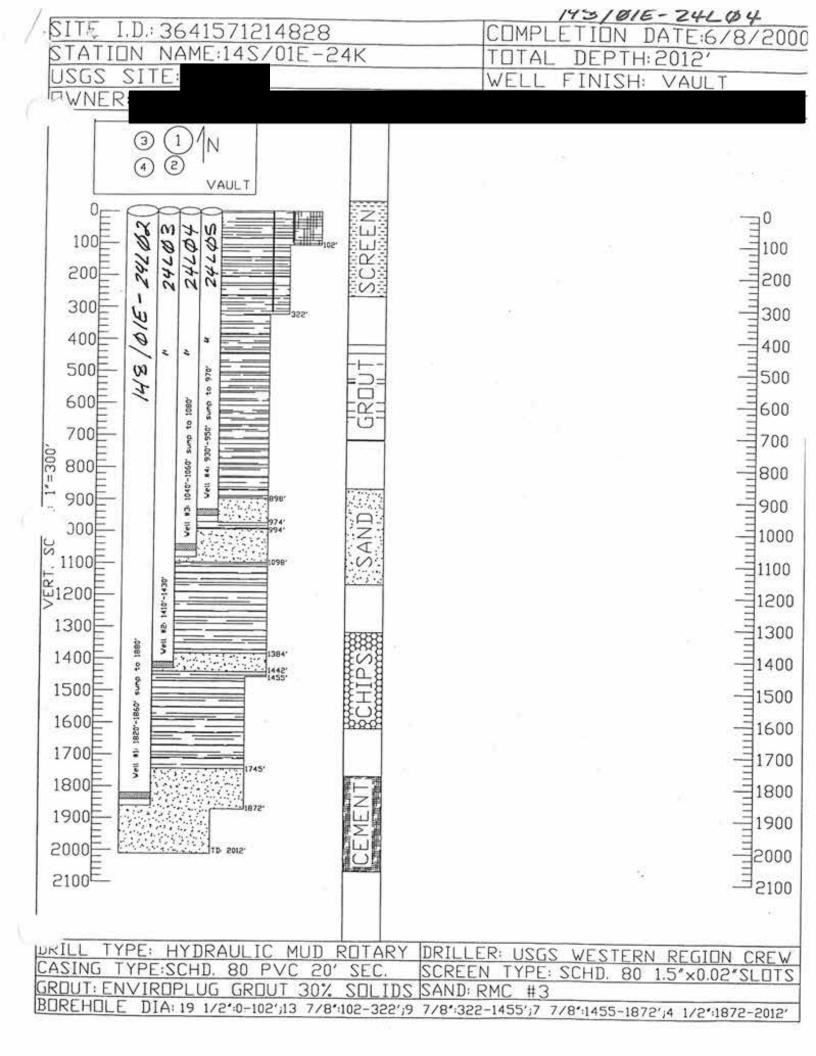
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



QUADRUPLICATE FC#22276 For Local Requirements STATE OF CALIFORNIA WELL COMPLETION REPORT USE ONLY DO NOT FILL of 4 Page 2 ØI 1F1-1214 Refer to Instruction Pamphlet **Owner's Well No.** STATE WELL NOJSTATION NO №.767053 Date Work Began 4/26/00 Ended 6/8/00 Monterey County Dept. of Health Salinas CA Local Permit Agency LATITUD LONGITUDE Permit No. 00-055 E-24L _ Permit Date 03-08-00 APN/TRS/OTHER - GEOLOGIC LOG ORIENTATION (1) х VERTICAL HORIZONTAL DRILLING Hydraulic Mud Rotary ANGLE (SPECIFY) DEPTH FROM SURFACE FLUIDBentonite Mud DESCRIPTION Et Describe material, grain size, color, etc. Ft 0 90 Dune sand, coarse to very coarse with some finer snads 90 170 Gravelly sand, C to VC sand and gravels 11 Reservation Road Address 170 Marina 190 City Clayey VF sand with silt 190 230 Gravelly sand, C to VC sand and gravels Monterev County 230 270 APN Book Sandy clayey silt Page _ Parcel 270 330 Gravelly sand, C to VC sand and gravels with some silt Township 14S Latitude 36 41 14S Range 01E 24K Section 330 380 Sandy clayey silt 57 NORTH 121 48 28 Longitude DEG 380 MIN 440 WES SEC Sand, C to VC DEG LOCATION SKETCH MIN SEC 440 XACTIVITY (≤) NEW WELL 540 Sands, fine sand with silt and medium to VC sand NORTH 540 570 Clayey VF sand with silt MODIFICATION/REPAIR 570 630 Partially cemented sands (NOT TO SCALE) _ Deppen 630 660 Silt _ Other (Specify) 660 680 Granulas of fine cemented sands 680 R 700 DESTROY (Describe Gravally VC sands Procedures and Materials Under "GEOLOGIC LOG 700 900 N Silty clays and shales PLANNED USES (2) 900 970 Interbedded silts, clays and fine sands WATER SUPPLY 970 1040 Silty clays with shell fragments Domestic . Public WEST 1040 1080 Irrigation Sandy silt industr EAST Marini State Beach MONITORING X 1080 1120 Shale with some clays and shell fragments TEST WELL 1120 1370 Interbedded silts, clays and fine sands essivation D. CATHODIC PROTECTION 1370 1700 Shales/Clays HEAT EXCHANGE 1700 1800 Bedded sands, VC to fine sand, some partially cemented DIRECT PUSH 1800 1820 Gravelly, silty clay INJECTION. VAPOR EXTRACTION 1820 1880 Gravels and shale fragments SPARGING 1880 2000 SOUTH Shale fragments Illustrate or Describe Distance of Well from Roads, Buildings Fences, Riverz, etc. and attach a map. Use additional paper if Fences, Rivers, etc. and attach a map. Use additional paper necessary PLEASE BE ACCURATE & COMPLETE. REMEDIATION 2000 core Very fine sands OTHER (SPECIFY) WATER LEVEL & YIELD OF COMPLETED WELL DEPTH TO FIRST WATER ____ - (FL) BELOW SURFACE DEPTH OF STATIC WATER LEVEL. (FL) & DATE MEASURED TOTAL DEPTH OF BORING 2012 ESTIMATED YIELD . _ (GPM) & TEST TYPE (Feet)-0 TOTAL DEPTH OF COMPLETED WELL TEST LENGTH . - (Hrs.) TOTAL DRAWDOWN (Feet) * May not be representative of a well's long-term yield. DEPTH CASING (S) FROM SURFACE BORE-HOLE DIA DEPTH FROM SURFACE TYPE (\leq) ANNULAR MATERIAL SCREEN DUCTOR FILL PIPE MATERIAL / AK. INTERNAL (Inches) GAUGE Pt. SLOT SIZE TYPE to FI. GRADE DIAMETER CE- BEN-MENT TONITE OR WALL IF ANY (Inches) THICKNESS FILTER PACK 0' (Inches) Ft. FILL to 1455 Ft 9.88" (TYPE/SIZE) (土) (\preceq) 14 2012' 1745' 1455' 1872 7.88" х RMC#3, coarse aqr. 1872 1442' 1384' 2012' 4.5" х RMC#3, coarse aqr. 1040 1098 994 х PVC Х schd 80 RMC#3, coarse agr 040 1660 974 898 х PVC X 2" schd 80 RMC #3 140 10 0.020 x 1.2 All other depths X PVC х schd 80 ATTACHMENTS (≤) CERTIFICATION STATEMENT I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief. X Geologic Log X Well Construction Diagram NAME United States Geological Survey (858) 637-9005 X Geophysical Log(s) PERSON, FIRM, OR CORPORATION) (TYPED OR PRIN X Soil/Water Chemical Analyses 5735 Kearny Villa Rd, Suite O X Other On File @ USGS San Diego San Diego ADDRESS CA 92123 ATTACH ADDITIONAL INFORMATION, IF IT EXISTS CITY 20111 STATE Signed TIP 6/23/00 WELL DRILLER/AUTHORIZED REPRESENTATIV DWR 188 REV. 11-97 DATE SIGNED C-57 LICENSE NUMBER

18/01 E-24 L 0

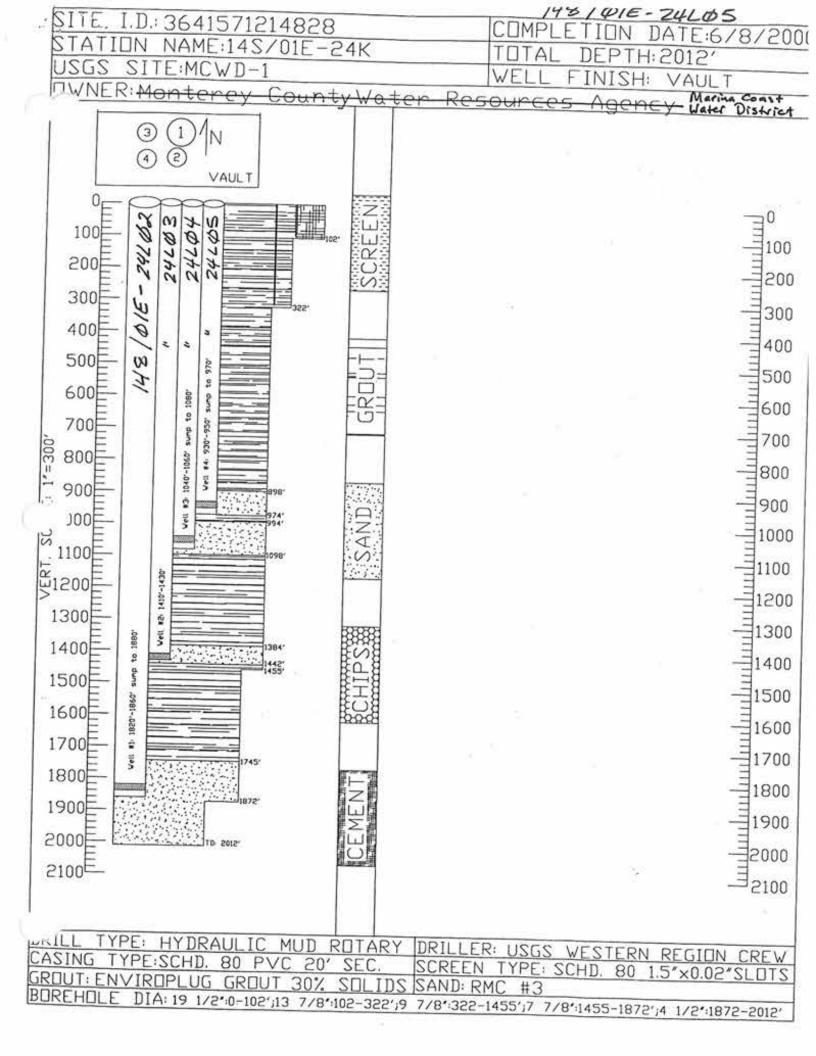
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



Page Owner	4_of_4 of Well 1 Vork Begi	No. 4/26	5/00	0		,		Refer to	Instruction No. 767			L	E WELL	NO./ST	
Loca	l Permit	Agency	M	lont	ere	y C	ounty Dept. o	f Health S			THS	10	IE	IT K	RIYILIØ5
Pe	rmit No.	00-00.		CE	01	oci	C LOG	it Date	3-08-00		_		APN/TF	IS/OTH	ER
ORIENT	ration (🗹	DRILL	VER	ADICA	N.		HORIZONTAL				Werr	0117	TIN		
	IN FROM	METH		-			DESCRIPTION terial, grain si	FLUID Bent	0.94						
0	90	Dune					o very coarse v			11	Reservation Hoad	OCA	TION-		ONAL.
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170	190	; Claye						11		CityMc	onterey			-	
190	230						/C sand and gr	avels		ADM D -1			1		
230	270	Sandy	y cla	aye	y sil	t				Township 12 Latitude 36	IS Range 01E	_Pare	1	24	k
270	330	Grave	ally a	san	d, C	to \	/C sand and gr	avels with s	some silt	Township 36	41 57 NORTH		tion	12	48 28
330	380	Sandy						-	-		ALC: NOT ALC	Lon	gitude	DEG.	MIN. SEC.
380	440	Sand,	Ct	to V	С				-	L/	OCATION SKETCH	-			ACTIVITY (2)
440	540	Sands	s, fir	ne s	and	with	silt and mediu	m to VC sa	ind		NORTH	-		1-	NEW WELL
540	570	Claye						11.11.1		00000000				MO	DIFICATION/REPAIR
570	630	Partia	lly c	em	ente	ed sa	inds	1000		(NOT TO)	SCALE)	1	Ξi i		Deepen Other (Specify)
630	660	Silt		-	_						i lea	pin -		-	(openly
660	680	Granu	las	of f	ine	cem	ented sands				ONY	~ I		-	DESTROY (Describe
680	700	Grava	and the second second	and the second		and in case of	NAME OF TAXABLE					- 1	N	1	Procedures and Mate Under "GEOLOGIC L
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900	970	the second s	-	_	-	and the second second	/s and fine san	ds			шq	2.1	h w	WAT	ER SUPPLY Domestic Publi
970	1040	the second se	_	in the second						Marina Marina	=	- 1	HIG L	1	Irrigation Indu
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and the second second	1700	and the second se	Interbedded sitts, clays and fine sands Shales/Clays												HEAT EXCHANGE
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1800	1820	Grave					inte sund, son	e paruany c	rememed					V	APOR EXTRACTION
1820	1880						gments				SOUTH -				SPARGING _
1880	2000	Shale				e ne	ginerita		_	Illustrate or Describe	Distance of Well from Roe	ads, Bui	Idings,	1	REMEDIATION _
	core	Very fir	ne s	and	is					necessary. PLEASE	nd attach à map. Use addit BE ACCURATE & COM	tional pe PLETE.	aper if		OTHER (SPECIFY) _
		1								WATE	R LEVEL & YIELD	OF C	OMPL	ETEI) WELL
					1						WATER (FL) B				
1	1			-	_					DEPTH OF STATIC					
										WATER LEVEL	(Ft.) & DATI	E MEAS	WRED _	_	
TOTAL D	EPTH OF	BORING	2	201	2	(Fe	est)				• (GPM) &				
	EPTH OF			w	21.13		70 (Feet)			TEST LENGTH	(Hrs.) TOTAL DRAW	DOWN.		(Ft.	6
_	_	1	-		-	-	1.0.0	_		May not be repr	esentative of a well's lor	ng-tern	n yield.		
DEF	TH	BORE-			_			CASING (S)		DEPTH		ANN	ULAR	MATERIAL
FROM SI	UNFACE	HOLE DIA.	-		E (2			1			FROM SURFACE			the state of the s	YPE
D -		(inches)	BLANK	SCREEN	CON. DUCTOR	PIP	MATERIAL / GRADE	DIAMETER	GAUGE OR WALL	SLOT SIZE		CE-	BEN-		FILTER PACK
13 ²⁴ - 14	FL		B	50	0 M	F.C.	NCANANG.	(Inches)	THICKNESS		FL to FL	MENT (∠)	TONITE	1000000	(TYPE/SIZE)
0';	1455'	9.88"									2012': 1745'	1=1	(∠)	(<u>≤</u>) X	RMC#3, coarse at
1455'	1872'	7.88*									1442' 1384'	-	-	X	the state of the s
872'	2012'	4.5"		-				1.000			1098' 994'	-	-	x	RMC#3, coarse at RMC#3, coarse at
	420		X	- C. 1			PVC		schd 80		974' 898'	-	-	x	RMC#3, coarse at RMC #3
	150			X			PVC	2*	schd 80	0.020 x 1.2	All other depths	-	x	A	HMC #3
	170		X				PVC		schd 80				-	_	
	ATTACH	IMENTS	(-) .	_			2 1		- CERTIFICA	TION STATEMENT	-		_	
		24570					I, the unde	arsigned, ce	rtify that this	report is complet	e and accurate to the	best of	f my kn	owled	ge and belief.
<u>34 1</u>	X Geologic	Log					1.1						0.00000	12000	
	X Geologic	100 C	agra	m			NAME UN	ited States	Geological	Survey (858) 63	37-9005				
<u>34 1</u>	Geologic Well Con	struction Di	agra	Im			NAME UN	Ited States	ORPORATION) (T	Survey (858) 6 YPED OR PRINTED)	37-9005		_		
<u>34 1</u>	Geologic Well Con Geophysi	100 C	Anal	dvsei			(PERS)	ON, FIRM, OR C	Villa Rd, Su	YPED OR PRINTED)	San Dieg	0		CA	92123

«R 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



EPARTMENT OF WATER RESOURCES

Do Not Fill In

Nº 141763 State Well No. 195 ZE - GL

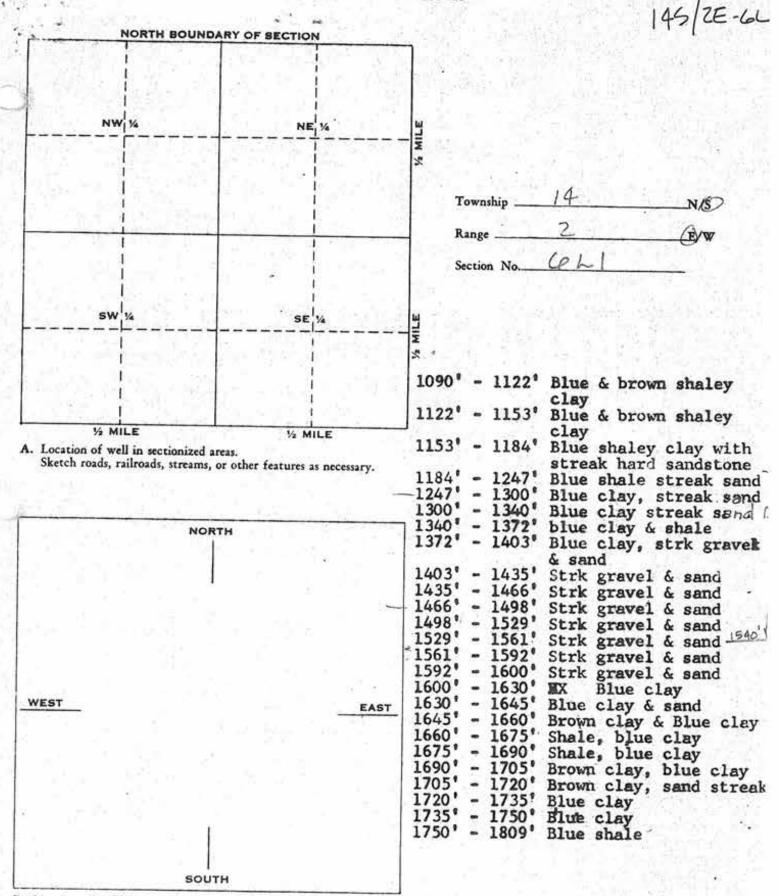
(1) OWNER: (11) WELL LOG: Total depth 1809 ft. Depth of completed well 1560 ft. Formation: Describe by color, obseacter, size of material, and structure 1. 10 6 Top Soil 41. (2) LOCATION OF WELL: RR County Monterey Owner's number, if any 6" 15' Blue sandy clay Township, Range, and Section Mulligan Hill 15' 321 Fine blue send Distance from cities, roads, milroads, etc. See attached map 320 60' Blue clay w/sea shell 60* 75' Blue soft sand (3) TYPE OF WORK (check): 751 100' Blue clay New Well 🙀 Deepening 🗆 Reconditioning Destroying [7] 100 184" Blue clay & sand streak If destruction, describe material and procedure in Item 11. 184" Coarse sand & gravel 278 (4) PROPOSED USE (check): (5) EQUIPMENT: 278' 300 * Vellow Clay Domestic 🗌 Industrial 🗍 Municipal 🦳 Rotary 300. 330 Gx Blue clay Irrigation [] Test Well [] Other x Cable 330' 360 Coarse yellow sand, streak Other of clay (6) CASING INSTALLED: 360 434" Yellow clay, streaks blue If gravel packed STEEL OTHER: & brown shale SINGLE X DOUBLE -440 * 434 Yellow clay, streaks blue & brown shale Gage Diameter From 10 440' 490' or Wall From White coarse sand of To fe. 6. Diam. Bore fr. ft. 490* 528' Blue clay 600 0 16 3/8 28-1/ 0 600 528' 590 Sand & gravel, streak clay 500 603 1622 reducer 26 600 603 590' 610' Yallow Clay 103 1563 120 26 610 621 * 603 1563 Sand & gravel Star of shoe or well ring. 621' Sur of gravel 715' Yellow clay w/streak of Spec sand Describe some Weld breaz (7) PERFORATIONS OR SCREEN: 715' 747 Yellow clay w/streak gravel Type of performance of screen the of 747' 778' Yellow clay w/streak gravel oick 778 795' Perf. yellow clay w/streak gravel Rows From To per per Size blue clay 11. 880 ft. row fr. in x in 795' 840" Yellow clay w/streak gravel 1540 860 1 3/32 Horz. blue clay Louvre Full 840" 872' 80-Blue clay Flo 872' 903' Blue clay 903' 934" Brown clay 965' 934 Hard brown clay & shale (8) CONSTRUCTION: 997' Hard brown clay & shale 965' Was a surface samitary seal provided? Yes 🕞 No 🗌 To what depth 800 997' 1028' Hard brown clay & shale Were any strata scaled against pollution? Yes 🕞 No 🔲 If yes, note depth of strata 1028 1059' Blue clay 11. 10 fr. 2 1059" 1090' Blue & brown clay teom fr. to fe. Work started 9/20 19 76. Completed 11/12 19 78 WELL DRILLER'S STATEMENT: QU Method of sealing Concrete and 30" steel conducto This well was drilled under my jurisdiction and this report is true to the best (9) WATER LEVELS: 100 of my knowledge and belief. Depth at which water was first found, if known 64 NAME Salinas Pump Co. (Typed or printed) Standing level before perforating, if known 64 standing level after perforating and developing 6 (10) WELL TESTS: Address 1128 Madison Lane Was pump test made? Yes D No D Salinas, Ca If yes, by whom? 93901 2100 kil./min. with ft. drawdown after here [SIGNED] in (Well Duller) imperature of water Was a chemical analysis made? Yes 🗔 No 🗖 Was electric log made of well? Yes M No D If yes, attach copy License No. 273053 _ Dated.

SKETCH LOCATION OF WELL ON REVERSE SIDE

CONTINUED ON BACK

OVER

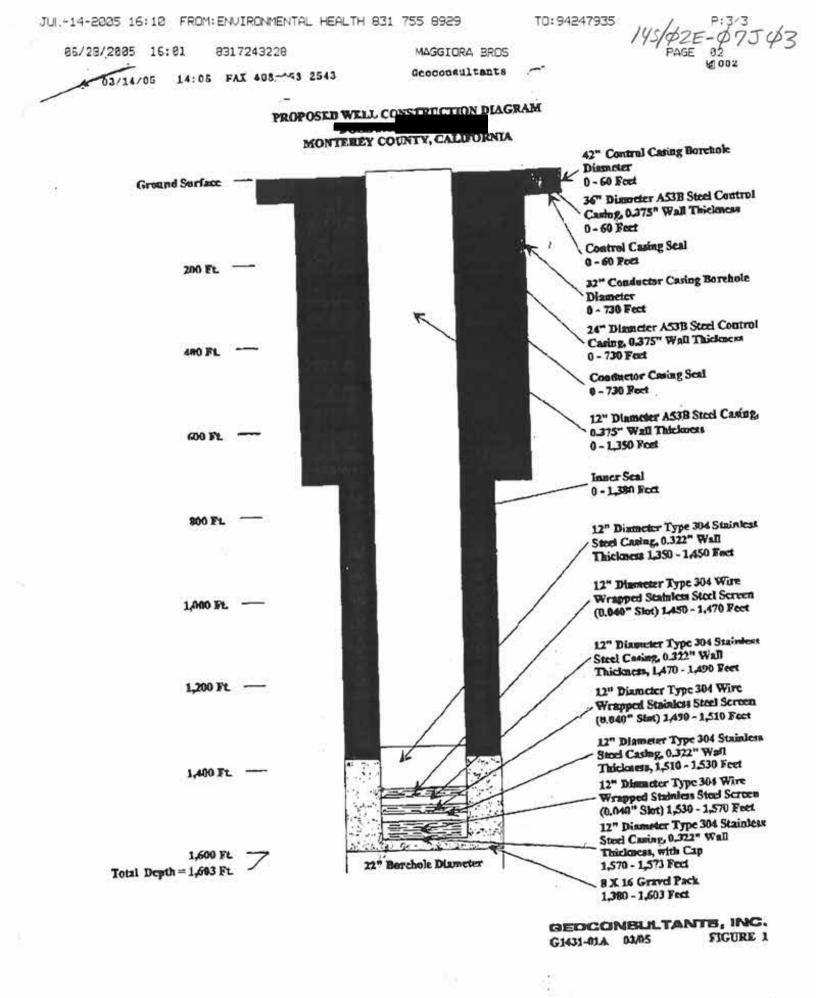
DWR 188 IREV. 9-681



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

00/2//2000	09:06				NMENTAL H 3228 F.C.			AGGIORA BRO	L" W.1			022.72	P:2/2
5					1.C.	· Ar Is	(n)	AGGIURA BRU	5			PAG	E 02
For Local Requ		n			WELL	COMP	OF CALIF	ON REPO	RT THIS	612	EI-	-101	71503
Page of							natruction		- /	STATE	WOLL N	D.ISTAT	ON NO.
Owner's Well N	0 111	55-1		-			·· 093	11505		1		11	1 1
Date Work Bogar	1/	17/20	200		Ended	5/11/2005			TILC	1.7		Ari	TOZ
Local Parmit A	gency	1	NONT	ER	EY CO. ENV. H	HEALTHD	EPT.		_ 1419134	PIE	APNITRE	MOTHER	191912
Permit No	04-09	the second value of the second	1010		Permi	t Date	12/8/2004		- Que			the second second	URE-DE
ORIENTATION (2)		ERMO	AL		LOC	1.818.0	- (SPECIFY)	1	WELL	OWN	ER -		
DEITH FROM	METHO	- 0		10.00	ESCRIPTION								
7, 10 PL		Dere	e-ihe :		rial, grain Ho		in no	10Km	MU ware			ST	TE ZP
0 0.5	ASP	HAL	18.8	ASE	ROCK	. 100	24	Addinass 1	315 NEPONSET R	SAD	10%-		
0.5 20	BRN	SA	ND			STUD.	10	V LAND	MARINA		_		
20 90		Museumer P	NDY		1 (2)	VIC	10	Gounty	MCKHEAEY		4		
20 210	-	-	GRAV	EL	also	1	V/	LEN Book	229 Page 011	_Paro	el	605	
210 240		WEL	_	4	all as	41	11	Tastship	Rango	_ Sect	on		
246 270		Section 10	AYB	GR	AVEL	11.1	1-	ant	<u> </u>	Long		1	
270 300			YN.	-	for the	112	2	2) - DEG. L	MIN SEC.		D	EG.	TIVITY (<)
300 390			TAY.		VANEE	Vie	alla		NORTH	-			ISW WELL
390 420		-	GRAV	EL	114	1.61	2	as 5	V. Starter				ICATION/REPAIR
420 : 430	SAN	-	11	1	STV-	Cont							- Deepen - Other (Speci
430 510	the second s		GRAV	5	Jan .					5.		-	a such fatati
310 570	the second se		stak.	-	aller Co				NO.	1	8. I	- 5	ESTROY (Describ
570 620 (830 66b	i sah	-	CITA		li lizza		-	•	04	1	52	1 0	Noted the and Me
830 060 900 840			GRAN		<u> </u>			6 6		Ð	1	USES	
	CLA		- Ence	-				10		1	9/		SUPPLY
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930 1020	CLA		-LAT	-						1.	63		MONITORING
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1440 1 1595	-		CLAY		S. 1991 . Ch. 2		-	ZERANI	- acuth		-		REMEDIATION
1	1		(and a second					Francisk Himsen and a	e Dummer of Well (rom Ro	Name! as	ding:		THER (SPECIFY)
				~				NACCESSTRY. PLEASE	BE ACCURATE & COM	PLETE.		_	
								WATE	R LEVEL & YIELD	OF C	OMPL	ETED	WELL
	1.							DEPTH TO PRST	WATER (FL) B	BLOW S	URFAC	5	
				0000			-	DEPTH OF STATIC	25.5 (PL) & CAT			11-05	
	1		_					ESTMATED YIELD	- 700 (GPM) &				UMP
TOTAL DEFTH OF	BORING	24.02	155	5Fe	et)		_	TEST LENGTH	(HIS) TOTAL DRAM	173-41		1422	
TOTAL DEFTH OF	COMPLET	ED V	VELL	_	1573 (Foel)			Contraction of the second second	resentation of a mall's la			- 1110 -	5 32
		T		-	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				1.	-			
DEPTH FROM SURFACE	BORE-	TT	PE	11		ASING (S)			FROM SURFACE		. ANN	and the state of the	ATERIAL
	DIA	T	T B		MATERIAL /	INTERNAL	GAUGE	SLOT SIZE	PHOM SUMPAGE	CE-	BEN-	TY	PC
	(Inches)	HANK I	BOREN BOD	E	ORADE	DIAMETER (Inches)	OR WALL	IF ANY	FL 10 FL		TOMTE	FLL	FILTER PAC
Ph. 10 Pl.			0 0	E.		traction	There to	2 (1K7/66)		121	(2)	(=)	(TYPE/SIZE)
				+					0 : 1380	XX			10 cack
PL IN PL			+-	-		-			1380 1595	-		XX	B 2 36
			+	-		-	_						
SEE ATTACHED		+++											
		Ħ										10.000	
SEE ATTACHED			-			-				-			
SEE ATTACHED	INENTS												
	IMENTS	(2)			I, the unde	arsigned, ce	nity used the	CERTIFICA	TION STATEMENT			outoda	
	Log							s report is complet	TION STATEMENT	best of	my kn	owindge	and bellef.
	Log Wirveston Di							s report is complet	TION STATEMENT	best of	my ko	owindge	and belief.
SEE ATTACHED	Log winvetion Di ceil Log(e)	a Sea w			NAME MA	AGGICRA I	BROS. DR	ILLING INC	e and accurate to the	best of	my ko	owindge	and belief.
SEE ATTACHED	Log Wirveston Di	a Sea w			NAME MA		BROS. DR	s report is complet	e and accurate to the	best of	my ko	owindge	and belief.

A Partie	14-2005	5 16:1	Ø FROM	:ENVI	RONM	ENTAL H	EALTH 83	1 755 6	195.9	TO:9424793	5		P:2/3
	6/27/20			83172	4322	8		MAG	GIORA BROS			PAGE	82
Fi Pi	or Local	Require of fell No.	4 1156-	1			COMPI Rafer to Ins	cruction Far	N REPOR	ET 1141519	E ONLY -	1.1-	J1013
D	Dato Work	Began _ mit Are		MONTS	REY	CO. ENV.	HEALTH DEP	7		1.4.5/4	APNTRE	p171	510311
	Permit	No	04-08521		_	Permi	t Date	2/8/2004		- Were a	P		EE-DEEF
	ORIENTATIO	N (∠)		MUD R	HORIZ	200 C	- ANOLE	SPECIFY	12/10	o ~ fiter			
	PARAL PL	NOM S	100	N. State		CRIPTION	and a second second	1 CAN		501		STAT	1 ZP
-	8. 0	0.5	1	TSBA	and the second s	A CONTRACT OF	in, color, etc.	3000	idindes 11:	ISTNEPONSET RO	AD		
H	0.5	20	BRN S		ALL MA		COND'	210	SAL D	MARINA D			
	20	50	BRN S	ANDYC	LAY	-25	VIC	ZAL		ACATEAEY			1
	00	210	SAND 8	ORAVE	il. 7	CHAN	2	2		229 Page 011	Parcel	005	21.1
	210 i	240	GRAVE		182	2	())		Township a o	Rango	Section		
	240	270	and the second se	LAYA	GRAVE	EV11	71.71	~ 0	at sea	N N	Long	a. 1	200 SEC
	270	300	GRAY		-5	42	11-2	12:13	Dir ora Lo	CATION SKETCH .	0		ובו אדריות
	300	390		CLAY 3		E	Vig	120-		NORTH		1×NI	W WELL
	300	420	SAND 8	GRADE	817	14	- 64	21-		8 Nov.		the second second second	CATION REPAIR
	420	430	SAND	211	2	12	(Part		S - S				 Demons Other (Specify)
	470	510		GRAVE	<u>A</u>	0	S.				20		
	510	579	And in contrast of the local division of the local division of the local division of the local division of the	CLAY.		SIN				NO.	1		STROY (Cetcribe
L	570	630 .	SAND	1	31	15.			(.	- 0 40	- 6		ear -DEOLOGIC LC
L	830	000		& GPAN							B1.	USES	(1) SUPPLY
41	660	840		YADAY	A	-			- o -		10/		mantPublic
p.F	840	900	CLAY		<u></u>				St		V.	10	indust 🖈 indust
er t	900	930		CLAY			<u> </u>	MF8	1	8: E	1, 3		MONITORING _
4		1020	CLAY					15	1	()) 2	ò	CATHOR	TEST WELL
-		1200		GRAV	24				1	100	i	10000	SAT EXCHAUGE _
H		1290		& CUAY		_			· · ·	15	S)		DIRECT PUSH
H		1380	CLAY	-					N .	1		l area	INJECTION _
H		1410		CLAY					19 1	/		VASH	SPARCENCE
H	1410 1	1440	CLAY	& CLAY	_			<u> </u>	1 Huy!	BOUTH		ł –	REMEDIATION _
	1440	1393	SAND	- serie					Dwome or Describe Fanoce, Rioms, etc. a	Distance of Well from Roo nd attach a men Der adalt BE ACCURATE & COMP	ional poper if	0	THER ISPECIEVY _
								-		the second s		I —	
			12-31-3	S - Sy	1997				2.55	a level & vield		Section	WELL
1		1			-	110			그가는 아이가 말 것을 물었다.	WATER (FL) BI	ELOW SURFAC	E	
									WATER LEVEL	25.5 (FL) & DATE	MEASURE 05	11-05	
- E									ESTMATED YIELD	- 700 (apin a		F	UMP
1 A 1					SFeet)				TEST LENGTH	(HIS.) TOTAL DRAW		1232	
5	TOTAL DEP	TH OF F	BORING _	158	arecuj.						an error winter		
	TOTAL DEP					73_(Feet))		" May not be repo	recentrative of a mall's los	South the South		
	TOTAL DEP	TH OF C				73(Fort)			* Many not be repo	1	1		ATTRIAL
	TOTAL DEP	TH OF C	BORE	WELL	15	73(Feet	CASING (S)		* May not be rep	CEPTH	1		ATERIAL
	TOTAL DEP	TH OF C	BORR- HOLE	TYPE (MATERIAL /	CASING (S)	GAUQE	SLOT SIZE	1	1	ULAR)	e.
	TOTAL DEP	TH OF C	BORR- HOLE	TYPE (CASING (S)	OR WALL	SLOT SIZE	CEPTH	CE- BEN-	E FILL	
	DEPTI FROM SUP	TH OF C	BORR- HOLE	WELL			CASING (S)		SLOT SIZE	CEPTH PROM SURFACE	CE- BEN- MENT TONTT (Z) (Z)	E FILL	PLTER PACK (TYPE/SIZE)
	DEPTH FROM SUP	TH OF C	BORR- HOLE	TYPE (CASING (S)	OR WALL	SLOT SIZE	CEPTH PROM SURFACE Ft to PL 0 1380	CE- BEN-	FILL (K)	PILTER PACK (TYPE/SIZE) 10 SAGK
	DEPTI FROM SUP	TH OF C	BORR- HOLE	TYPE (CASING (S)	OR WALL	SLOT SIZE	CEPTH PROM SURFACE	CE- BEN- MENT TONTT (Z) (Z)	E FILL	PLTER PACK (TYPE/SIZE)
	DEPTI FROM SUP	TH OF C	BORR- HOLE	TYPE (CASING (S)	OR WALL	SLOT SIZE	CEPTH PROM SURFACE Ft to PL 0 1380	CE- BEN- MENT TONTT (Z) (Z)	FILL (K)	PILTER PACK (TYPE/SIZE) 10 SAGK
	DEPTI FROM SUP	TH OF C	BORR- HOLE	TYPE (CASING (S)	OR WALL	SLOT SIZE	CEPTH PROM SURFACE Ft to PL 0 1380	CE- BEN- MENT TONTT (Z) (Z)	FILL (K)	PILTER PACK (TYPE/SIZE) 10 SAGK
	DEPTI FROM SUP	TH OF C	BORR- HOLE	TYPE (CASING (S)	OR WALL	SLOT SIZE	CEPTH PROM SURFACE Ft to PL 0 1380	CE- BEN- MENT TONTT (Z) (Z)	FILL (K)	PILTER PACK (TYPE/SIZE) 10 SAGK
	TOTAL DEP DEPTH FROM SUP PL DO SEE ATTAC	TH OF C	BORE HOLE DIA TIAN	TYPE (1997)			CASING (S)	OR WALL	SLOT SIZE IF ANY (19046)	CEPTH PROM SUPFACE Ft to PL 0 1300 1380 1595	CE-BEN- MENT TONTO (21 (2)	FILL (K)	PILTER PACK (TYPE/SIZE) 10 SAGK
	TOTAL DEP DEPTH FROM SUP PL IN SEE ATTAC	TH OF C	BORE MOLE DIA Inches MENTS (2	TYPE (1997)		MATERIAL / GRADE	CASINC (S)	OR WALL THICKNESS	SLOT SIZE IF ANY (19046)	CEPTH PROM SURFACE Ft to PL 0 1380	. Д.NN СЕ- ВЕМ- МЕРТ ТОКТТ (Д 1 (Д) XX	TVF FILL (Z)	PE PILTER PACK (TYPE/SILE) 10 AARK 8 % 16
	TOTAL DEP DEPTH FROM SUP PL IN SEE ATTAC	TH OF C	BORR MOLE DIA Inches I MENTS (2 Log	TYPE (1 Manya		I, the un	CASING (S)	OR WALL THICKNESS	SLOT SIZE IF ANY (19046) - CERTIFIC, report is comple	CEPTH PROM SUPFACE Ft 10 P. 0 1380 1380 1595	. Д.NN СЕ- ВЕМ- МЕРТ ТОКТТ (Д 1 (Д) XX	TVF FILL (Z)	PE PILTER PACK (TYPE/SILE) 10 AARK 8 % 16
	FROM SUP	TH OF C	BORP. MOLE DIA increm;	TYPE (1 Manya		I, the un	CASINC (S)	OR WALL THICKNESS roly that this BROS. DR!	SLOT SIZE IF ANY (19046) CERTIFIC/ report is comple	CEPTH PROM SUPFACE Ft 10 P. 0 1380 1380 1595	. Д.NN СЕ- ВЕМ- МЕРТ ТОКТТ (Д 1 (Д) XX	TVF FILL (Z)	PE PILTER PACK (TYPE/SILE) 10 sack 8 × 16
	FROM SUP	TH OF C	BORP. HOLE DIA increm;			I, the un	CASINC (S)	OR WALL THICKNESS HIT HICKNESS HIT HALL THIS BROS. DRI DHOMMON T	CERTIFIC/ report is comple	CEPTH PROM SURFACE Ft to P. 0 1380 1380 1595 1380 1595	. Д.NN СЕ- ВЕМ- МЕРТ ТОКТТ (Д 1 (Д) XX	TVF FILL (Z)	PELTER PACK (TYPE/SILE) 10 AARK 8 % 16
	PL DEPTH FROM SUP REE ATTAC	TH OF C	BORP. MOLE DIA increm;			I, the un	CASING (S)	OR WALL THICKNESS HIT HICKNESS HIT HALL THIS BROS. DRI DHOMMON T	SLOT SIZE IF ANY (19046) - CERTIFIC/ report is comple	CEPTH PROM SUPFACE Ft to P. 0 1380 1380 1595 1380 1595 1380 1595 1380 1595 1380 1595 1380 1595	. Д.NN СЕ- ВЕМ- МЕРТ ТОКТТ (Д 1 (Д) XX	TY Fill (云)	PE PILTER PACK (TYPE/SIZE) 10 sack 8 × 16
	PL DEPTH FROM SUP REE ATTAC	TH OF C	BORE- HOLE DIA iheren;			I, the un	CASINC (S)	OR WALL THICKNESS HIT HICKNESS HIT HALL THIS BROS. DRI DHOMMON T	CERTIFIC/ report is comple	CEPTH PROM SURFACE Ft to P. 0 1380 1380 1595 1380 1595	. Д.NN СЕ- ВЕМ- МЕРТ ТОКТТ (Д 1 (Д) XX	TVF FILL (Z)	PE PILTER PACK (TYPE/SIZE) 10 sack 8 × 16 and belief, Dif
	PL DEPTH FROM SUP REE ATTAC	TH OF C	BORP. HOLE DIA increm;			I, the un	CASINC (S)		CERTIFIC	CEPTH PROM SUPFACE Ft to P. 0 1300 1380 1595 1380 1595 1595 1595 1595 1595 1595 1595 1595	. Д.NN СЕ- ВЕМ- МЕРТ ТОКТТ (Д 1 (Д) XX	TATE	PE PILTER PACK (TYPE/SIZE) 10 sack 8 × 16



Do Not Fill In

ORIGINAL THE RESOURCES AGENCY Water Code Sec. 13WATER WELL DRILLERS REPORT

CALIFORNIA

Nº 121665 State Well No. 145/2E-18EI

Other Well No.

- /8EI

							(11) WELL L	LOG:
							Total depth	ft. Depth of completed well 870
_							Formation: Describe	by color, character, size of material, and structure
			· · · · · · · · · · · · · · · · · · ·				0	n. to 75 fine sand
(2) LOG	CATIO	N OF W	VELL:				75 t	to 100° coarse gravel
County MO	ntere	У		Owner's number	, if any		100	125 gravel-streaks clay
Township, Ra	inge, and Se		en Mar	ina & Ca	astrovil	1a	125	150 člay rock
Distance from	n cities, rdz	R. Pail Parts	in B	ridges (on Hwy 1		150	175 coarse gravel
		ff Lap			12/1-51		175	200 #thRtEAGAStalk=ph
(3) TY							200	225 fine sand streak c
New Well		epening 🔲		ditioning 🔲	Destroyin	a 🗆	225	250 fine sand streak cla
If destructi				ure in Item 11			2.50	275 gravel
(4) PRO	OPOSE	D USE	(check)	:	(5) EQU	IPMENT:	225	300 fine sand - streak
		lustrial [Rotary	3	300	325 white sand
		st Well		ther	Cable	B	125	350 send-clay streaks
	- 60	5 - CAN - SOUL	- C.		Other	ň	350	575 sand
(6) CAS	SINC	NSTAT	LED			- territ	375	400 fine sand
				If	gravel pac	ked	400	400 time send 425 cand gravel
	EL:	OTH	ER:	32	5 P	0024	425	450 sand gravel
SINGLE	BOU	BLE [] -		1			450	475 sand streaks clay
	fina 1	2	Gage	Diameter		3225	475	500 coarse gravel-clay
From ft.	fu ft.	Diam.	or Wall	of Bore	From ft.	To ft.	500	525 sand clay
It.	-				-		525	550 sand clay
1	303	14"	1/4	26	300	370		
× 303		14"x1		tcer	4.2.		550	575 sandy clay
06	870	12	1/4		- 1		575	600 fine sand clay
Size of shoe o	the second s		_	Size of grave	1.1/4 pe	3	600	625 sand
Describe joint							625	650 Red clay gravel
(7) PEF	FORA	TIONS	OR SCI	REEN:			650	- 675 yellow clay
Type of perfo	ration or na	me of screen					675	700 yellow clay
			Perf.	Rows			700	725 fine gravel
From	3	To	per	per		Size	725	750 coarse gravel
ft.		ft.	row	ft.		. x in.	7 50	775 coarse gravel
656	83	4	8	42	-/8"	std lou:		— 800 fine gravel
4.9							800	2 825 coarse gravel
							825	- 850 coarse gravel
artes i rorre							850	675 yellow clay
							875	890 yellow clay
(8) CO	NSTRU	CTION					890	913 vellow clay
		al provided?		No D T	o what deptileD	0 ft.	2	
		inst pollation		No 🗆	If yes, note	depth of strata	Contraction of the	
From 0	and an address of the second	10 300	ít.					
trom		to	ft.	-		-	Work started 7-2	2-74 19 . Completed 7-5-74 19
Method of sea		oncrati				_		R'S STATEMENT:
No. of the second se						_		drilled under my jurisdiction and this report is true to th
1.5 C		EVELS:			ft.		of my knowledge	
	Contraction of the local sector				15		NAME	linas Pump Co.,
	1 16 5	eforating, if			ft,			(Person, firm, or corporation) (Typed or printed)
	and the local division in the local division	forating and	Sector Sector Sector	at at	11		1128 Ma	adison Lane, Salinas, Ca.93901
		ESTS: 3	영화가 바람가 잘 가지?		22		Address	1
4533201	it made? 1	121111-0101		If yes, by whom?	a constant of the	0.ez	1P	i thatte
Yield	Salara Report	al./min. with	Without a liver which	fr. drawdaw		hrs.	[SIGNED)	(Leng (tell Duller)
Temperature	21 S	1.52 1.51 2 -	The second second	cal analysis made	e) Yes 🗍 🤉	NJ D	273	2053
Was electric	log made of	well? Yes [1 No 🗆	If yes, a	ttach copy		License No.	Dated 715-74

SKETCH LOCATION OF WELL ON REVERSE SIDE

PLICAT	CE A	15/02	E-	29	6BC	∲3wei	STATE	OF CAL	IFORNIA ION REPO		14 SI	1012	IEI	-12	ØB0
ge	12			1	· ·	1655	Refer to I	ntiructio	n Pamphles		1	STATE	E WELL	NO./STA	TION NO.
ner's We	ell No.	701	171	t	0	10-2-2	N	lo. A	19777		11	1		1	1.1.1
te Work	Began .	06/1	18/9	7		Ended	06/26	/97 *	13/11		LATITUD			L	ONGITUDE
Local Per	mit Ag	ency		- 14	NTER	COUNTY	DEPARTMEN	T OF H	EALTH	H	HISK			20	Tis A
		IVS/	16 9	7-04	57		nit Date				WELL	ows	D1	RS/OTH	URE-DE
	N (∠)		-	1999		and the second	ANGLE	(SPECIFY)			THELE .		, n		
DEPTH FR		DEPT	н то	FIRS		ER(I SCRIPTIO	Ft. BELOW SU	RFACE							
Ft. to	Ft. 3	TOP	SOT		the main	rtial, grain size	, color, etc.		CITY	1 1971	VELL LO	CAT	10N -		ATE ZIP
	60			1770					Address	MONTER		15 4			
60	90	SAND)						City	HONTER	EY				
. 90	.100	SAN	Y.C	LAY	AND C	LAY	-		APN Book	175 Page	.01	Parce	1	04	1
100	120	BLUE	CLA	Y AN	D SAN	DY CLAY	E0442423		Township			Sectio	n		
120 :	155	CLAY	-	-			10 106222		or .		NORTH	Longi	itude		
155 ;	150	SANDY	CL.	AY A	ND SA	ND	1.01 0.020		DEG	MIN. SEC				DEG.	MIN, SEC.
160	180	SAND	AND	GRA	VEL			100		OCATION :	KEICH			TX	CTIVITY (
180 ;	200	SAND								SEE ATT	ACHED			- S	FICATION/REPAIL
200 1	220	CLAY							1						Deepen
220 2	230	CLAY	AND	SAN	ID								r:	1	Other (Spe
230	240	SAND	AND	GRA	VEL							8	Limp	-	
240 1	245	SAND								10000	T		100		ESTROY (Descr
245	255	CLAY						_			1				Procedures and M Inder "GEOLOGIC
255	260	SAND							west		1		15	PLA	NNED US
260 [280	SAND	AND	LIT	TLE C	LAY			lesit		IF	1 -	EAST	-	(∠) _ MONITORING
280:	345	SAND	AND	GRA	VEL			-	a to		1			WATE	R SUPPLY
345	360	CLAY					<u> </u>	S.	Pr Ra		DE	10			Domest
360	380	CLAY	AND	SAN	D		5	~ .	1 e			5	1		X Public
380 ;	400	BROWN	AN	DBL	UE CL	AY	<u>ğ</u>	1 5		- 23			1	1	Imgatio
400	480	CLAY					2	12					0		Industria
480	520	CLAY	AND	SAN	DY CL	AY		3				4	Vell	-	_ "TEST WELL"
520	540	CLAY	AND	GRA	VEL		4	2		SOUTH				-	- CATHODIC PR
540	560	CLAY	ANO	SAN	D			ANA -	Illustrate or Des	ceipe Distance (of Well from	n Landi	marks	-	_ OTHER (Spec
560	562	SAND	_		-			-4	Nuch as Roads. B PLEASE BE A	CCUBATE &	COMPLET	E.			
562		SANDY							DRILLING	1.					
500	640		AND	FIN	E SAN	DY CLAY			METHOD	REVERSE R LEVEL &					WATER
540 555	655	SAND	-						DEPTH OF STAT	IC . co of					
222	000	SAND	-	-	1111				WATER LEVEL _						08/15/97 PUMP
	eu oe i	Calling	-	840	_ (Feet)				ESTIMATED VIEL						
		COMPLET			0.25	S			* May not be rep					anninit 10	1.7
AL DEFI	in or (OMPLET	ED V	VELL		(Feet)			May not be rep	resemance of a	- West 3. 10%	g-167.74	Jacia		
DEPTH	See.	2005					CASING(S)			DEF	тн	1	ANNU	LAR	MATERIAL
OM SURF		HOLE		PE (124242-00000	INTERNAL	GAUG	E SLOT SIZE	FROM S	URFACE		12000	TY	PE
to	Ft.	DIA. (Inches)	BLANK	SCRITN	ALL PUPE	GRADE	DIAMETER (Inches)	OR WA	IF ANY	Ft. t	o Ft.		TONITE		FILTER PA (TYPE/SIZ
0	50	32	H	1 1	1=	STEEL	.250	en	AINLESS .040	0	101 V. X.		(≤)	(2)	SAUK WAR
0	670	22	×	-	1	STEEL	.250		TAINLESS .040	650				xx	8X16
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acal Permit Agency Montaney County Divisi	Main k hahada Na e00954 Date Werk Ended <u>6/29/2009</u> ion of Environmental Health of Gale <u>2/4/09</u>		Leen, de	VTRSOPP
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Geophysical Log(s)	SHAIRPORT BLVD	100	<u>46249</u> 0332 - 1033	
	Second State	- WA	TEONVILLE CA	95076
SolWater Chemical Analyses Other	A BONAL		DV SM	/E

F AD STICKAL SPACE IS REEDED LEE NEXT CONSECUTION + NUMACRY 1 PORM

WELL COMPLETION REPORT

GEOCONSULTANTS, INC. G1570-01B 07/09 FIGURE A-2, Page 1

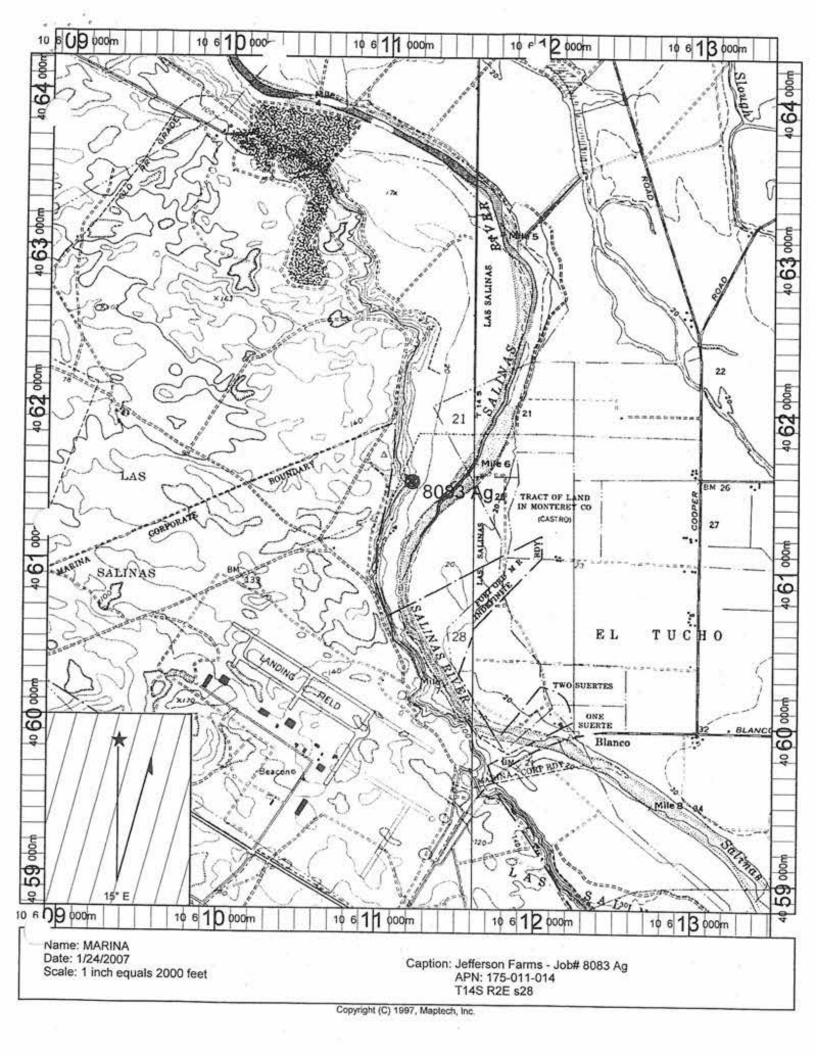
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> GEOCONSULTANTS, INC. G1570-01B 07/09 FIGURE A-2, Page 2

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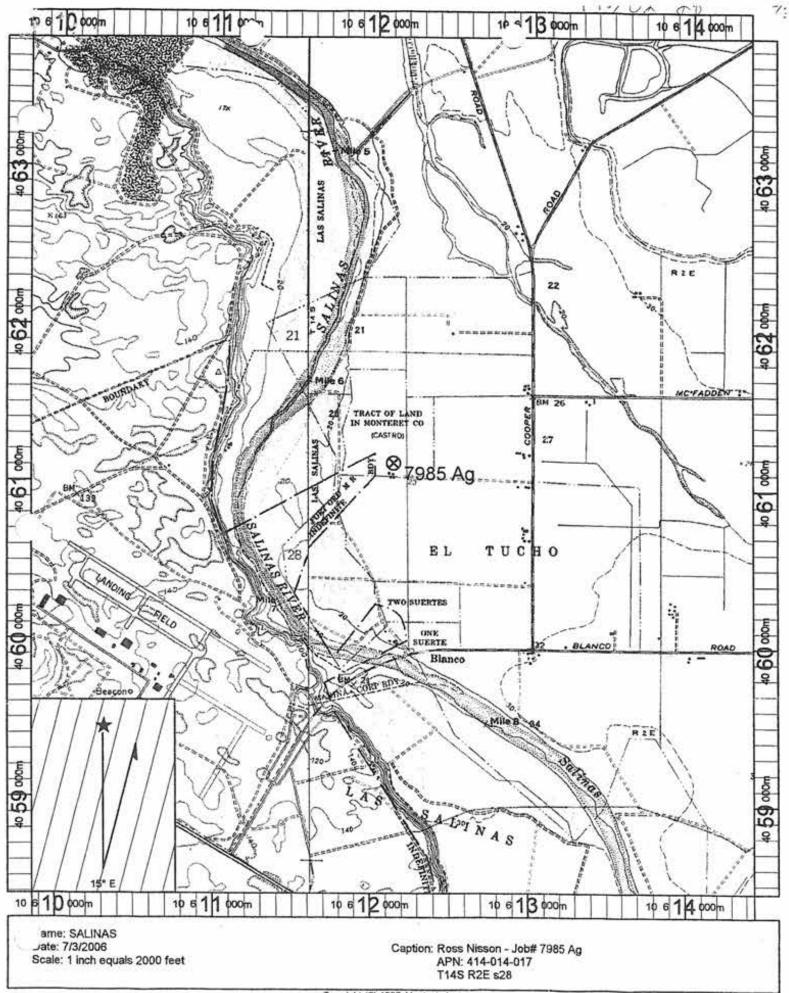
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780	790	COA	RSE	S	ANE)	TH BIAT TEL	- OLAT C	TREANS	City MCFADD		A			_	
790							H BRITTLE	CLAVS	TREAKS	County MONTE					_	
810	814	SAND)				TH BIGHT FEE		TREARO	APN Book 414	Page	014	Par	cel 01	7	
814	836	YELL	ow	C	LAY	WIT	H BRITTLE	CLAYS	TREAKS	Township 14 S	Rang	e2_E	_ Sect	tion 2	8	
836	875	YELL	OW	C	LAY	WIT	H SAND			Latitude	MIN	EC.			_	1 1
875		YELL				2						SKETCH			DEG	ACTIVITY (2) -
895						WIT	H SAND				- NORT		-			NEW WELL
945		COAF														DIFICATION/REPAIR
962							CLAY ST	REAKS V	VITH							Deepen
		SAND)			-									-	Other (Specify)
995		COAF														DESTROY (Describe Procedures and Materia
1025		BRITT														Under "GEOLOGIC LOC
1055							H SMALL (ANNED USES (\measuredangle)
1148	1200	BRITT	LE I	BL	UE	CLA	Y WITH SA	ND		WEST				н	WAT	ER SUPPLY Domestic Public
1200	1300	BRITT	'LE I	BL	UE	CLA	Y			Ň				EA.C		Irrigation Industria
																MONITORING
		*NOTE													in an	TEST WELL
		EXIST	ING	W	/ELL	. 16"	CASING T	0 727 FI	EET.						PATH	DDIC PROTECTION
		DRILL	ED .	TH	IRO	JGH	BOTTOM	DEEPEN	ING							DIRECT PUSH
		WELL	TO	11	80	EE	C									INJECTION
						_									VA	POR EXTRACTION
				_							- SOUTH				4	SPARGING REMEDIATION
	_			_						Illustrate or Describe D Fences, Rivers, etc. and	other h a more	I to a delibert	al months	118 11		OTHER (SPECIFY)
			_	_	_					necessary. PLEASE BI		_	_	1	-	
			_	_								& YIELD				WELL
				_						DEPTH TO FIRST W		(FL) BE	LOW :	SURFAC	Æ	
		<u>.</u>		_	_					DEPTH OF STATIC WATER LEVEL 49.	4		11111		8/14	/2006
0711 000		1.22.2.25	100	0						ESTIMATED YIELD *	-0545 F	(Ft) & DATE			0/14	2000
OTAL DEP						(Feet)				TEST LENGTH		- (GPM) & 1	IEST T	RR 1	2414	
OTAL DEP	THOFC	OMPLE	TED	W	ELL	1180	(Feet)			May not be repre	sentative o	f a well's h	one-ter	wiel	— (Ft) 4	
DEPTH	. 1		1	_	-	-						A HOND IS	Julk-ter	m yieu	4	
ROM SURF		BORE - HOLE	TY	PE	(1)	1	C/	ASING (S)		1	FROM S	тн		ANNI	ULAR	MATERIAL
		DIA.	¥	EN	żď	H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-	MATERIAL /	INTERNAL	GAUGE	SLOT SIZE	FROMS	JRFACE	0.40.1-	1	T	YPE
	R	(inches)	BLANK	CRE	DUCTOR C	E	GRADE	DIAMETER (Inches)	OR WALL THICKNESS	IF ANY	1000	2.2	CE- MENT	BEN-	FILL	FILTER PACK
FL to	0.000	16	E.	50	Q.	10.00					FL 1	o FL	S	()	1000000	(TYPE/SIZE)
	730	the second se	1	H	-	1.1.2.4	STM-135	8-5/8	.32	2	320	740	1			SAND SLURRY
300	730	1 22 23	v	1	+	10.00	TAINLESS	8-5/8			740	1200			1	SRI#8 SAND
	940	15.5	1 1	T	+	1.	VY SS	8-5/8		.050						
300 730		15.5				IS	TAINLESS	8-5/8			0					
300 730 940 960	940 960 990	15.5 15.5	1		-	1.0	N CO			.050	1					
300 730 940 960 990	940 960	15.5 15.5 15.5	1	~	-		VY SS	8-5/8	_							
300 730 940 960 990 1030	940 960 990 1030 1050	15.5 15.5 15.5 15.5	~	1			VY SS TAINLESS	8-5/8 8-5/8				1225		_		
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300 730 940 960 990 1030	940 960 990 1030 1050 VITACHIN Geologic L Well Cons Geophysics	15.5 15.5 15.5 15.5 15.5 IENTS function Di truction Di l Log(s)	√ √ (∠)	,			I, the undersig	8-5/8 TON DRIL ON, FIRM, OI	R CORPORATI	- CERTIFICAT	to the best o	f my knowled	ige and	1997		
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RIGINA ile with age 2 of 2	DWR							COMP Refer to Ins	truction Pa	Namph	REPOR	r 🗖	DWR US		21E	DO DISTAT	NOT FILL IN
)wner's			-		-	_			E046	66	i11		111	1		1	
Date Work	Began	7/24/200	6	_	20074	-,	Ended8/4/200)6				1	LATITUDE		1	LC	NGITUDE
Local P	ermit A	gency M	10	ITE	RE	Y	ONTY HEALT	H DEPT		-			1		DATING	OTHER	
Permi	t No. 05	-10703	or	01	~		LOG Permit	Date 12/2	29/2005			-				OTHER	
ORIENTAT	10N (⊻)	VE	RTIC	AL		HO	RIZONTAL		(SPECIFY)				WELL O	WNE	2 -		
DEPTH SURF	ACE	DRILLING				D	ESCRIPTION ial, grain, size,	301.05									
0:		and the second of the first second state	the second s	Concerner of	Contraction of	takat spectral	CASING		-	Ad	dress .54 MI	NOF CO	SELE 16	КAП	97 M	SOF	
727	780	YELLOW	N	CLA	Y	WI	TH BRITTLE	CLAY ST	REAKS		MCFADDE				March 141		
780	790	COARS	ES	SAN	ND			Nation Plants of States of States			unty MONTER			_			
790	810	YELLOW	N	CLA	Y	WI	TH BRITTLE	CLAY ST	REAKS		N Book 414		4	Deres	017		
810		SAND		alandariye				and a local second s			wnship 14 S						
814		Creation of the local sectors	N	CLA	Y	wr	TH BRITTLE	CLAY ST	REAKS		Contraction of the second s	Kangez		Sectio	n 20	17.	
836	-	And address of the Advention of the	-	-		-	TH SAND			La	titude	IN SEC				DEG.	MIN. SEC.
875	the second se	YELLON	10.000					_		-		ATION SI	KETCH -	_			CTIVITY (2) -
895						10/1	TH SAND					NORTH		-		1-1	NEW WELL
	and the second s	and the second state of th		العادماهياء	and set of the set	WVI	IN SAIND										ICATION/REPAIR
945		COARS					F OLAV OTO	CALCO MA	TU								 Deepen Other (Specify)
962	995	and the state of t	N I	ANL	18	LU	E CLAY STR	EAKS WI	111								- Onler (Specify)
		SAND														- 0	ESTROY (Describe rocedures and Mater
995		COARS			printer lab											1	nocedures and Mater Inder "GEOLOGIC LC
1025		BRITTL	_	107.27		1.2.2.	State of the second sec									and the second	NNED USES (∠
1055	1148	COARS	E	SAN	D	WI	TH SMALL G	RAVEL		÷						WATE	R SUPPLY
1148	1200	BRITTL	EE	3LU	E	CL	AY WITH SAM	ND.	_	WEST					ST		connestic Public regation Indust
1200	1300	BRITTL		BLU	E	CL	AY			3					đ		MONITORING
		NOTE				_										CATHO	DIC PROTECTION
		the second second second	_	-			5" CASING TO	second de la seconda de la								2	HEAT EXCHANGE
		Contract of the second second				-	H BOTTOM	DEEPENI	NG								DIRECT PUSH
		WELL 1	0	118	30 1	FE	ET.									VAP	OR EXTRACTION
					-	_				Fer	ustrate or Describe D nces, Rivers, etc. and researy. PLEASE Bl	attach a map. I	Use additiona	a paper	10		REMEDIATION
					_	_				~	WATER	LEVEL &					WELL
					_	_				1972			0.00				
			-		_	_		_			TER LEVEL 49		Ft) & DATE	MEAS	URED _	8/14/	2006
		<u>.</u>			_	_				ES	TIMATED YIELD .	928	(GPM) & 1				
TOTAL DE					-	(Fe	C (A			TE	ST LENGTH	(Hrs.) TO	TAL DRAW	DOWN	88.1	_ (PL)	
TOTAL DE	PTHOF	COMPLET	ED	WE	LL	11	80 (Feet)			1	May not be repre	sentative of	a well's le	ong-ter	m yield	1	
051273			_	_	-			0010 00		-				<u> </u>		ole charte	
DEP1 FROM SUF		BORE -	T	YPE	11	11	C/	ASING (S)		T		FROM SU	TH	-	ANN	and the state of the	MATERIAL PE
		HOLE DIA.	×	Z	œ	g	MATERIAL /	INTERNAL	GAUGE	ŝ	SLOT SIZE	1100000	A POE	CE-	BEN-	-0	Conservation and the
Ft. to	(inches) 3 9 88 6					FILL PI	GRADE	DIAMETER (Inches)	OR WALL THICKNES		IF ANY (Inches)	PL to	R		TONITI	FILL ()	FILTER PACK (TYPE/SIZE)
1050	1160	15.5		1			HVY SS	8-5/8			.050	320	740	1			SAND SLUR
1160	1180	15.5	1				STAINLESS	8-5/8				740	1200			1	SRI#8 SAND
18																	1
1																	
1																	
				T		1								-			
	ATTACH	MENTS (1	, -	_	-				_	CERTIFICA	TION STA	TEMENT	r —	-		
	Geologic	Log									mplete and accurat				belief.		
_	Well Con	struction Di	agra	m				ATON DRI			N) (TYPED OR PRI	UTEIN	nyo-250-566	and la	- sound	-	
_	Bernhalt							JUN, FIRM, O	IN SAURPLING	116.2	ALCOPPED OR PRO	ALC: NO					
	Geophysi SoilWate	1.		duele			20 WEST	KENTUC			· · · · · · · · · · · · · · · · · · ·		OODLAN	٧D		CA	95695
		cal Log(s) If Chemical	Ana	ilysis				KENTUC					CITY	4D	_	CA	the second se

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Copyright (C) 1997, Maptech, Inc.

	ST	Nos. 289276 of June 6, 1989 145/2E-30
ORIGINAL	THE R	Do not fill
File with DWR	DEPARTMENT	OF WATER RESOURCES
File with DAAK	WATER WEI	L DRILLERS REPORT No. 289272
	(1110-005) 11-50	deter-
Notice of Intent No.	1000	State Well No.
Local Permit No. or Date April	1, 1989	Other Well No
(1) OWNER:		-(12) WELL LOG: Total depth 2020 ft. Completed depth 1950
Address		from ft. to ft. Formation (Describe by color, character, size or materia
City		0 - 80 ft. fine sand
(2) LOCATION OF WELL	· · · · · ·	80 - 100 ft. fine sand/silt
(2) LOCATION OF WELL (CountyMonterey	ee instructions): Owner's Well Number#	100 110 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Well address if different from above .		A.M.
Township Rang	(175-011-37)	130 - 160 ft. sandy clay
		160 - 250 ft. fine send
Distance from cities, roads, railroads, f	ences, etc.	250 - 270 ft. sandy day
See attached	map	
		Tent of build think the
		200 420 G L Carto and Sal
-	(3) TYPE OF WORK	100 100 00 11 100
	New Well 🔂 Deepen	400 500 60 50
	Reconstruction	E20 / 600 ft /
	Reconditioning	E20 Ath Ct
1	Horizontal Well	
	Destruction [] (Desc destruction materials ar	nd pro 60 920 fto brown clay silty clay
	cedures in Item 12)	Silly Clay
	(4) PROPOSED U	USE 920 - 950 ft. coarse sand and clay
	Domestic	Caso - soo II. Clay
	Irrigation	
	Industrial	
	Test Well	1110 - 1200 ft. ciay and sand
	Municipal	1200 (+) 1230 ft. clay and gray clay and sar
	Other	1230 - 1300 ft Sandy clay
WELL LOCATION SKETCH		1300 - 1350 ft. blue sandy clay
1		1350 - 1400 ft. shale and clay
(5) EQUIPMENT	CRAVEL ACK Montere	Sand400 - 1420 ft. clay and coarse sand
Rotary 🗌 Reverse 🌋	the By No 12 Size (2)	20 1420 1520 ft. blue clay, coarse sand
Cable 🗆 Air 🗌	Burnetevol bore 28"	1520) 1570 ft. blue clay some shale
Other 🛛 🛛 Bucket	Record from 1250 WT.D	
(7) CASING INSTALLED	(8) PERFORATIONS MOSS	1650 - 1680 ft. fine sand
Steel Plastic Doncree	Type of performinon or size of received	1680 - 1740 ft. blue clay
-	XII () XIV)	the start start start start start
From To Dia Gage or ft. ft. Wall		1860 - 1900 ft. clay and shale
	1 10 10 11	1000 1000 It. Sand and Clay
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		40 1980 - 2020 ft. clay and sandy clay
and the second s		40 -
1940 1950 16" .312	1660 1700 .0 1780-1810	40 - ft = 1920-1990 ft and 1000 1040 ft
(9) WELL SEAL: Was surface sanitary seal provided? Yes		ft. & 1830-1880 ft. and 1900-1940 ft.
김 부분이 많은 여러 제가 물건을 가지 않았는 것을 하는 것을 받았다.	A 1050	
Were strata sealed against pollution? Yes Method of sealing <u>cement g</u>		
	WAL DUAL	Work started April 11, 1989 Completed May 5, 1989
(10) WATER LEVELS: Depth of first water, if known100		WELL DRILLER'S STATEMENT.
Standing level after well completion	100	This well was drilled under my jurisdiction and this report is true to the
and see all set of the	AX 4	best of my knowledge and belief.
(11) WELL TESTS: Was well test made? YeXX No [If yes by whom? Beylik Di	illingigned Dean Marshall
Type of test Pump D	Datier L	NAME DETLIK DRILLING, INC.
Depth to water at start of test 100 ft.	At end of test100	(Person, firm, or corporation) (Typed or printed)
Chever i and i	bours Water temperature	Address 591 S. Walnut Street
Chemical analysis made? Yes 🖾 No 🛙 Was electric log made Yes 🖾 No 🗍		W.D City La Habra, Calif ZIP 90631
Wat Prestric log made Yes 2 No	If yes, attach copy to this report	License No 306291-C57&C-61 Date of this report Aug. 28, 19

A.			¥			(a)\$3. 38		12	
			1	э			1		Do not fill in
TRIPLICATE			1		TATE OF CA	ES AGENCY		52 112220	
Jumer's Cop						ATER RESOL	RCES	No.	225501
				UNTER W	FTT DR	ILLERS REI	OBT	V	15/02E-31HOL
wire of Intent No	-		- ·	VALER W	VZCL#		U.I.I	(When Well No P	RESSURE-DEEP
and Point No, or D	+++			0	VELC	0		concerned and	
									completed well 1550
					-	and the second se		while by unlor, charac-	ter, size or material)
							3 Sand		
2) LOCATIO	NOFY	VELL	See instruct	ions):	5 F	and the second se	And and the second s	th cemented]	CDSCS
County San I	iego_		Owner's V	Vell Number_1	0		3 Sand	th brown clay	
lett address of differ	ent from ab-	ove				and the second se	3 Fine sa		
ownbip_145		lange	26	Section 32	And a state of the local division of the loc		3 Blue cl		
istance Imm ritics.	roeds, railm	nds, lence	s. eto. 2600	Bouth an	a 400	and the second se	3 Coarse		
E ÉTOR NU	orner	or se	ction 34	. BOILI G	DEL OL		a design of the second s	sand with gra	wel
er Avenue			1000				3 Coarse		
	-15.526		1	(3) TYPE OF	WORK:		3 Fine ss	artifulor and a second s	
1		1	1 5	New Well CE I	Despening D	the second s		s and sand	
Crumpton	.)	1		Recentruction	D	the second se	5 Sand an		
School)/	N	Reconditioning			5 Boulder		·1
		Wel	4	Honizontal Well	0	and the second se		coarse sand, d brown clay	glaver
	NU/	·	_]	Destruction C destruction mate procedures in Ite	Describe rials and			y and sand	
	21			(4) PROPOS				nd and silt	
		Ridge	2/11.●	Domestic	ED USE.	the second se	the second s	the balance of the second s	ailty sand,
		- Vara	Ave	Imgation .	. D	- 14	sea she		
	T	\sim 1		Industrial	NA D	515 - 52	5 Red sar	dy clay, bro	m clay, sand
}	elvill	e Ave	yer	Test. Well	•37 D	6. Mar	lenses		
2	- T.	-2	88	Stock	D	the second se	5 fine at		
			$\mathbb{H}_{\mathcal{N}}$	Municipal	D.	the second se	the second s		sand, gravel
WELL	LOCATIO	N SKETC	24 N.N	Other	10 D		-	gray clay	
S) EQUIPMENT			1.2.	PACKI HOD		the second s		andatone	
Rotary 🗋	Rove	M DK			8 sand		1 Tan si		
ے slde	٨ŵ		Diameter of b		1550 4		5 Tan cla		
Other D		H 🗆		MOL ISKOITA		and the second se	5 Gray c		
(7) CASING INS	10. The second	() china		inhing or size of a				lay, gravel s	treaks
Stored DX Plantie		Cage or	1	To	slot	905 - 92	5 Tan sa	dy clay	
From To	Dia.	Wall	ft.	ft	Tize	925 - 95			le and sandy
0 60	26	1/4	930	970	0.040	-	clay s		
0 930		5/16	990		0.040			sandy clay sand, tan as	nd alay
970 990		5/16	1040	1080	0.040	the second se			
(9) WELL SE		1002 8	123 8 12] If yes, to depth	860 n			Lay, sand len	nd, sandy clay
Was surface sanita				to interval	/t	1005 -10	5 Gray 5	andy clay, ce	m. gravel,she
Were strate scale Method of sealing		Post Joos				- Work smithed	-2319	83 Complete	db
(10) WATER	200 C 200 C 20	í.			2	WELL DRILL	ER'S STATE	MENT:	
Depth of first w			15	5	ft.	This wall une dri knowledge and h	iled under my i niiot.	nriadiction and that top	ort is true to the best u
Standing level aft (11) WELL 7		pic bon				SIGNED A	121 612	Ling	se
Was well trat ma	da? Ye		n [] If you	by whom?_Cha	Brol	1	tene lind-	(Well Dollar)	7.1
Type of test Depth to water		- 10	Builer (-310 H	1 832 AGA	(Penus, finn,	it corporation) (1) ped	or puinted)
Depth to water Discharge 2000	on iteration	NTR. 2.	0 hours	Water tempe		Addres		erald Road	pp95670
Sound Street			No DI 11 yrs.	by whom?Oth			Cordova, 394815	California	0 9.03
Chevial salves						License No	MAKIN	Date of this rep	

DWH 188 (HEV. 7.74)

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE

Continued from No. 225507

THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES WATER WELL DRILLERS REPORT

1

Do not fill is

1.5

No. 225502

Sime Wall No. 145/02E-31401

Other Well No.

Notice of Infend No._____

	98		
	(12) WELL LOC: Total depthH. Depth of completed woll form ft to A. Formation (Describe by color, character, size or material)		
	1025 1035 Blue clay, wood at 1033		
2) LOCATION OF WELL (See instructions):	1035 - 1055 Blue sandstone		
ountyOwner's Well Namber	1055 - 1075 Blue clay		
Vall address if different from above	1075 - 1085 Tan clay		
www.hipRangeSection	1085 - 1108 Blue shale, sandstone streaks		
listance from cities, roads, railwoods, feboos, etc	1108 - 1137 Black sandy clay, black sandston		
· · · ·	1137 - 1155 Black sandy clay		
	1155 - 1173 Cemented aand, gravel, shalls		
(3) TYPE OF WORK			
New Well [] Drepening (
	1185 - 1212 Dark gray sandy clay		
	D 1212 - 1215 Cemented sand, gravel		
	1215 - 1225 Sticky blue clay		
Destruction 🖵 (Describe destruction materiais and	1225 - 1235 Blue sandstone		
(21 mell ai cruckord	1235 - 1245 Sticky blue clay, sandy Lenses		
· (4) PROPOSED USE	1245 - 1255 Sandy black clay with shale		
Domestie	1255 - 1265 Blue clay, fine gravel @ 1260		
Inigetica	1265 -1275 Blue sendstone, clay Lenses		
Industrial	1275 1285 Blue Bendstone		
Test Wall	1285 -1305 Black sandstone and shale		
Stock	1305 -1317 Sandy black clay		
	0 1317 -1320 Black stone		
and the second			
5) EQUIPMENT: (6) GRAVEL PACK:	1328 - 1343 Sandy black clay		
Actany D Neverse D Yes D No D Size	1343 -1365 Sandstone		
Cable D Aur Dismaster of bore	1365 -1370 Grav sandy clay		
other D Suchet D Packed from	1370 -1375 Sandstone		
7) CASING INSTALLED	1375 -1395 Gray silty clay		
iteel D Plantie D Concrete D Type of perforation or sine of screen	- 1395 -1398 Sandstone		
From To Dia. Care or From To Skot	1398 -1408 Gray silty clay		
ft. ft. Wall ft. It izzo	1408 -1410 Black sandstone		
1010 1040 16 5/16 1190 1210 0.040	1410 -1415 Silty blue clay		
1080 1190 16 5/16 1500 1540 0.040	1415 -1418 Black sandstone		
1210 1500 16 5/16	1418 -1435 Silty blue clay		
9) WELL SEAL:	1435 -1437 Gray clay with gravel		
영상 (1.) 2019 - 2014 전 (1.) 2014 전 (1.) 2014 - 201			
Were strate scaled against pulbelion? Yet O No O Interval	n. 1437 "1445 Coarse send, gravel		
Sethod of scaling	Work started19Completed19		
10) WATER LEVELS: Depth of first water, if hown	WELL DRILLER'S STATEMENT: R. This well uses shallow under my isometication and this report is true to the best		
Standing level after well consistion	R. knowledge and better.		
(11) WELL IESTS:	SKINED (Well Driller)		
Was well test mode? Yes No 11 yet, by whom? Type of test Passe Bailer (Air lift)			
Yepth to water at start of testft. At end of test	A (Perron, Son, or corporation) (Typed or printed)		
Ascharge cal/min after bours Water temperature	Audress 3362 Fitzgerald Boad		
Chestical analysis made? Yes No If yes, by shoes?	Grancho Cordova, California 74		

UWH 100 (NEV. 7.74) . IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

1.0			C3	17.	
			3	Continued from 22550	02
		(STATE OF C	an a	Do not fil
TRIPLICA			THE RESOUR		
Owner's Copy DEPARTMENT OF W					No. 225503
		100.00	2 것: 사망분에 가장님께서 아파는 몸 날 생승님께.	ILLERS REPORT	STOLE WHIL YO 145/02E-3140
ene of Intest			AIEA WELL DI		
cal Pennat No	or Date				Other Welt No
				(12) WELL LOG: Total dept	
			-	from it. to fr. Formation (Deser 1445 - 1455 Blue class	the by rodes, character, size or material)
-/	N. A. Carrier and a state of the second	1.40			, sandstone streaks
2) LOCA	TION OF WELL			1475 - 1485 Blue sha	
	1	Owner's W	ell Number	1485 - 1505 Cemented	
	different from above		Version	1505 - 1511 Brown and	
moship		Strategies	Section	1511 - 1523 White sa	
istanus from r	wirs, muds, mitroadi, lene	es, etc		1523 - 1535 \$14t4 Sh	
				1535 - 1540 Green cl	
				1540 - 1544 Fine to	
		1	3) TYPE OF WORK:	- 1544 - 1546 Green cl	
		1	New Well D Deepening		ay, white sandy clay.
			Reconstruction	- blue sha	
			Reconditioning D	1550 -1557 Black sai	and the set of the set
			Horizonial Well	1	dy clay, white sendare
			Destruction [] (Describe	black sh	Construction of the second
	(1)		destruction materials and procedures in Item 12).		istone, white sandstone
		17	(4) PROPOSED USE:	411 -	A 30
			Domestic .		1 1
			Inigarioo	- 14 · · · · · · · · · · · · · · · · · ·	<i>...</i>
	50 - C		D // faither	Section 3	
			Test. Well D	ANS 1944	
			Stock	- 10 - 1 N N M	
			Municipal		
	TELL LOCATION SEET		Other C D		
S) EQUIPM		(0) GRAVEL		× - *	
Rocarry D	Berrine D	Yes D No			
Cabler D	~ D	Distance of box	· · · · · · ·	-(20,00)-	
Other D	Bucket	Picked from		- 10/00/	
	INSTALLED:	(8) PERFORA	TIONS		
	tassie Conserve D		tion or size of scares	NO -	
	- I- I-V	12	To Slot	-	
Froin ft.	To Dia Gagaon	ft	ft size	-	
	550 16 5/16	0	1 1 St.	-	
Then by	and the same		6 6 11.	7	
			1.1992 V		
(9) WELL	SEAL		0	· · · · · · · · · · · · · · · · · · ·	
	sensitivey seal provided? Y	No C	If yes, in depthft.	•	
Were strata	sealed spatiast pollution	Ter O No	C Intervaltt.	-	
Mathed of a				Work sturted19	Completed19
(10) WAT	ER LEVELS			WELL DRILLER'S STATEM	SNT:
	at water, if known		h	This woll ups drilled water my just translate and betist.	affection and this report to true to the bes
(11) WEL	A after wall completion			SCHAD MAILING	- Sul men
Was well to		No D 11 yes, by	wkow?		WaltDraker
Type of test	Pung []	Bailer 🛛	Air bift	NAME Stang Bydro	unguestina) (Typed or printed)
12. S.	ner at start of test	^{IL}	At end of testh	Addres 3362 Firsperald	Road
Discharge	gal/mis after	buen	Walar humperstand	Ciry Rancho Cordova, C	
Company and the second	atyais made? Yes 🖸	No [] If you be	and the second se	City	

ORIGINAL

N

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File with DWR

1.1

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

Do not fill in No. 240867 State Well No. 145 2E-321 Other Well No.

/ elof _2_pages

232508 of Intent No._ ermit No. or D11-4-85

	IN 110. 01 Dane				Outer Well No
(· ON	VNER				(12) WELL LOG: Total depth 1700 ft. Depth of completed well 1660.
Address					from ft. to ft. Formation (Describe by color, character, size or material)
City					0 - 50 ft. sand, fine gravel
(2) LO	CATION OF	WELL.	/ See instruc	tions):	50 - 60 ft. gravel
County	Monterey			Well Number No. 11	60 - 80 ft clay
Well addre	sa if different from	above		1998/2000/00-2007_10/2-1	80 - 90 ft. sand and wood
Township_	CONSIGN CONSIGNATION	Range		Section	90 - 110 ft. sticky sand
	om cities, roads, rai	leoads, fenc	es, etc. appi	cox. 140 ft. West	110 - 120 ft. sand and wood
of Sal	inas Ave.	at Re	servation	n Road	120 - 140 ft. sana
Marina	,Calif.939	33	1		140 - 170 ft. clay
	· · · · · · · · · · · · · · · · · · ·			0	170 - 190 ft, fine gravel, little clay
				(3) TYPE OF WORK:	190 / 200 ft. gravel
	<u>8</u>			New Well X Deepening	
10	VELIN			Reconstruction 🛛	
14	2		5.12	Reconditioning	220 220 44 (2) 120
12.000	1.000		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Horizontal Well	Canal and the second
14			8 S	Destruction (Describe	260 - 270 gravel (
1.5	1 - No -			destruction materials and procedures in Item 12	270 - 290 ft. gravel (small amt. clay
2	- 3-		1 . A.	(4) PROPOSED USE?	290 - MOST. fine gravels
74	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			Domestic	310 - 330 ft. gravel clay and sand
2 H B				Irrigation	
	131.3.4	1.2	1	Industrial	
				Ten Well	
				Stock	
				Municipa	380 - 290 ft. clay, gravel mixed
	WELL LOCATI	ON SKETC	и //	Other O	390 - 400 ft. clay and gravel
(5) EQUI	PMENT:	38	(6) GRAVEL	PACK: MONTERES (Gan	d 400 15 440 ft. gravel
Rotary] Reve	ense 🖄 🖍	XAX No	Size Stall	- 440 490 ft. clay
Gable] Air		Rember of be	28 28	- (490))- 500 ft. gravel and sme clay
Other] Buck	cet 🗆	Packed from_	880 1660	5 500 - 510 ft. clay
(7) CASIN	NG INSTALLED:	0	(8) PERFOR	ATTONS Johnson Shak	SIO - 540 ft. clay and sand
Steel 🕅	Plastie 🔲 Cor	the spirat	Type of perfe	The AMARANA	540 - 550 ft. sand
From	To Dia.	Gage of	Frank	VTO CSDA	> 550 - 580 ft. clay
ft.	ft. (CMn.	Wall	ft	ft. size	580 - 590 ft. sandy red clay
0	880 30,	5/16"	970	1100 240	590 - 650 ft. sandy clay
0		5/16	1540	1570	650 - 660 ft. gravel and small rocks
			1610	18501	660 - 670 ft. clay, small amt. gravel
(9) WEI	LL SEAL:	1.0		600	670 - 790 ft. clay
	e sanitary seal prov	vided? Ye	No 🗆	If yes, to depth 880 ft.	790 - 810 ft. sand and rocks
Were stra	ta sealed against	pollution?		□ Interval_0 - 880 _{ft} .	- continued on next page #240868
Method of sealing 6 sack grout mix					Work started NOV. 4 19.85 Completed January 919.86
(10) WA	TER LEVELS:		1.60	5 G	WELL DRILLER'S STATEMENT:
	first water, if kno	Section and	168	ft.	the det was anned baer my production and the report is the to the best of he
Statement of the statement of the	evel after well com	pletion	100	ft.	
(11) WELL TESTS: Was well test made? Yes K No I If yes, by whom? Beylik Drill					1 Signed Weil Driller)
Type of te		PX0	Bailer []	Air lift 🗌	NAME BEYLIK DRILIGING, INC.
	water at start of			At end of test_168_ft	Address 591 S. Walnut Street
arge 2500 gal/min after 133 hours Water temperature					La Habra Calif 90631
Chemical a	analysis made? Ye	s 🗆 Ne	If yes, b	y whom?	License No. 306291-C57&SC-61Date of this report Jan. 21, 1986

Continued on Page 2 Well produced 2500 GPM after 133hrs. with

drawdown of 180 and specific yield of: 11.11

Over

ORIGINAL

Notin'

File with DWR

" Intent No.

23

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

Do not fill in

2

240868

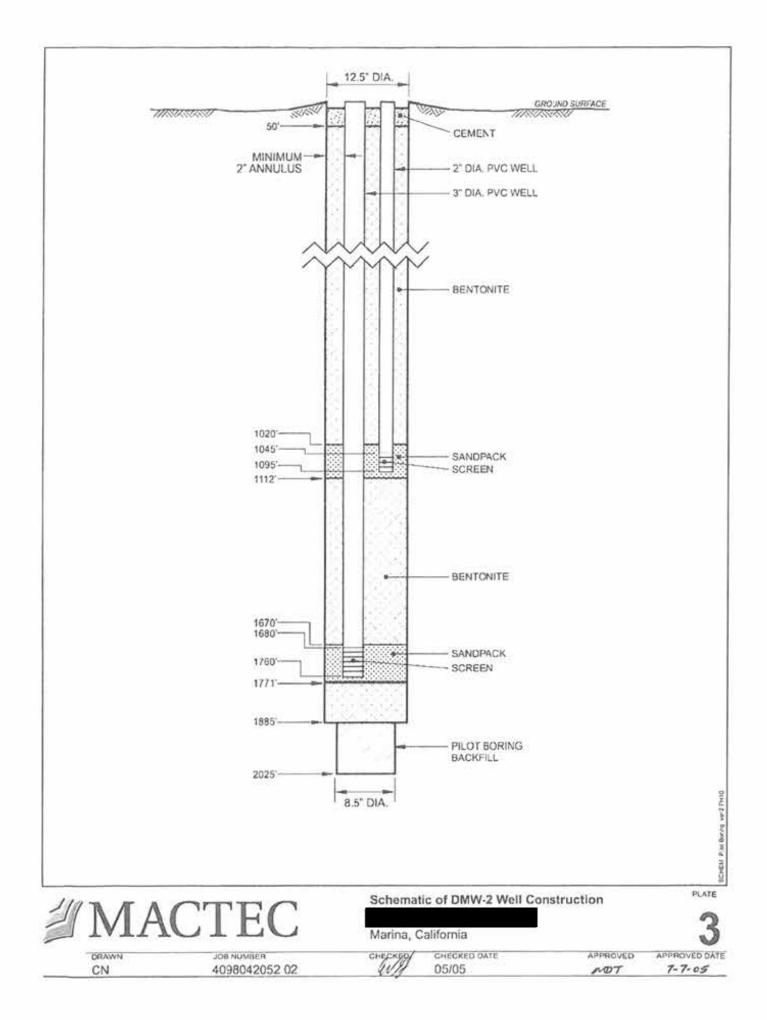
State Well No._

No.

Loci mit No. or Date_11/4/85	Other Well No
(1)	(12) WELL LOG: Total depth 1700 ft. Depth of completed well 1660t.
	from ft. to ft. Formation (Describe by color, character, size or material)
Add. City	810 - 820 ft. clay and rock
	820 - 830 ft. gravel, little clay
2) LOCATION OF WELL (See instructions): 	830 - 960 ft. clay
Owner's wear Number 1988	960 -970 ft. sand a ay and rock
Well address if different from above	970 -990 ft. sand and wock
Distance from cities, roads, railroads, fences, etc. approx.140 ft. West	t 990 -1000 ft. small amt. clay, gravel and rocks
of Salinas Ave. at Reservation Road,	1000 -1010 ft. grayel, small rocks
Arina, Calif.93933	1010 -1040 ft. silty clay
	1040 -1050 ft. silty clay, trace of gravel
(3) TYPE OF WOR	
New Well & Deepening	
Reconstruction	A second s
	D 1090 -1094 ft. grabite, decomposed
Reconditioning	- 1094 ft-1100 ft. granite sea shells
Honzontal Well	- 1100 -1160 ft (13)
Destruction (Describe destruction materials app	
procedures in Item 121	1170 -1180 ft. clay
(4) PROPOSED US	
Domestic	91190 -1220 ft. clay
. Irrigation	D 1220 1230 ft. sand and clay
Industrial	□ 1230 1-1240 ft. rock and clay
rest Well	D 1240 -1310 ft clay
Stock	(21310) -1330 Ht hard brittle clay
Municipal	xx 1330 -1250 Et. chunks of hard clay
WELL LOCATION SKETCH	D 1350 -1390 Ht. clay
(5) EQUIPMENT: (6) GRAVEL PACK: MONTOREY (5)	and1390 (-1480 ft. soft clay
Rotary D Reverse X Re M No Size 8 16	1480 1500 ft. clay, sand and rock
Cable D Air D Dispeter of bore 28"	1500 -1510 ft. clay and sand
Other . Bucket . Packed from 880 to 166	200 1510 -1530 ft. clay
(7) CASING INSTALLED: (8) PERFORATIONS: Johnson	1530 -1539 ft. clay and sand
Steel & Plastic Concrete Type of perfection or size of screen	1539 -1570 ft. sand and clay
	1500 Stores aft alars and
ft. ft. Wall From To Slot	
0 880 30 5/16" 970 1100 040	
	1600 -1620 ft. clay, some sand, and gravel
	1650 -1670 ft. gravel 85%, white clay: 15%
(v)	
Were strata sealed against pollution? Yes b No I Interval 0-880 Method of sealing 6 Sack grout mix	Work started Nov. 4 19.85 Completed Jan. 9, 19.86
HAL WILMON I FILEI C	WELL DRILLER'S STATEMENT:
Depth of first water, if known 100	_ft. This well was drilled sunder my superdiction and this report is true to the best of my .
Standing level after well completion168	tt. knowledge and belief.
(11) WELL TESTS:	SIGNED (Well/Deller)
Was well test made? Yes XX No I If yes, by whom? Beylik D	THE DEAL THE DEAL THE THE
Doubt to water at start of test 108 for - At and of test 168	SULS WAINIT STREET
Depth to water at start of test 168 ft. At end of test 168	Auditoria
r <u>se 2500 gal/min after 133 hours</u> Water temperature	Ta Habra Calif. Zip 90631
2500 133	Ta Pabra Calif 7 90631

Well produced 2500 GPM after 133 hrs.with drawdown of 180 and a specific yield of: 11.11

145/02E-33E01 (FC 26313) 145/02E- 33E02 (FC 26314) ORIGINAL STATE OF CALIFORNIA USE ONLY File with DWR WELL COMPLETION REPORT Page ____ of ___ Refer to Instantion Compilet STATE WELL NO ISTATION NO . Ended Jan 25 212 37000 Owner's Well No. Date Work Began Jon 6 2005 LATITUDE ONGITUD Local Permit Agency Montering Country Dept of Health 04-08447 APHITRECOTHE 10/19/04 Perunt No .. Permit Date_ Pressure Deep GEOLOGIC LOG VENTICAL -OFIENTATION (1) Retary FLUID Fotzelle LEAST METHOD Mod Retary DEPTH FROM SURFACE DESCRIPTION Describe unterial, grain size, value, etc. £Τ. 10 see altached geclogic log WELL LOCATION 3200 Impin Read Address. Marnin City Morderry County . Parcel_031-111-037 APN Book _ Page Township 14 5 Bange R2E Section _ 11A. Latitude 36 40 24 KORTH Longitude 121 , 45, 40 WE51 LOCATION SKETCH ACTIVITY (2) X NEW WELL NORTH 12 MOMPICATIONREPAIR ÷ ___ Deepen HHVENE ____ Other (Specify) Tanua DESTINOY (Describy Procedures and Matenals Under "GEOLOGIC LOG" Dime-2 PLANNED USES (±) 4 WATER SUPPLY iller sugar Putter ___ Coneste __ _ irrigation ____ industrial MONITORING X TEST WELL ... CATHODIC PROTECTION _ HEAT EXCHANCE Resi DIRECT PLISH INCECTION . VAPOR EXTRACTION UTS SPARGING _ SOUTH REMEDIATION . Illestence or Describe Detroy of Well from it-out. Buildings Forers, Burry, etc. and attach a map. Use meltioned population increasing PLEASE BE ACCURATE & COMPLETE. OTHER (SPECIFY) _ WATER LEVEL & VIELD OF COMPLETED WELL DEPTH TO FIRST WATER ~100 (FL) BELOW SURFACE DEPTH OF STATIC WATER LEVEL 160.1 0/1485 (FT) & DATE MEASURED JAN 24,2425 ESTIMATED VIELD * NIA (GPM) & TEST TYPE NIA. TOTAL DEPTY OF BORING 2025 (Feel) TEST LENGTH N/11 DEL TOTAL CRAWDOWN N/18. (Pt) Note: 2- Ule well TOTAL DEPTI OF COMPLETED WELL _1760 (Fer) * May not be representative of a well's hang-term yield. CASING (5) DEPTH FROM SURFACE ANNULAR MATERIAL DEPTH FROM SURFACE BORE-TYPE (1 TYPE CCN. DUCTOR DIA. SCREEN INTERNAL MATERIAL / GAUGE SLOT SIZE CE. REN. #LANK DIAMETER (inches) DR WALL FILTER PACK GRADE IF ANY MENT TONITE FILL Ft: 10 Ft. (inches) THICKNESS (incres) EL. 100 FL (TYPE/SIZE) (×) 121 121 0 40 16 Steel 5/8 1 0 11-Sact wire 1 26313 50 5 11.96 PVE 2-10 1 314 80 50 Pore Grand -1045 SHALLOW 1045 1095 PVC 2-14 514 80 0.20 1045 1112 # 3 4 #46 75 Õ 1650 3 -14 PUC 5161 30 1650 1112 = 26314 in 2 CTC Id 1680 1760 U PVC 3 -1+1 516, 80 1.20 1680 1771 #3 .1/#00 75 DEEP 11885 1771 1 Pure Creid ATTACHMENTS (2) CERTIFICATION STATEMENT I, the undersigned, certily that this report is complete and accurate to the best of my knowledge and cellet. K Grologie Log Woll Construction Disgram NAME UT BOOM Geophysical Log(s) CH_ 95699 90 ScilWater Chemical Analyses amera ADDRESS Oster . 3326 ATTACH ADDITIONAL INFORMATION IF IT EXISTS. DWD PAS HEN: 11.97 IF ADDITIONAL SPACE 'S NEEDED. USE NEXT CONSECUTIVELY NUMBERED FORM



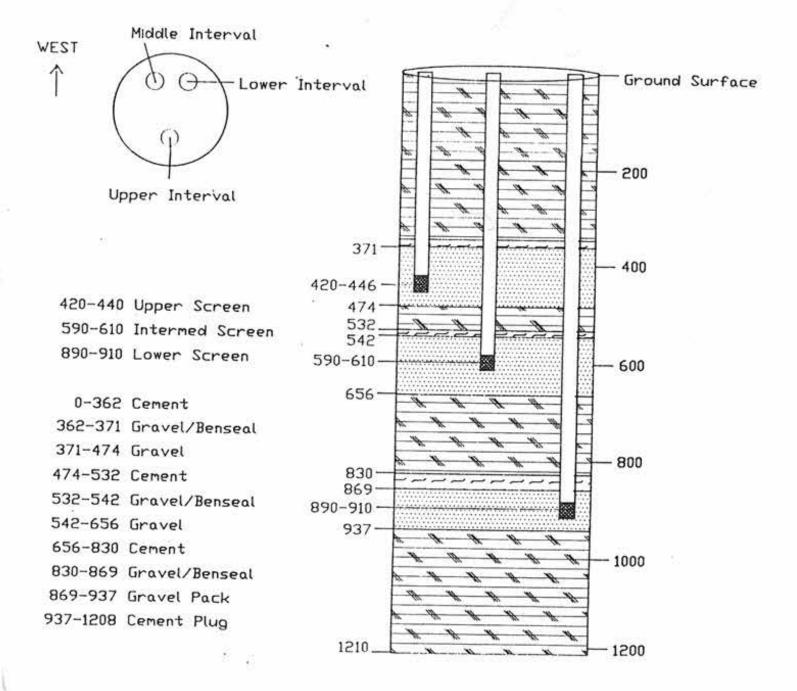
OPIGINAL	51 ar					STA	TE OF CI	<i>UP</i>	DER AQUIFE				
File with DW					WE	LL CO	MPLE	TION REPO		clo	7 E	- 00	NOT FILL IN
Page 1 of _				2 1		Refer to	o Instruct	ion Pamphlei	1 1/15/	> ST	ATE WE	L NO./S	014 A P
Owner's Well N	lo. Well	D	les	tl			No. C	FEOED		1			I I I
Date Work Beg	an/	15/9	95	_	Ended2	2/28/95	0	55850		UDE			LONGITUDE
Local Permit	Agency _	Mont	cer	ey	County He	alth D	ept.		1.55	Ch2	FIE	- ch	LA de I
Permit No.					Perr	nit Date	1/23/	95	- 604	YE	APN	TRS/O	TITIGA /1
					IC LOG -				WELL		unn i	Ff.	Ord
ORIENTATION (∠)	VERTICA	i		HORIZONTAL	ANGLE	_ (SPECIEY						
DEPTH FROM	DEI	TH TC	FIR	ST V	VATER (I	Ft.) BELOW	SURFACE	·					
SURFACE	_				DESCRIPTIO	N							
Ft. to Ft.			Desc	nbe	material, grain size	, color, etc.			WELL	19202-10	22-23.00	1	TATE ZIP
0 140		<u>, li</u>	ght	t b	prown, fin	e to me	edium	Address Res	ervation Roa	d At	Gar	rico	2
140 : 335	grai							Ft.	Ord		or car	1150	
140 ; 335	the state of the second st	, 11	ght	<u>b</u>	prown, fin	e to co	barse	_ County Mont					
335 440	grai	ned,	_ SL	ibr	ounded to	rounda	ed		Page	Dan	Ior		
335 440	Sand	WIT	n c	ne	rt pebble	s and s	shell	Townshin	Range	- I art	ion		
440 470	Trag	hent	5,	co	arse grai	ned		Latitude	I I NORTH		gitude		
440 470 470 480		Y CI	ay	WI	th sand a	nd grav	/el	DEG	MIN. SEC. OCATION SKETC		Surue	DEG.	MIN. SEC.
480 : 495	Diate	WIL	1 0	ne	rt pebble	S			NORTH	n —		X	ACTIVITY (2
	Sand	wit:	h	11	<u>claystone</u>	with s	and	-	8				NEW WELL
1 000	iclav.	ston	0 4	11	t and roungments	nded di	atomac	crous	Se v			100	Deepen
530 580	Clay	re	ddi	ch	brown to	Aug 201			N X	1			Other (Specif
1		int	arh	od	ded sand	gray b	rown	Ros	ervation Rd		7		
580 : 610	Sand	wit	hc	ho	rt pebbles	and t	hin	- 1 100		/	6		DESTROY (Describe
		lav	ore	ne	coarse gra	and t	nin	- 1		/		100	Procedures and Math Under "GEOLOGIC L
610 : 645	Clay.	or	ang	0	brown soft	minor	and	EST			- 3	PL	ANNED USE
		with	h c	ho	rt pebbles		Sand	- N	Courson	2	1		X (Z)
and the second second	grain	ied.	SU	bai	ngular	Loar	se	11	Chi.			WAT	ER SUPPLY
690 : 735	Inter	bed	ded	1	avers of s	and an	d coft	The T	10				Domestic
1	light	ve	110	W	brown clay	/	<u>u 501 u</u>		10				- Public
735 870	Clay.	lie	tht	bi	rown, stif	f. loc	a]		/				Irrigation
	sand	and	gr.	avs	el lenses	100	<u></u>	1 1					Industrial
870 : 905	Clay	blue	e al	rai	v. stiff			1					"TEST WELL"
905 1050	Sand,	_whi	ite	to	o light br	own, f	ine	10	SOUTH				CATHODIC PROT TION
	'to co	anse	2 01	rai	ined minor	aravo	1	such as Roads, Bi	ribe Distance of Well fro ildings, Fences, Rivers, e	m Land	Imarks) H	OTHER (Specify)
1050 1205	clay,	gra	IV 1	to	light bro	wn. st	iff.	PLEASE BE AC	CURATE & COMPLET	TE.		-	
	minor	T1n	1e (ora	ained sand			METHOD Rotar	v			mue	17
1205 1212	Sand,	lig	ht	gr	ay, very	fine g	rained	WATER	LEVEL & VIELD	OF	COMP	LETE	D WELL -
	:			_				DEPTH OF STATIC	C (Ft.) & D				
	1		_	_				and the second	(GPM) &	TEOT	TYPE	ED	
OTAL DEPTH OF	BORING _	1	_	- (Fe	cet)			TEST LENGTH	(Hrs.) TOTAL DR/	WDOW	IN N	,	E: \
OTAL DEPTH OF	COMPLET	ED W	ELL	-	(Feet)			* May not be repri	esentative of a well's los	ng-term	vield		ri./
DEPTH					C	ASING			1	1		-	
FROM SURFACE	BORE- HOLE	TYP	E (2	51		1	, T		DEPTH		ANNU	LAR	MATERIAL
Ex	DIA. (Inches)		CON		MATERIAL/	INTERNAL	GAUG OR WA	THE WAY A WINNER	FROM SURFACE	05	L or er	TY	PE
FI. to Ft.		BLANK	DUC	H.F.	GRADE	(Inches)	THICKNE		Ft. to Ft.	MENT	BEN- TONITE	FILL	FILTER PACK
			++		Soc attack	-		1.1111121	1. 10 11.	(二)	(∠)	(二)	(TYPE/SIZE)
					See attac	rea			· · · ·	-	-		
			T						C. C				
			H				-			-			
		-					-	F	8 2 0 1998	-	-		1
	1		the second s	-			1		1000	-	-		
			\square						H 11				
ATTACI	IMENTS	(2)		_	7			- CERTITIE	Link Linkand . and	-			the second s
Geologic	Log			_	I, the under	signed, cer	rtify that t	- CERTIFIC'A	TION STATEMOS	T	1.01-		
Geologic	Log				I, the under	rsigned, cer	tily that t	his report is compl	TION STATEMES lete and accurate to t	T	stofmy	y knowl	edge and belief
	Log struction Dia				I, the under	rsigned, cer /lik Dr N. FIRM, GR C	tily that the the till the til	- CERTIFIC'A his report is compl Inc.	TICK STACEMES	he bes	st of my	y knowl	edge and belief.
X Geologic K Well Con Geophys	Log struction Dia	igram			NAME BOT	<u>vlik Dr</u> N. FIRM. OR C	ORPORATION	his report is compl <u>Inc</u> (TYPED OR PRINTED)	lete and accurate to t	he bes			edge and belief.
<u>X</u> Geologic <u>X</u> Well Con <u>Geophys</u>	Log Struction Dia Ical Log(s) Ier Chemical	igram Analyse	*8		NAME Bet	rsigned, cer <u>lik Dr</u> N. rikm, GR C <u>29 Long</u>	ORPORATION	his report is compl <u>Inc</u> (TYPED OR PRINTED)	rth Highlands	he bes		560 STATE	edge and belief.

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DRIGINAL File with DWR		STA	TE OF CA	LIFORNIA	TOULE	RUSE	ONLY		610 H. WEL
		WELL CO	MPLE'	IIUN KEPO	RT /15	5/510	ZE	51-11	2141002
Page <u>1</u> of <u>1</u> Owner's Well No. <u>Wel</u>	1 D Tort Hel	Referi	o Instruct	ion Pamphlet		/ ST	ATE WEL	LL NO./5	TATION NO.
Date Work Began1	19 5 10 5	The second	No. C	55850	11	111			1,1,1
Date work Began	Montonov Co	nded2/28/95		000000	L	ATITUDE			LONGITUDE
Local Permit Agency Permit NoWSA	- Honcerey Lot		the second se		15	SAd 2	EI-	-04	Ach 2
Permit No		Permit Date _	1/23/	95		11	APN	TRS/OT	HER
ORIENTATION (2)	- CEOLOGIC L				WE	II OW	NED	Ft	Ord
A THE REPORT OF A REPORT OF A DECK	VERTICAL HORIZO	ONTAL ANGLE	_ (SPECIFY	2					
DEPTH FROM	EPTH TO FIRST WATER		SURFACE						
SURFACE Ft. to Ft.		CRIPTION							
	d, light brow	al, grain size, color, ec.	odium		WEL	L LOCA	TION	5	TATE ZIP
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ined	n, The to m	earum	Address Res	ervation Re	bad At	Gar	riso	n
	d, light brow	n, fine to c	03860	City Ft.		_		200	
and the second se	ined, subroun	ded to round	ad	County Mont			_	2.2	
335 440 San	d with chert	pebbles and	choll	APN Book	Page	Par	cel	100	
: fra	gments, coars	e orained	SHETT	Township	Range	Sect	tion		
440 : 470 Sil	ty clay with	sand and gray	[av	Latitude	MIN. SEC.	m Lon	gitude	DEG.	WES
470 480 San	d with chert	pebbles	YC1	LO	CATION SKET	гсн —	-	DEG.	MIN. SEC. CTIVITY (∠)·
480 : 495 :Dia	tomacrous cla	vstone with	sand		NORTH			X	NEW WELL
495 530 San	<u>with silt a</u>	nd rounded di	iatoma	rous	8			MOD	FICATION/REPAIR
i cla	<u>/stone fragme</u>	nts			Ma	X			Deepen
530 : 580 :Clay	, reddish br	own to grav b	prown		14	• • •	7		Other (Specity)
- With	1 Interbedded	sand		- Res	ervation R	d,	/		law.
580 610 Sand	with chert	pebbles and t	hin			/		-	DESTROY (Describe Procedures and Materia
;clay	layers, coa	rse grained		-		/		L nr	Under "GEOLOGICLOG
010 045 Clay	, orange brow	wn soft minor	sand	MES	Gains	0			ANNED USE(S)
045 : 090 Sand	with chert	pebbles, coar	se	- 1	1.5	0.	3	7	A MONITORING
690 : 735 :Inte	ned, subangu	lar			6 ar			WATE	R SUPPLY
LATTY.	rbedded layer	rs of sand an	d soft	3	160				- Domestic
735 870 Clay	t yellow brow	vn clay		1 28	/			1	Peblic
	, light brown	1, stiff, loc	al						- Irrigation
870 : 905 :Clay	and gravel	lenses		1 '					Industrial
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* May not be representative of a well's long-term yield.
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See attached
propage p
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CERTIFICATION STATEMENTS
v
Well Construction Diagram Geophysical Log(s) NAME Boylik Drilling Inc. (PERSON, FIRM, OR CORPORATION? (TYPED OR FRINTED)
STATE 2P
TTACH ADDITIONAL INFORMATION IF IT EXISTS. Signed Will DRILLER AUTHORIZED REPRESENTATIVE 3/14/95 33625
188 REV 7-90 IF ADDITIONAL SPACE IS NEEDED. USE NEXT CONSECUTIVELY NUMBER

DITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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				1	_				_11					O Injection
				10000										O Monitoring
	-	_												O Remediation
								_						O Sparging O Test Well
											South			O Vapor Extraction
									Bustrate or	describe distance and attach a map.	of well from Use addition	roads, building	ps, fences,	O Other
	-	_							Please be	occurate and con	spiete.	02625-026		
	-	_								Level and				The formation of the second seco
	-			-						o first wate	·			_ (Feet below surface)
1									- Depth t	o Static		(Fee	t) Date I	Measured
Total D	epth of I	Borina		1110			Feet			ed Yield *				
	00401/01/01/02	10-00 A							Test Le	ngth		(Hot	urs) Total	Drawdown (Feet)
Total D	epth of (Comple	ted Well	1095			Feet			ot be repres				
_			- 1		Ca	sings							Annula	ar Material
Depti	h from	Boret	nole +		12.22	erial	Walt	Outside	Screen	Slot Size		th from	Sant	n
	face to Feet	Diam	eter	ype	may	Ciede	Thickness (Inches)	s Diameter (Inches)	Type	if Any (Inches)		to Feet	Fill	Description
- a latitude la second	1,085	(Inch 22	Scre	en	304 Stainle	es Steel	T	14.5	Wire Wrap	0.050		T	1	
-	1,095	22	Blan	_	304 Staink		5/16	14.5			0	685	Cement	Neat cement
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	-	-	-	-										
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-			hmont	_		1	-			Certificati	on Sta	tement		
	2		hments	8		1 the re	odersioned	certify th	at this report	is comole	e and a	courate tr	the best	of my knowledge and belief
	Geologic Well Con		n Diago	m		Name	Maggiora	Bros. Dr	illing, Inc.				92. N. 2015	and the second second
the state of the	Vell Con Seophys		Service and the service of the servi					Firm or Corpo		Wate	onville		CA	95076
	SoilWate			lyses		0957	arport bit	Address		11012	City	712	Stat	e Zip
100 million (1970)	Other					Signed	-						2011 24	
ttach addi	Sonal inform	nation, if i	t exists.				C-57 Lice	msed Water V	Vell Contractor			Date Sig	ned C-	57 License Number

*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.

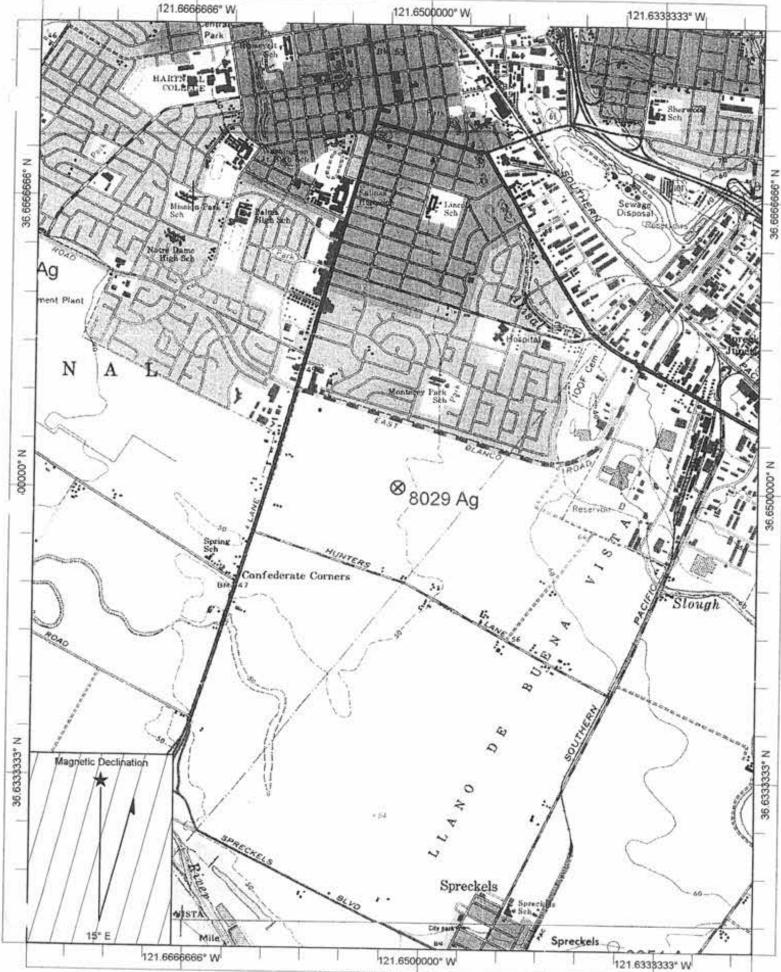
DWR 188 REV. 1/2006

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

Page 1 of	1					WELL	Refer to .	Instruction I			STATE	WELL	NO/STA	TION NO.
Owner's			200	2		<u></u>		•• 768	941	1111	1.1		14	
Date Wor			2	_		., Ended3/28/	02			LATITU	Charles and Charles	P		ONGITUDE
Local I	Permit /	Agency	Mor	itere	y Cr	. Health Dep	t			155		the second second	changes and a set	N581
Permi	it No. 0	1-175 •	1		-	Permi	t Date 1/	8/02				Contraction of the second	DIDE	SSURE DE
S			- GI	COL	OGI	C LOG —				WELL	ONA	en /	PRL.	iourc Pr
ORIENTA	TION (土)					HORIZONTAL								
DEPTH	EROM	DRILLIN METHO	D J	CAB	LE_		FLUID Wat	er						
SURF	ACE	1.0722.01000	1.0			DESCRIPTION	for the Albertan and an	10.0						
<u>Ft to</u>	the second se	Sandy				erial, grain, sù	ze, color, e	tc.		WELL	LOCA	FION-		
64		Sandy			Cia	L			Address Grow		1152250	100000	_	
92		Sand	U:	19	_		_		City Salinas C					
96		Sandy	Ck	211	_				County Monter	1.2.2				
100		Yellow	energina de la composición de la compos		-		_			Page <u>881</u>				
118		Sand			raw	1				Range	_ Secti	ion		
136		Yellow		Carl And in Street	have	*1			Latitude	MIN SEC.			DEG	MIN SEC
140		Sand			(1)	- 8")				OCATION SKETCH		_		CTIVITY (2)
196		Sand			1	- /		A		NORTH -			1-×	NEW WELL
216	and the second second		& G	ravel	(ro	ck to 8")	(11	MP1					FICATION/REPAIR
332		Yellow			-		1	50		1				 Deepen Other (Specify)
334		Sand		-	-					27	1		-	
338	362	Blue C	Clay							Africe ST				DESTROY (Describe Procedures and Mate
362	380	Sand	& G	ravel	(1)	- 3")							1.00	Under "GEOLOGIC LO
380	402	Yellow	Cla	y w/	san	d				1				NNED USES (× R SUPPLY
402	412	Sand a	& Gr	avel	(1"	- 3")			MEST WEST	0	1	EAST		Domestic Public
412		Yellow							š 🖂		ALRAN	E E	-	migation 🖌 Indus
418:	434	Blue C	lay							+	e	ě.		MONITORING
434	494	Sand &	Gr	avel	(1"	- 4")			60	were st	A	2	CATHO	DIC PROTECTION
494		Yellow			_				6710	weld si	-			HEAT EXCHANGE
604	the second se	And the second s	distant and the second	the second se		a to 2")					1		[DIRECT PUSH
620	the second se	A station of the second second second				ed with sand							UND	INJECTION
652		Runny											1.1	SPARGING
662			Gr	avel	(Pe	ea to 2")			Illustrate or Describe	Distance of Well from Roads	Buildin			REMEDIATION
674		Sand	-						Fences, Rivers, etc. and	attach a map. Use addition BE ACCURATE & COM	ial paper	if .	30	OTHER (SPECIFY)
678	682	Yellow	Cla	y (to	i)				Contraction of the second	Star Shints Attended at		-		2722-2721
	_				_					R LEVEL & YIELD	10102-022	0.000		WELL
-	_		_		_					WATER 60 (FL) BI	ELOW 8	SURFAC	Æ	
		¥							DEPTH OF STATIC	(Ft) & DAT	EMEAS	URED	4/10/	02
				_	_					- 1300 (GPM) &	TEST T	YPE	Pump	Test
TOTAL DE						cet)				(Hrs.) TOTAL DRAV				andre Stadistics
TOTAL DE	PTHOF	COMPLE	TED	WEL	L <u>68</u>	2(Feet)				resentative of a well's i			100 C	
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		DIA.	×	Z .	E E	MATERIAL /	INTERNAL	GAUGE	SLOT SIZE	FROM SURFACE	CE-	BEN-	14	PE
Ft. to	FL.	(Inches)	BLANK	SCREEN CON-	FLL PPE	GRADE	DIAMETER (Inches)	OR WALL THICKNESS	IF ANY (Inches)	FL 10 FL	MENT	TONIT	0.0000	FILTER PACK (TYPE/SIZE)
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of the liter				T	Ħ				.20 x 0.0		-	-		
004	ATTACH	MENTS	(2)	-	1	1			- CERTIFICA	TION STATEMENT	r			
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Page 1 of 2								Refer to I			and the second se	1.0.1		STATE	WELL	O/ST/	ATION NO.
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185		SAND		UL.	AT	_		_		-17	Township 19 S	Range	3 E	Secti	ion B	05	
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				_					_	- 12	DEPTH TO FIRST V			ELOW S	SURFAC	Æ	
			_		_	_				- 5	DEPTH OF STATIC	.4	(Ft.) & DATE	MEAS	IPEN	12/8	/2006
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Page 2 of	Well No	8020						 Constraints and the second se Second second sec second second sec	E04		The Part of the Pa		0414 0	1	1111	Y	
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-				-		_					ences, Rivers, etc. and eccasary. PLEASE 1	BE ACCURATE	E & COMP	LETE.			
										1	WATE	R LEVEL &	YIELD	OF CO	OMPLE	TED	WELL.
										1.0	DEPTH TO FIRST V	WATER	(Ft.) BE	LOW S	URFACI	ŧ	
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-		struction D	liagram	С.			NAME_E	ATON DRIL	LING CC	٥.	e outrain a viscou nas	and the second	0111020188	-Revenie			
		cal Log(s) er Chemical	i Anni					KENTUC		A1K)	N) (TYPED OR PR		OODLAN	D		CA	95695
3	- Other	- chemica	, soan)	-		_	ADDRESS	11.15) ;				CITY			STATE	ZIP
ATTACH A	DDITIONAL IN	FORMATIC	N. IF I	TEX	asts		Signed WE	L DELLERIA	JAMULAN UTHORIZED	PE	PRESENTATIVE			2/18/0 TE SIG			C57 A HIC - 13378 C-57 LICENSE NUMBER
OWR 188 RE	V. 11-97			IF.	ADD	TIC		and the other states for the			NSECUTIVELY N	UMBERED F			11112-1		



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File Original with DWR				NUMBER OF		OF CALIFO			ISE ONL	Y	C NOT FILL IN
Page <u>1</u> of <u>4</u>	-0		2/22	WELL	Refer to I	nstruction I		RT 115151	STATE V	SEL NOJS	
Owner's Well No			7-01			lo	e0142945		11		
Date Work Began	-	7/8/11		Ended	10/13/11					2 10	LONGITUDE
Local Permit Ag	ency	11-11	000	the second second second	County H	And a subscription of the local division of	A DECEMBER OF THE OWNER	_ L1151S1/		PN/TRS/OT	1101D1014
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	Sticky						Address		20 Day	ton St	
60 70	Sand a		el				City	Salinas			Ca
	. Sand,	gravel	, and c	lay			County	Monterey			STATE 2P
	Grave						APN Book 1	77 Page 141	Parcel	1	073
				small gravel		-	Township 15	S Range 3E	Sectio		3
				ome clay			Latitude 36	38 , 53.4 NORTH	Longi	itude 12	
	Sand,						DEG. M	CATION SKETCH			ACTIVITY (X)
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the second se	Sand Gravel	P	tes				1 24/14	1 74. 1	5 Y /	1 _	LANNED USES (2 ATER SUPPLY X Publ
and a second sec	Gravel		KS		_		/. 1.	and the the	125	/ e -	_ Indus
210 , 215	Sand	<u> </u>			1000		對意口 1/2	and a last		1.3	MONITORING
and the second se	Gravel		-				Cash La ?	Gen Are	S.A.	1 64	TEST WELL
	Gravel	the second se	d				10	× 1 1		8.	HEAT EXCHANGE
	Gravel	a second s					7. M84	S. 14 1		12	DIRECT PUSH
Address of the second s	Sand &	state of the second states					CONTRACTION OF		1	÷1	INJECTION _
and the second se	Sand,	and the second second	ravel		_		Mallal	manin	1	A	APOR EXTRACTION
and the second se	Sand, g						10-10-10-10-10-10-10-10-10-10-10-10-10-1		1.0.45	-	REMEDIATION
and the second se	Sand,						Fonces, Rivers etc an	Distance OI Well from Ros of attach map. Use additi BE ACCURATE & COMPI	onal pape	ngs, or it	OTHER (SPECIFY)
the second s	Gravel										
320 , 330 ,	Clay, s	mall g	ravel			_		R LEVEL & YIELD			ED WELL
	Sand					111		ATER Unknown (FL) BE	ELOW SU	RFACE	
350 . 355	Sand &	e rock	ŧ		1000		DEPTH OF STATIC WATER LEVEL	80 (Ft.) & DAT		1	0/5/11-10/13/11
355 . 360 .	Sand						ESTIMATED YIELD		E MEASU		pment, Step, Constan
TOTAL DEPTH OF H	BORING	1,4	95 (F	cct)			TEST LENGTH	2 (Hrs.) TOTAL DRAW	DOWN	58 0	2.37
FOTAL DEPTH OF (COMPLET	TED WI	ELL	980 (Feet)			• May not be repre	sentative of a well's los	ig-lerm y	rield.	
		T							1		
DEPTH FROM SURFACE	BORE-	73.07	1 1 AL		CASING (S)	-		DEPTH FROM SURFACE		ANNUL/	AR MATERIAL
	HOLE DIA.	XZ	CON THE	MATERIAL /	OUTSIDE	GAUGE	SLOT SIZE	The second second	CE-	BEN-	TYPE
R & R	(inches)	BLANK	NOS T	GRADE	OLAMETER (inches)	OR WALL THICKNESS		R to FL	MENT 7	(C)	(TYPE/SIZE)
	48	1 3	X	LCS	34	124 24 14 14	No. Contraction	0 , 575		(8) (2)	0
C171 - C171 - S1.5	32	x	^	HSLA	18.75	.375		575 980	x		10.3 sack 8x12 Co. Sili
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0 · 50 0 · 590	32	_		HSLA	18.75	.373	.070		+		
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File Original with DWR					WEIT	COMI	OF CALIF	ON REPO	рт Г	DWR	USE ON	<u>ну</u>	_DC	
Page 2 of 4					WY DDL		Instruction 1				STATE	WELL N	ATP.O	TION NO.
Owner's Well No	- 1		47-	01			lo.	e0142945	1	t L i	1.1	רחר	1	1.1.1.1
Date Work Began		7/8/1			Ended	10/13/11				LATITU	DE			LONGITUDE
Local Permit Ag					Montercy	County H	lealth Den	ot	11	111	11	1	1.1	TTTT
Permit No.	- 05/0 H	11-1	190	0	Permit		the second s	5/3/11	-, Ľ			APN/TRS	S/OTHE	R
Ternine Hor				10110	CLOG				<u>=2 11</u>	- WELL	OWN	ER -		
ORIENTATION (X) DEPTH FROM SURFACE	DRILLR METHO	NG	Flo	ode	DESCRIPTION	LUID								
FL to Ft.	1	and the second sec		s ma	terial, grain size	t, color, et	c.	CHY		WELL L	OCAT	ION		TATE ZIP
360 , 365	, Sand							Address			20 Da	yton S	st	-
365 385	Rocks	a gi	ave	1		_		City		Salinas				Ca TATE 2P
385 400	Clay		-	-				County	in the local sector was a sector of the	Monterey			-	
	Grave	-							77 Pag		Paro	_		073
the second se	Grave	1 and	TOC	KS_				Township 15	States a version	ge3E	_ Secti	on		3
and the second se	Clay		-			_		Latitude 36	38 53	4 NORTH	Long	gitude.	121 DEG.	37 50.2 WEST
	Grave	I, san	a, a	na c	lay		_	LC	MIN. DCATION	SKETCH			A	MIN. SEC. CTIVITY (X) -
	Grave	1.0	1	-				17. 7. 198	NOR	H S	5	7.	<u> </u>	
	Clay	I & I	DCKS	i		_		NO WELL	in	14	11.4	N.		MODIFICATION/REPAIR
	Gravel	1 8	nd	-				1.	1		1.1	4	1 8	Deepen Other (Specify)
	Grave			ad a	lav			いた。観日	in	01	1	14	-	
sectors in the Advert sector and the sector sector sectors and the sector sectors and	Sand &	A Company of the local data		no c	aay	_	_	11.19	1		20	5.	-	DESTROY (Describe Procedures and Materials
	Sand,			av				1. 11 51 14	N 10.5		1	R		Under "GEOLOGIC LOG"
	Sand &			ay				· emailed	Si Ara	WEC \$10047	約	1	PL/	ANNED USES (X)
and the second se	Sand,			rel.				1 34 15	SC7	Sec. 1	C	1		Domestic X Public
	Sand &			rut.				5 (-) li	FIN	J'ar	1.	1.5	-	Industria
and the second se	Sand,			av	011-	-		判論リリント	See.	1	14	1.5	1	MONITORING
	Clay &			-				Cast A	· 46	d.	111	1	CATH	ODIC PROTECTION
and the second se	Clay		_	_				10 A.		1 1	/	15		EAT EXCHANGE
	Sand &	e son	ne cl	av				7. MY.		1 1 5	1.2	1		DIRECT PUSH
the state of the second s	Clay								1 miles	1. 1	in	41	1.000	INJECTION
and the second sec	Sand	-			1.	-		Bet	. aurona	SAN.	1.	4	VAP	OR EXTRACTION
	Gravel	sand	i. ar	d re	ocks			Illustrate or Describe Fences, Rivers etc a	SOUT	H			{	REMEDIATION -
state of the local division of the local division of the	Gravel	Card and a state of the local diversity of th	Statistics in the local division of the loca	and the second				Fences, Rivers etc a	nd attach m	ap. Use addit	eds Burk ional pa	per it		OTHER (SPECIFY)
	Sand		-	-				DECESSARY, PLEASE	BE ACCUR	ATE&COMP	LETE.	19		
and the second s	Clay	_	_					1000000		& YIELD	100.00	70, Y 00, Y 0		WELL
	Sand			-				DEPTH TO FIRST W	VATER UN	chowa (Fi.) B	ELOW S	URFACE	Ę	
the local data with the second s	Sand &	e gra	vel				100	DEPTH OF STATIC	80	24/14/2014	100000		10/	5/11-10/13/11
	Sand, s			av				WATER LEVEL	3,000	(FL) & DAT	E MEAS	URED		uent, Step, Constant
TOTAL DEPTH OF I		S	495		eet)			ESTIMATED YIELD		TOTAL DRAW	TEST IN	58		
TOTAL DEPTH OF		_		<u> </u>	980 (Feet)			* May not be repri	esentative	of a well's la	ng-term	vield	- (94)	
i e inte par mer e				-	(1000)							(_	
DEPTH	BORE-				C	ASING (S)			0	EPTH		ANN	ULAR	MATERIAL
FROM SURFACE	HOLE	TY	PE	(-1)		Dates and	- Annala	Contraction 1	FROM	SURFACE	Since		T)	PE
	DIA. (Inches)	BLANK	SCREEN	ē ē	MATERIAL / GRADE	DIAMETER	GAUGE OR WALL	SLOT SIZE			CE-	BEN-	EU	FILTER PACK
Pt. 10 PL	fuerest	RA	58		GRADE	(inches)	THICKNESS		R.	to FL	(3)	(X)	1222.24	(TYPE/SIZE)
775 815	28	x	1	1.	HSLA	18.75	.375		0	. 575	X	VOL.	101	10.3 sack
815 855	28		x	+	HSLA	18.75	.312	.070	575	, 980	1		X	8x12 Co. Silica
855 885	28	X		1	HSLA	18.75	.375			1	-			
885 950	28		X	T	HSLA	18.75	.312	.070			-	1		2
950 960	28	X	-	1	HSLA Cellar	18.75	.375			1			-75	
		11		T						1	-			
ATTACH	IMENTS	(X)	-	-	11			- CERTIFICATI	ON STAT	EMENT	-	-	_	
X Geologic		100			1, the unde	ersigned, ce	ertify that thi	is report is complet	le and acc	urate to the	best of	my kn	owledg	je and bellef.
ana overeger	struction D	iaonem			NAME			Layn ION) (TYPED OR PRINT	e Christe	ensen Co.				
V	cal Log(s)				(PER	SUN, FIRM, O			ED)		100	100		
	r Chemica		sea		4000000	_	1717 W.	Park Ave		and a second sec	Redla		-	CA 92373
X Other Te	at Pemp D	ota & V	lideo	Surve	ADDRESS Signed		Allia	No.		env	1	/3/201	2 \$741	510011
ATTACH ADDITIONAL II	FORMATI	ION, IF	IT EX	ISTS	WE	LL DRILLERW	UTHOR DEB RE	PRESENTATIVE			DATE	SIGNED	D	C-57 LICENSE MUMBER

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File Original with DWR WELL CO	MPLETI	ON REPOI	provide a second s			
Page 3 of 4 Refe	r to Instruction I	Pamphlet		STATE WELL NO	O./STATK	ON NO.
Owner's Well No. 47-01	No	e0142945			1	
Date Work Began 7/8/11 Ended 10/1	of the Automation of the Automation	3				NGITUDE
Local Permit Agency Monterey Cour				APN/TRS	THER	
Permit No. 11-11900 Permit Date	e0	5/3/11	WELL		Contract.	
GEOLOGIC LOG ORIENTATION (X) X VERTICAL HORIZONTAL ANGLE						
BEPTHFROM BURFACE DESCRIPTION						
FL to Ft. Describe material, grain size, col	or, etc.	CITY	WELL LO	CATION	6TA	ne zip
680 , 690 , Sand		Address	132	Dayton S		
690 / 700 Clay	10	City	Salinas			2a
700 . 705 . Sand & clay		County	Monterey		STA	Sec. 133
705 , 710 , Gravel & sand		APN Book 17		Parcel		073
710 , 715 , Sand & clay		Township 15	man Kange	Section	-	3
715 , 720 , Sand	1		38 53.4 NORTH	Longitude_	121	37 50.2 WEST
720 1 725 Clay		DEG. N	CATION SKETCH	<u> </u>	DEG. N	UN. SEC. TIVITY (X)
725 i 730 i Sand			NORTH	1	XN	EW WELL
730 1 740 Gravel		相子是正常。	1.1 14	N. 1.	м	ODIFICATION/REPAIR
740 1 745 Sand & clay		16 . 39.00	IN IL	1345	1	Deepen
745 1 755 Clay		12.1.21	4 SOK	110		Other (Specify)
755 ; 760 ; Sand		1 1	1	12	D	ESTROY (Describe ocedures and Materials
760 i 770 i Gravel		12	34.11.31	SAM .	Pr	ocedures and Materials ider "GEOLOGIC LOG")
770 i 820 i Clay		1 UNL	A WEDWARA	A SAL	PLAN	NED USES (X)
820 1 825 1 Clay & sand		is all is	A 74.	14:1	WATER	NED USES (X) SUPPLY X Public
825 1 840 1 Sand		5 5/ 1	A. A. T.	111		gation industrial
840 , 845 ; Sand & clay		Sout IN.	Star in 4.4			MONITORING
845 , 860 , Sand		「薬」で	A State of the second	Sip."1		TEST WELL
860 i 875 i Clay		The the	190		1.	IC PROTECTION
875 880 Clay, sand, gravel		A. Maria	S. 1. 1. 1	1 1	ne.	DIRECT PUSH
880 , 890 , Clay		FILLE	Cump 21	A		INJECTION
890 , 895 , Clay & sand		10 8 11	View al		VAPO	R EXTRACTION
895 · 900 · Sand & gravel		Ferendi Citati	Contraction of the second	Sec. 14 16		SPARGING
900 , 905 Sand, gravel, small rock		[llustrate of Describe]	Distance OI Well from Roa of attach map. Use addition	ds Buildings,		REMEDIATION -
905 , 910 , Sand, gravel, clay, small rock		pencessary, PLEASE	BE ACCURATE & COMPL	ETE.		men (or cost ()
910 , 920 (Sand & gravel			R LEVEL & YIELD		ETED	WELL.
920 , 935 Clay			ATER Unknown (FL) BE			
935 · 940 · Sand		DEPTH OF STATIC				nana persona d
940 950 Gravel & sand		WATER LEVEL	80 (FL) & DATE	MEASURED	10/5/	11-10/13/11
950 990 Clay		ESTIMATED YIELD	3,000 (GPM) & T	EST TYPE Dev	elopme	at, Step, Constant
TOTAL DEPTH OF BORING			2 (Hrs.) TOTAL DRAW		_ (R.)	
TOTAL DEPTH OF COMPLETED WELL		* May not be repre	sentative of a well's low	g-term yield.	_	
CASIN CASIN	(2) (2)	1		ANN	ULAR N	ATERIAL
BURE-	10(3)		DEPTH FROM SURFACE		TYP	
FROM SURFACE HOLE TYPE (-1) DIA. X Z. S & MATERIAL / OUT	SIDE GAUGE	SLOT SIZE		CE- BEN-		Secold Summerson 1
(inches) 引回民日 GRADE DIAM	AETER OR WALL ches) THICKNES		FL 10 FL	MENT TONITE	FILL	FILTER PACK (TYPE/SIZE)
			20 0020 0001	(X) (X)	(X)	0.0000
					-	
			12	_	-	
			<u> </u>	_	-	
			1		-	
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		CHARMEN LINE	I CONTRACTOR OF A			
ATTACHMENTS (X)	and contractions the	- CERTIFICATIO	ON STATEMENT e and accurate to the	had of my ka	nutedaa	and hallef
X Geologia Log	ied, cerery that th		e Christensen Co.	vesi or my kir	owied&e	ana opcien.
X Well Construction Diagram NAME (PERSON,)	FIRM, OR CORPORAT	ION) (TYPED OR PRINT				
X Geophysical Log(s)		Park Ave		Redlands	C	A 92373
Soli/Water Chemical Analyses ADDRESS	1	11 1/7	CITY	and the second se	-	510011
X Other Test Pump Data & Video Survey Signed	LLERALTHORIZE R	and and and		DATE SIGNER		-57 LICENSE NUMBER
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS. WELL, OR	ALCHAUTRONIZED PO	CHESCHANNY		DATE SIGNER	S	

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Page _4 of _4		19	7-01			Nefer to In		e0142945	1	1.1	1 .	111	5751/11	
Owner's Well No.	7	/8/11	7-01	-		10/13/11	·	00142345		LATITUD	E	Ч	LL	
Date Work Began_		0/11		-	Ended Monterey (and the second se	alth Deal			1 1	1.1	1.5		
Local Permit Ager		11.11	000	-	and the second se	Contraction of the second s		/3/11			-	PN/TRS	OTHER	
Permit No.		11-11				Date	0/	5/11		merry			CEAL CEAL	
ORIENTATION (X)	X VE DRILLING METHOD	RTICAL		_ HQ ded	LOG RIZONTAL Reverse ESCRIPTION	ANGLE	(SPECIFY)			WELL	UWNE			
SURFACE		Decer	ihe n		rial, grain size,	color etc	s - 1							
FL to Ft. 990 , 995 ,	Clay &			queer	nut, grunn ane.	, color, cic				132	0 Day	ton S	C.	
	Sand &			he				Address	Sa	linas	o Daj	ton D		Ca
the second se	Clay	111110	100	n.o				City		onterey	_		STA	ATE ZIP
	Clay &	eand		_				APN Book 17	177	141	Parce	1		073
	Clay, sa			1		_			rage -	40		-		3
the second statement of the second	Clay, S	auu, 2	Jave	1				Township	in itempt	NORTH	Section		121	37 50.2 WEST
the second se	Clay &	cand		-	(a)	_				C.	Long	itude_	DEG. N	
the subscript of the second	Sand	Sauce				_		LO	CATION S	KETCH	-	1.1	V	TIVITY (x) -
in the second	and the second second	_		_				177 19738	NORDI	12.1		····		IEW WELL MODIFICATION/REPAIR
				_				the All M	15	1	N 41	1.	1 4	- Deepen
the second s	Sand	_	_	-		_		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	X	14	1.1	X	- 1	Other (Specify)
	Clay			-				13 P F.	N	1.	· 'b	5	-	
Contraction of the local division of the loc	Fine sa	nd		_	21102-011-	- 111	-	1. 1. 2. 1. 1.	1		f	\$j		ESTROY (Describe rocedures and Materials
the second se	Clay		-	_			_	1 4 2	S. Cart	and 1	12	E4.	U	ader "GEOLOGIC LOG")
A REAL PROPERTY OF THE PARTY OF THE PARTY.	Clay &	sand	_	_				1. Behuta	and the	公顷4474	N SA	1:		NNED USES (X)
the second se	Clay							N 11/ 100	5774	N. 1.	$\{A\}$	1	Do	aneste X Public
	Sandy o	lay	_					N. 7/ 1;	1	·	12.	1.		Isriisubni Industrial
and the second se	Clay	-		1		1		調査日二 /へ	212/11	11 4.4	\$ 10	l is	1	MONITORING
Competences in a contract of the local day in the local d	Sandy o	lay		-				Call P 1		6.	K.s	1		TEST WELL
1410 + 1415 +		-				-		S &	203	1994	1.	7	10000	AT EXCHANGE
And in case of the second s	Sandy c	lay						· Real	2001	1. 51		1		DIRECT PUSH
1435 , 1495 ,	Clay	_		_				ALL MALE	- send	1 11	10	41		INJECTION
1 .1		_	_	_				11 6 11	15.	2 . 19	(*** «	81	VAPO	R EXTRACTION
1 1	-			-				I-are discuss	COURSE COURSE	are:	2 ¹¹ M	-19		SPARGING
· · · · · · · · ·		_		_		_		Illustrate or Describe I Fences, Rivers elc an	Distance Of W	ell from Ros	ds Baild	ingş,		REMEDIATION -
	_			_				Fences, Rivers elc an necessary, PLEASE E	HE ACCURAT	Use addits	enal pap	er it		inex(secsen) -
- F - 3				_				the second se	RLEVEL			MPL	ETED	WRLL
A 1			_	_				DEPTH TO FIRST W		10.0				CT hodotko
10 201	1422		-			10,200			ATER	(FC) BE	LOW SI	UNPACE		
1					100 C			DEPTH OF STATIC WATER LEVEL	71	(FL) & DATI	E MEASU	IRED		/11-10/13/11
1 I	2					_		ESTIMATED YIELD	3,000	(OPM) & T	EST TY	PE Des	alopine	nt, Step, Constant
TOTAL DEPTH OF B	ORING	1,4	95	(Fox	zt)			TEST LENGTH8	2 (Hos.) TO	TAL DRAW			_ (FL)	
TOTAL DEPTH OF C		ED W	ELL		980 (Feet)			* May not be repre					- 1.30	
				-							1			
DEPTH	BORE-				c	ASING (S)			DEF	TH		ANN	2000000	MATERIAL
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FL to FL	(and and	3	202			(loches)	THICKNESS	G (inches)	FL 1	r 11.		(X)	(X)	(TYPE/SIZE)
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			T							- 10 P	1000			
1									1					
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		1		+										
ATTACH	MENTS (X	-	_	10	-		CERTIFICATIO			-			
v		47			1, the unde	ersigned, ce	entify that this	is report is complet	e and accur	ate to the	best of	my kn	owledge	and belief.
X Geologic L									e Christen	sen Co.				
v		ağı, adı			PRAME (PER	SON, FIRM, O		ON) (TYPED OR PRINT	ED)	1.0	and the second			
A Geophysic							1717 W.	Park Ave			Redla	nds		CA 92373
X SollWater	t Parto Da	Analys	den S	arver	ADDRESS		150	1 122	200	CITY	1	3/201	2 4000	516611
Olive	1000				Signed -WE	LL DRULERA	UTHORA IN RE	PRESENTATIVE			DATE	SIGNE	0 (C-57 LICENSE NUMBER
ATTACH ADDITIONAL IN	T OHMATIC	JN, R-1	EXP	13	111			the second second						

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wner's Well No.							N	10. EI	0	020	2111	L L		111	111
ite Work Began.		07	_	_		Ended 7	/7/97	51	0	032	LATITU	DE		LC	ONGITUDE
Local Permit Ag								19. ¹⁹			1,5,51	031	E+3.	416	5.2
						Permi					-		APN/TE	RS/OTHE	B
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DWR 155 REV 7-90 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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COLD, USE NEXT CONSECUTIVELY NUMBERED FORM

1. Raini - 2. - 0. - 8.

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FC 2283	2
ORIGINAL STATE OF CALL	FORNIA $\begin{bmatrix} 0 & WR & USE & ONLY & DO & NOT FILL IN \\ \hline 0 & S[/] 0] 4 [E] - [0] 3 [G] 5 B \end{bmatrix}$
Page of Refer to Instruction	Pamphlet STATE WELL NO./STATION NO.
Owner's Well No No. 71 Date Work Began 10-16-00 Ended 10-28-00	72//
Date Work Began 10-16-00 , Ended 10-28-00	LATITUDE LONGITUDE
Local Permit Agency MONTERY	1615/0141EF 10131915131
Permit No. 00-342 Permit Date 10-16	-00 DECOURS DECT CHILLAD LIFTT JU
GEOLOGIC LOG	PRÉSSURE DEEP CHULAR WELL#4
ORIENTATION () VERTICAL HORIZONTAL ANGLE NATURAL	
SURFACE DESCRIPTION	
Fi IO Fi Describe material, grain size, color, etc. 0 15 top soil 15	CITY STATE ZIP
15 47 sand	Address SOUTH & LINCOLN ST
47 53 clay	City SALINAS
53 80 sand & gravel	County MONTERY
80 87 clay	APN Book 145 Page 151 Parcel 002
87 120 sand & gavel	Township Range Section
120 137 clay	Latitude NORTH Longitude WEST LOCATION SEC CCG. MIN. SEC.
137 180 gravel & small rocks	EOCATION SAFIER ACTIVITY (±)
180 200 sand & clay	
200 274 sand & gravel	MODIFICATION/REPAIR
274 290 clay	Other (Specify)
290 325 sand & gravel	DESTROY (Describe
325 332 clay	Procedures and Materials Under "GEOLOGIC LOG")
332 610 sand & garvel	PLANNED USES (∠)
610 660 clay	WATER SUPPLY X Domestic Public
660 680 sand	Inigation Industrial
680 727 clay	Sa MONITORING
727 735 sand 735 750 clay	TEST WELL
750 785 sand & gravel	CATHODIC PROTECTION HEAT EXCHANGE
785 817 clay	DIRECT PUSH
817 825 sand & gravel	INJECTION
825 840 clay	- VAPOR EXTRACTION SPARGING
840 930 sand & gravel	SOUTH BEMEDIATION
	Illustrate or Duscills: Distance of Well from Bonds, Balldings, Fencer, Rivers, etc. and attack of map. Use additional paper of necessary, PLEASE BE ACCURATE & COMPLETE.
	WATER LEVEL & YIELD OF COMPLETED WELL
	DEPTH TO FIRST WATER (PL) BELOW SURFACE
	WATER LEVEL
020	ESTIMATED YIELD (GPM) & TEST TYPE
TOTAL DEPTH OF BORING930 (Feet)	TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)
TOTAL DEPTH OF COMPLETED WELL	* May not be representative of a well's long-term yield.
DEPTH CASING (S)	DEPTH ANNULAR MATERIAL
FROM SURFACE HOLE TYPE ()	FROM SURFACE TYPE
DIA. Constraint Constraint Constraint Internal Internal Gauge Ft. to to <td></td>	
Ft. to FL 율등8월분 (Inches) THICKNE	HICH FULL
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/	
760 900 24 x high/low 12 3/4-5/	
900 920 24 x high/low 12 3/4-5/	16
0 755 xmild/steel 2" 3	
$0 50 32 x mild/steel 26 \frac{1}{2}$	
	CERTIFICATION STATEMENT his report is complete and accurate to the best of my knowledge and belief.
- Geologic Log ARTHUR * OR	his report is complete and accurate to the best of my knowledge and belief. UM WELL DRILLING INC.
Well Construction Diagram NAME Geophysical Log(s) REMOVE THE PERSON. FIRM: OR CORPORATION	(TYPED OR PRINTED)
Solf/Water Chemical Analyses 3262 E CON	EJO AVE, FRESNO, CA.93725
Other ADDRESS	CITY 10-30-00 361319
ATTACH ADDITIONAL INFORMATION IF IT EXISTS Signed	
WELL DRILLERAUTHORIZED REPRES	SENTATIVE DATE SIGNED C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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Page 1 of 6		1					10					2286	11	0 I F	L	10	1	
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96	99	CLAY	-									APN Book 145		151	Dana	. 004	i i	
99	148	GRAV	EL/	RC	оск						- E-2	Township						
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315		SAND	a sugar to a s		NO	~	,				Ŀ	5				st	100000	Domestic Public
310		SAND		in the second		-				_	WEST	Ú.				EAS		Industri
		CLAY	GR	~	/EL						ľ	-						MONITORING
351		and the second second second	_	_	_		-											TEST WELL
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383		CLAY	00	41	1771	_					÷						1	DIRECT PUSH
391		SAND	GR	Av	/EL		_											INJECTION
426	the second state of the second s	CLAY				_	_										VAP	OR EXTRACTION
434		SAND	YC	LA	Y	_	_			_							1 22	SPARGING
441	1.5	CLAY	_		_	_	_				1	Illustrate or Describe	SOUTI Distance of IV	ell from Roads.	Building	24.	1	REMEDIATION
452		SAND		-		_	_				1	Fences, Rivers, etc. and tecessary. PLEASE B	attach a ma	p. Use addition TE & COM	PLETE.	if.	- 10	OTHER (SPECIFY)
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496	519	GRAVE	EL/	30	CK		_		_		1.1	STIMATED VIELD	·	- 48,55 (S) (S) (S)				
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FL to	FL	(Inches)	BLANK	SCREEN	DUCTOR	Fill Pip		GRADE	(Inches)	OR WALL	ι.	IF ANY (Inches)	FL.	to FL	CE- MENT (X)	BEN- TONITI (⊻)	FILL	FILTER PACK (TYPE/SIZE)
0	50	44			1		ST	EEL	34	5/	16		0	710	-			
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200	480	28	1			1	1000	EEL	160D	5/								
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760	762	28	1			_		EEL	16	5/1								
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G	ieologio I	.og						I, the undersi	aned, certify the	at this report	is c	complete and accurate	e to the best	of my knowled	ige and	belief.		
		truction D I Log(s)	egrar	ri.				NAME_M (PER	yers Well D	R CORPORA	ATRO	N) (TYPED OR PRI	NTED)	52 N.O.N.	-	_	1920	and the second
	1	Chemical	Anal	ysis	ž.			11745.20	100000000000000000000000000000000000000	NICE TO STATE		and and an all		lanford	_		CA	93230
_ 0	ther					_	11	ADDRESS Signed						CITY	5/11/1	a - ⁶	STATE	ZIP 365822
ATTACH ADDIT	Sector Comments																	

ORIGINA	C 10 10 10					XX/EX T		E OF CALIF		mar II	- DWR	USE			5 14 E 00 Z
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Permit	No. 1	1-1187	2				nit Date 3	7/2011				-	APN/TE	RSIOTH	ER
		15,0094		EO	LOG	IC LOG -	ant toute		1		- WELL	OWN	NER	-	
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519		SANE		of the local diversion		ante en contra de la Manda de la contra de la			Address High	eav 101	- WELL	LOCA	TION-		
528	537	CLAY	1						City Chualar						
537	544	SAND	DY (CLA	Y				CountyMONT						
544	571	GRA	/EL	/RC	CK				APN Book 14		- 151	Don	00 100	4	
571	584	SAND	DY C	CLA	Y				CARLEND D19 (1999) * 19 1	Ran		_ Sec			
584	591	CLAY	(_	Latitude	- Kan	Be	_ 560	100	-	1
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611		CLAY												1.00	
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640		CLAY		-											Other (Specify)
646		SAND	Contractory of the local division of the loc		and the second second	_								-	DESTROY (Daugha
678		SAND		LA	Y									-	DESTROY (Describe Procedures and Material Under "GEOLOGIC LOG
693		CLAY	_											PT	ANNED USES (<)
731		SAND		LA	Y								53	WAT	TER SUPPLY
740	- Address of the other states of the other sta	CLAY	in the second second		-				WEST				AST.	17	Domestic Public Imigation industrial
756	10.21.0.1	1.76.005	-			GRAVEL			\$				L.		MONITORING
804	- Children and Chi	SAND	tric transfer	Constantion of the local diversion of the loc	induiting the second									1	TEST WELL
818;	- Andrewson and a second se	SAND	10.00	{AV	EL/R	OCK								CATH	ODIC PROTECTION
831		CLAY	_	-										1	HEAT EXCHANGE
843		GRAV	and the second s	1000										1	DIRECT PUSH
856		SAND		-	Contract in succession in									VA	POR EXTRACTION
868		COBB	-	-	and the second second	Sector State of Sector Se								-	SPARGING
875	101.001.01	SAND				OCK			Illustrate or Describe	Distance of W		Baildin	£1.	1 :	REMEDIATION
927	- interior A	SAND						_	Fences, Rivers, etc. an necessary. PLEASE	id attach a ma BE ACCURA	p. Use addition	ul papei PLETE	e M		OTHER (SPECIFY)
934 941		GRAV	and the second second	and second s	and statements					ER LEVEL				PTE	DIVELI
941		SAND	a second	the state of the s		0.0%									DWELL
974		SAND				UCK			DEPTH TO FIRST DEPTH OF STATIC		(Ft) Bi	ELOW	SURFAC	E	
983		CLAY	1.01	LAI	100		_		WATER LEVEL		- (FL) & DATE	E MEAS	URED _	_	
			10	00		0.0.02			ESTIMATED VIELD	•	(GPM) &	TEST 1	TYPE		
TAL DEPT						Feet)			TEST LENGTH	(Hrs.)	TOTAL DRAW	NOOWN	<u> </u>	(FL)	F. C.
TAL DEPT	HOFC	OMPLE	TEL) WI	ELL II	060 (Feet)			May not be rep	resentative	of a well's	long-te	rm yiçi	ld.	A
DEPTH		Manager					CASING (S)						ANNI	II AD	MATERIAL
ROM SURFA	CE	BORE - HOLE	T	YPE	(٢)	1				FROM S	URFACE		200		YPE
FL 10 F	1	DIA. (inches)	BLANK	CREEN	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	100004304	10 FL	CE- MENT	BEN-	E FILL	FILTER PACK (TYPE/SIZE)
	-		-	\$	25		Autorited	- Historica -	Automatic .		1	(2)	$(\underline{\vee})$	(\checkmark)	feri mened.
	-		H	+	+					0	710			-	Call and Call and
	-		\vdash	+	-					710	1080			-	GRAVEL
	-		+	+			-		-	-		-			
-	-		\vdash	+								-	1		
	-		\vdash	+	+							-			
	TACHA	IENTS	100	1			1		- CERTIFIC	TIONET	TEMES				
Ge	islogic L	og				I, the unders	igned, certify the	el this report is	complete and accurat				bolef.		
		nuclion D	agran	ē.:		NAME M	lyers Well D	rilling Inc.	ON) (TYPED OR PR	owners officient	ar d'antino	44175	contra -	_	
Ge	ophysical antiotec	Chemical	Anal	lysis		11745 2r		SURPORATI	VIN THEO OR PR		anford			CA	93230
Se	WYY808E														
50	her	Concerner			100000	ADDRESS Signed					CITY	5/11/1		STATE	ZIP 865822

Local 1	6 Well N & Began Permit		Mor		_, Ended 5/5/2	COM Refer to	Instruction No. e01	ON REPO	RT				- 0	
Ferm	IL 190			EOLOG	IC LOG	it Date_0	112011	1	- 2	- WELL	OWN	ER		
ORIENTA	TION (1)	-	VERT	CAL	HORIZONTAL	ANGLE	(SPECIFY)							
DEPTH	FROM	METHO	DD B	EVERS		FLUID WA	TER/POL							
FI. 10			Des	cribe m	DESCRIPTION aterial, grain, s	ize, color, i	etc.							
997	1006	SAND	DY C	LAY				Address High	eay 101	WELL	LUCA	non		
1006		ROCH	-		SAND			City Chualar,						
1048		SAND	-	and a state of the state of the				County MONT	EREY				_	
1050	the second s	CLAY		AVEL/H	OCK			APN Book 14				el 00	4	
1002	1000	GLAT	-					Township	Rang	c	_ Sect	ion	_	
	-	-	-				1	Latitude	MN S	EC.			DEG	MIN. SEC.
		1							OCATION	SKETCH	I	_		ACTIVITY (2) -
		1							NORTH	1			1	NEW WELL
TOTAL DEI				<i>f</i> .	eet))60(Feet)			Implimate or Describe Feeces, Rivers, etc. an necessary, FLEASE WATT DEPTH TO FIRST DEPTH OF STATIC WATER LEVEL ESTIMATED YIELD TEST LENGTH May not be rep	d attach a map BE ACCURAT ER LEVEL d WATER	/from Russia, Use addition E & COM & YTELD (FL) & DATI _ (GPM) & DTAL DRAY	OF C ELOW 1 ELOW 1 E MEAS TEST 1 VDOWN	OMPI SURFAC URED . YPE		
ocom					- C	ASING (S)					_	INNI	11 4 10	MATERIAL
FROM SUR		BORE -	TY	PE ()				i conservatione i	FROM SU		-	ALANA		PE
FL ID	FL.	DIA. (inches)	BLANK	CON- CON- DUCTOR	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)		PL.	CE- MENT			FILTER PACK (TYPE/SIZE)
0	50	44		1	STEEL	.34	5/10	3	0	710	and the state of t			
0	200	28			STEEL	160D	1/4		710	1080				GRAVEL
200	480	28			STEEL	160D	5/10							
480	760	28	1		STEEL	160D 16	3/8	1 TOTACAL CONTRACT	-				-	
762	1060	28			CB STEEL	16ID	5/16						-	
		MENTS	111	-			or It	- CERTIFIC/	TION STA	TEMENT		_	-	
E	Geologic (Well Cons Geophysics	Log struction Di	agrem		NAME_M (PER) 11745 2n ADDRESS	vers Well D	rilling Inc.	complete and accurat	le io the best of	anford	tge and		CA STATE	
ATTACH ADDI WR. 188 REV. 11	<u>18060156</u>	FORMATIO	10.11		training the second sec			EPRESENTATIVE DNSECUTIVELY N	UMBERED F	DA	5/11/1 TE SIGN			65822 -67 LICENSE NUMBER

CONDUCTOR CLAY GRAVEL CLAY GRAVEL CLAY GRAVEL/ROCK SANDY CLAY GRAVEL/ROCK SAND/GRAVEL GRAVEL/ROCK SAND/GRAVEL GRAVEL/ROCK SAND W/ CLAY	IC LOG Permit	ANGLE	(SPECIFY)	Address High City Chualar,	eay 101	WELL L	OWN	APN/TR		
GEOLOG WETHOD REVERS Describe m CONDUCTOR CLAY GRAVEL CLAY GRAVEL/ROCK SANDY CLAY GRAVEL/ROCK SAND/GRAVEL GRAVEL/ROCK SAND W/ CLAY	IC LOG —— HORIZONTAL — E F DESCRIPTION	ANGLE	(SPECIFY)	Address High City Chualar,	eay 101			ER -		
✓ VERTICAL DRILLING REVERS Describe m CONDUCTOR CLAY GRAVEL CLAY GRAVEL CLAY GRAVEL/ROCK SANDY CLAY GRAVEL/ROCK SAND/GRAVEL GRAVEL/ROCK SAND W/ CLAY	HORIZONTAL F	LUID WA	TER/POL	Address High City Chualar,	eay 101			ER -		
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GRAVEL/ROCK SANDY CLAY GRAVEL/ROCK SAND/GRAVEL GRAVEL/ROCK SAND W/ CLAY S				County MONT			7.530-08	0.447		
SANDY CLAY GRAVEL/ROCK SAND/GRAVEL GRAVEL/ROCK SAND W/ CLAY S				APN Book 145						
GRAVEL/ROCK SAND/GRAVEL GRAVEL/ROCK SAND W/ CLAY S				Township			Secti	on		
SAND/GRAVEL GRAVEL/ROCK SAND W/ CLAY S				Latitude	MIN SE	C.			DEG	MIN. SEC
GRAVEL/ROCK SAND W/ CLAY S		_			OCATION :	SKETCH				ACTIVITY (2) -
SAND W/ CLAY					NORTH		_		11	NEW WELL
and so has been as in the second side of the local and the local second s	TREAKS								MOD	FICATION/REPAIR
SANDY CLAY	1112/11/0									Deepen Other (Specify)
SAND & COBBLE	s								-	
SAND W/ CLAY S	the second									DESTROY (Describe Procedures and Material
SAND/GRAVEL	1112/010									Under "GEOLOGIC LOC
COBBLES										ANNED USES (\measuredangle)
SAND & BRN CL	Y			21				to.		ER SUPPLY Comestic Public
SAND/GRAVEL				WEST				EAS		Imgation Industria
CLAY										MONITORING
SAND										TEST WELL
CLAY										HEAT EXCHANGE
SAND/GRAVEL										DIRECT PUSH
CLAY										INJECTION
SANDY CLAY									VAP	OR EXTRACTION
CLAY					- SOUTH					SPARGING
SAND				Missnale or Describe	Dissance of Well	from Roads,	Building	š	L	REMEDIATION OTHER (SPECIFY)
SANDY CLAY				Fences, Rivers, etc. an necessary. PLEASE I				- N	- 0.5	UTHEN (SPECIPT)
SAND/GRAVEL				WATE	R LEVEL &	YIELD	OF CO	OMPL	ETEP	WELL
SANDY CLAY				DEPTH TO FIRST						221010223
CLAY				DEPTH OF STATIC		6 c) els			59 - E	
GRAVEL/ROCK				WATER LEVEL		FL) & DATE	MEASU	RED _		
1090	5020			ESTIMATED YIELD		(GPM) & T	EST T	YPE		
ORING <u>1080</u> () OMPLETED WELL 1	eet) 160 (17)			TEST LENGTH	(Hrs.) TO	TAL DRAW	DOWN.	-	_ (FL)	
JMPLETED WELL	(Feet)			May not be repi	resentative of	a well's l	ong-lei	m yiel	<i>d.</i>	
	CA	SING (S)	_		-	-		ANNI	LAR	MATERIAL
HOLE TYPE ()			ann arri		FROM SU	RFACE			and the second	PE
DIA. X 3. g 8	MATERIAL /	INTERNAL DIAMETER	GAUGE OR WALL	SLOT SIZE	0.0000000000000000000000000000000000000		CE-	BEN-	S	FILTER PACK
inches) 3 1 89 a		(Inches)	THICKNESS	i (Inches)	FL 10	FL .	1122-04-0	10000	1.5.4.4	(TYPE/SIZE)
Inches) BILANN BILANN BILANN BILANN					0	710	V	Len!		
Inches) BLAN										GRAVEL
Inches) (sector)										
Inches) BLCON										
Inches) BLLAD										
Inches)										
Inches)				the second se	COLUMN AND ADDRESS	CALL & LAND				
30	RE- DLE TYPE (⊻) IA ¥ ₫ ag ფ		CASING (S)	CASING (S)	CASING (S) TYPE (*) IA TYPE (*) IA TYPE (*) IA TYPE (*) IA THICKNESS INTERNAL GRADE INTERNAL GRADE INTERNAL GRAUGE SLOT SIZE IF ANY THICKNESS (Inches) III IIII IIII IIIII IIIII IIIIIIIII	CASING (S) TYPE (*) IA, thesi TYPE (*) TYPE (*) TYPE (*) THERNAL GRADE CASING (S) THERNAL GRADE GRADE	Intervention of the second se	Intervertigendame of ordered static strategy and the of the representative of ordered strategy and the of the representative	Internation of the rest o	Intervention of the state of

Soli/Water Chemical Analysis	11745 2nd Ave	Hanford	CA 93230
Other	ADDRESS	CITY	STATE ZIP
	Sinned	05/11/11	865822
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.	WELL DRILLER/AUTHORIZED REPRESENTATIVE	DATE SIGNED	C-57 LICENSE NUMBER
and all the plant bit and	NUL ADVACTO VERSES VALUE VERSEAVER AND TO VERSEVER AND	CERES FORM	

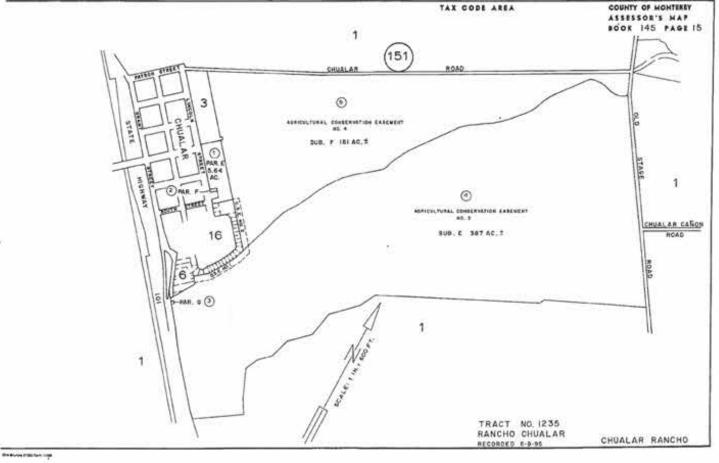
DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ODICINI											165	514	ΕO	0	arran an a
ORIGIN/ File with						107213		E OF CALIF		na E	- DWR	USE	ONLY	[DO NOT FILL IN
						WELL		Instruction	ON REPO			STAT	F WELL	NO/S	TATION NO.
Page 5 of Owner's		lo l					1. I. S. M.		02286	15	+ 1 ×	1	1		
		11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	011			Ended 5/5		eui	02200		LATIT	JDE			LONGITUDE
	0 N N N	Agency								IT	FIL	1	0.16	1.1	11111
		11-1187			uruy		nit Date 3	7/2011		L	4: 1: 4		APN/T	RS/OTH	ER
		1		EC	DLOG	IC LOG -	int Date		1		- WELL	.ow	NER	_	
ORIENTA	TION (⊻		VERT	nc.	u	HORIZONTAL -		mol 300 C 200							
DEPTH SURF FL IS		METH			VERS	DESCRIPTIO aterial, grain,	FLUID WA								
519		SANE							Address High	anu 101	WELL	LOCA	TION		
528	53	7 CLAY							City Chualar,						
537		4 SAND		L	AY				County MONT			_			
544	57	GRAN	/EL	R	OCK						164	19.75	. 00		
571	584	SAND	YC	LA	AY				APN Book 14						
584	591	CLAY							Township Latitude	Kang	c	_ Sec	tion		N 201
591	594	SAND	YC	LA	AY				DEG.		EÇ.			DEG	MIN. SEC.
594		SAND	-							OCATION	SKETCH	I	_	-	ACTIVITY (2) -
611	629	CLAY	6							NORT	-			1.00	NEW WELL
629		SAND	-	LA	AY.									MO	DIFICATION/REPAIR
640	646	CLAY						1	1						Other (Specify)
646		SAND	No. of Concession, Name	A	VEL									-	A Contraction of the
678	693	SAND	YC	LA	Y									-	DESTROY (Describe Procedures and Maleri
693	731	CLAY	2												Under "GEOLOGIC LO
731	740	SAND	YC	LA	Y										ANNED USES (✓) TER SUPPLY
740	756	CLAY	1		-070				WEST				t	1002.0	Domestic Public
756	804	SM CO	OBB	LE	ES & C	GRAVEL			×				FAST	1	Irrigation Industri
804	818	SAND	YC	LA	Y										MONITORING
818	831	SAND	/GR	A	/EL/R	OCK								hane	TEST WELL
831	843	CLAY	-											[num	HEAT EXCHANGE
843	856	GRAV	EL/	RC	CK									1	DIRECT PUSH
856	868	SAND	YC	LA	Y										INJECTION
868	875	COBB	LE/	GR	AVEL	ite								VA.	POR EXTRACTION SPARGING
875	927	SAND	GR	AV	EL/R	OCK				SOUTH				4	REMEDIATION
927	934	SAND	YC	A	Y				Illustrate or Describe Fences, Rivers, etc. and	d attach a map	Use addition	nal pape	r if	1	OTHER (SPECIFY)
934	941	GRAV	EL/F	20	CK				necessary. PLEASE I	SE ACCURAT	E & COM	PLETE			
941	960	SAND	Y CI	A	Y				WATE	R LEVEL	& YIELD	OFC	OMPL	ETE	D WELL
960	974	GRAV	EL/S	SA	ND/R	OCK			DEPTH TO FIRST	WATER-	(FL) BI	ELOW	SURFAC	E	
974		SAND	Y CL	A	Y		1000		DEPTH OF STATIC		the state		san suo es Saltatata		
983	997	CLAY							WATER LEVEL		(FL) & DAT				
TAL DEP	TH OF	BORING	108	30	(F	(cet)			ESTIMATED YIELD TEST LENGTH						
TAL DEF	TH OF	COMPLE	TED	W	ELL 10	060 (Feet	2		May not be repr						2
			-				n. Theorem and the second		1	Commente o	7.54 11.612.0	iong-re	am men	<u>и.</u>	
DEPTH ROM SUR	tues	BORE -	-	in a			CASING (S)			DEF	тн		ANNU	LAR	MATERIAL
COM SUR	FAGE	HOLE DIA.	TY	PEZ	(<u><</u>)		INTERNAL	GAUGE	SLOT SIZE	FROM SL	IRFACE	-		T	YPE
FL 10	FI.	(inches)	BLANK	SCREEN	DIJICTOR	GRADE	(inches)	OR WALL THICKNESS	IF ANY	FL N	FL.	MENT	BEN- TONITE	FILL	FILTER PACK (TYPE/SIZE)
0	50	44			~	STEEL	34	5/1	6	0	710	and the state			
0	200	28	~			STEEL	160D	1/	4	710	1080				GRAVEL
200	480	28	1			STEEL	160D	5/1	6		3				
480	760	28	1			STEEL	16OD	3/	8						
760	762	28	~			STEEL	16	5/10	the second			1		S	
762	1060	28		~		CB STEEL	16ID	5/10						1	
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	Other														

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									- SOUTH -				4	SPARGING			
			-					lifestrate or Describe Fences, Rivets, etc. and	strech a map.	Use addition	ul papei	if	1 8	OTHER (SPECIFY)			
					- MAG		-	necessary. PLEASE I	IE ACCURATE	& COM	PLÉTE						
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	-							DEPTH OF STATIC WATER LEVEL		1) & DATI	E MEAS	URED					
1.		1000						ESTIMATED YIELD									
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2 18 B		SC	03	1		(inches)	THICKNESS	(Inches)	Ft. to	FI.	(x)	(1)	()	(TYPE/SIZE)			
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					(PERS	ON, FIRM, OF	R CORPORATE	ON) (TYPED OR PR	NTED)				-				
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Well Geopt	Alter Chemical	Analysis	Ē.		ADDRESS	i Ave.			Har	CITY	Mainte		STATE	93230 ZIP			

165 14E00 7/8



Details - ParcelQuest Lite

ve Vagnini , Coun	ty Assessor			
General Information APN: Situs Address: Mailing Address Legal Desciption:	145-151-004-000 AGP 68-054	Use Type: Tax Rate Area:	AGRICULTURAL PRESERVE 065-032	
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unar's Co	ру	ĔĊ	1	29	77		STATE OF	CALIFORN ETION Netion Part	REPORT		S/CO	1418	- 00 E -1 LL NO/	111	D51		
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	_		truction Dia	gram			NAME	IN, FIRM, OR O									
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1			Chambrid's	Anabia													
) 	_	Soil/Wate	Chemical	Analys	ea.		ADDRESS							_			
	Ξ	Soil/Wate	r Ghemical	Analys	•••		ADDRESS Signed WELL						CITY			STATE	ZIP

FC 23103 ORIGINAL STATE OF CALIFORNIA File with DWR WELL COMPLETION REPORT 5/014151-101114512 Page 1 of 1 Owner's Well No. A/12/00793603 Date Work Began 3/14/00 Ended Local Permit Agency Monterey County Health Dept Permit No 00-041 Permit Date 3/3/00 LATITUDE -101 15121 TREADTHER CEOLOGIC LOC ORIENTATION (<) DAILLING ROTARY FLUID MUD DEPTH FROM DESCRIPTION SUPPACE Describe material, grain size, color, etc. 71 30 n 0 STATE 4 top soil WELL LOCATION Address 1625 River Rd 40 gravel 4 62 Salinas Valley gravel City_Gonzales 40 County Monterey 62 84 gray clay 154 Salinas Valley gravel APN Book 216 Page 032 84 Parcel 014 Township _____ 154 203 tan clay __ Range . Section Latitude / NORTH 203 254 brown sand & fine gravel Longitude _____ www.sec. ______ACTIVITY (2) WEST 254 260; brown clay LOCATION SKETCH 260 286;gravel - MORTH X NEW WELL 286 294 brown clay NODIFICATION/REPAIR 294 323;gravel - Despec 323 Other (Specify) 331 brown clay 331 360 gravel DESTROY (Descript 360 386; tan clay Procedures and Materials Under "GEOLOGIC LOGI 386 400;gravel PLANNED USES (=) 400 416;tan_clay 470;Salinas Valley gravel WATER SUPPLY 416 X- Domastic RESSAGNO VE81 frigation _ 470 _ Industrial 480 brown clay WHARY MONTORING _ 480 504 gravel Anthe TEST WELL . 630 brown clay streaked gravel 504 CATHONC PROTECTION _ must 630 666 brown clay HEAT EXCHANGE 666 1645 680 gravel DIRECT PUSH TUL 706 brown clay INJECTION . 680 VAPOR EXTRACTION 706 760 gravel Illustrate or Discribe Distance of Well from Roods, Build's Fencer, Nicero, etc. and attack a way. Ur additional jup mercinary. PLEASE BE ACCURATE & COMPLETE. SPARGING 760 804 brown clay REMEDIATION OTHER (SPECIFY) . multiple WATER LEVEL & YIELD OF COMPLETED WELL DEPTH TO FIRST WATER ______ (FL) BELOW SURFACE DEPTH OF STATIC 30 WATER LEVEL _ - (FL) & DATE MEASURED 4/20/00 ESTIMATED VIELD . _55 (GPM) & TEST TYPE DUMD TOTAL DEPTS OF BORING _804_ (Feet) TOTAL DEPTH OF COMPLETED WELL _770_IFeet; TEST LENGTH _ 8 (MIL) TOTAL DRAWDOWN 1.00 (FL) . May not be representative of a well's long-term yield. DEPTH FROM SURFACE CASINC (S) BORE-HOLE DIA. DEPTH FROM SURFACE TYPE (1) ANNULAR MATERIAL SCAFEN SCAFEN COLOGA MATERIAL / NTERNAL GAUGE SLOT SIZE TYPE IG FL DIAMETER (Inches) CE- BEN-GRADE OR WALL IF ANY (Inches) FILTER PACK FILL Ē£. lo. R 0 640 (TYPE/SIZE) (=) 121 14 (=) x IonCopper6 640: 670 51 14 660 x 110 x sadk 22 sand -5/ 670: 770 14 slurry wiro Wran 065 660 770 well pack ATTACHMENTS (<) CERTIFICATION STATEMENT I, the undersigned, cartily that this report is complete and accurate to the best of my knowledge and belief. Geologic Log ___ Well Construction Diegram MARKE L.E. Melville & Son Drilling Co., Inc. - Geophysical Log(s) ____ Soll/Water Chemical Analyses 19730 Pinehurst Lane Salinas, _ Other Ca. 93906 ATTACH ADDITIONAL INFORMATION, IF IT EXISTS. 70 Signed WELL DRALEANWINDWITED REPRESENTATIVE - 041F 3010 /03 675586 WHI IN ID'S. HAC IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM Aug 11 03 01:02P S.q L E Melville & Son Inc. 831-443-436

Appendix F

Well Construction Details for Wells in the Deep Aquifers

					Monitoring Programs									
Facility Code	State Well ID	Well Type	Total Depth (ft)	Year Drilled	Water Quality	Monthly GWL	Aug. Trough GWL	Annual GWL	Transducer	CASGEN				
Monitoring V	/ells					•								
10164	13S/02E-32E05	Monitoring	1,650	1984					Х					
21356	15S/02E-04A03	Monitoring	910	1995		candidate		candidate						
22274	14S/01E-24L02	Monitoring	1,880	2000					Х					
22275	14S/01E-24L03	Monitoring	1,430	2000					Х					
22276	14S/01E-24L04	Monitoring	1,080	2000					Х					
22277	14S/01E-24L05	Monitoring	970	2000					Х					
26313	14S/02E-33E01	Monitoring	1,095	2005										
26314	14S/02E-33E02	Monitoring	1,760	2005										
Production W	/ells					•			•					
2691	14S/02E-18E01	Agricultural	unknown	1974	Х									
1672	14S/02E-06L01	Agricultural	1,809	1976	X	x		х						
75	13S/02E-19Q03	Agricultural	1,610	1980	х	x		х		х				
2453	14S/02E-31H01	Municipal	1,515	1982	х									
2430	13S/02E-32M02	Agricultural	1,630	1984	х									
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	Х									
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	Х	x		х						
22755	14S/02E-07J03	Industrial	1,573	2005	Х									
22929	14S/02E-28H04	Agricultural	1,180	2006	Х	x		х						
22905	15S/03E-05R52	Agricultural	840	2006		candidate								
23135	14S/02E-28C02	Agricultural	1,180	2008	Х		Х	х						
24033	14S/02E-22A03	Agricultural	1,640	2009	Х									
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	Х									
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 W	مااد													



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	1	52-47	Renumbered
52-1, 52-2	Repealed	52-48	Board of Directors; appointment; number; qualifications
52-3	Short title.	52-49	Manner of appointment; experience
52-4	Creation; name; territory	52-50	Terms; reappointment
52-5	Authority, limitations, rights and duties of Agency	52-51	Vacancies; manner of filling; term
52-5.1	Repealed	52-52	Duty to advise Board of Supervisors; emergencies
52-5.2	Definitions	52-53	Policy objectives of Directors
52-5.4	Repealed	52-54	Duties of Directors
52-6	Zones established	52-55	Responsibility of Directors for initiating and developing proposals
52-7	Amendment of zones		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
52-10	Revenue bonds		provisions
52-11	Work or improvements	52-58	Purchasing agent; contracts; submission to Directors
	undertaken; law governing;	52-59	Blank
	definitions	52-60	Contracts for which funds not budgeted; form; fiscal provisions
52-12	Water standby or availability charge	52-60.1	Contracts for lease of Agency land
52-12.1, 51		52-61	Recruitment and hiring of general manager; requirements;
52-12.1, 5. 52-13	Water reclamation charges	52-01	termination
52-13 52-14	Eminent domain	52-62	Annual performance evaluation of general manager; yearly
52-14 52-15	Board of Supervisors; ordinances and resolutions	52-02	objectives
52-16	Officers, assistants, deputies, clerks and employees	52-63	Personnel duties of Directors; planning and budgeting matters
52-10 52-17	Rules and regulations; appointment of officers and employees		Meeting of Directors; conduct
52-18		52-64 52-65	
	Plan to control flood and storm waters; reports Projects or works of improvement to be carried out	52-65	Public hearings by Directors; testimony of public By-laws; adoption by Directors; standing committees
52-19	5 1	52-66	
52-20	Institution of projects; hearings	52-67	Advisory committees
52-21	Legislative findings; Salinas River ground water basin extraction and	52-68	Advisory committees; sole authority to advise Board members
50.01.1	recharge	52-69	Exercise by Directors of Agency powers not reserved to Supervisors
52-21.1	Export of groundwater or	52-70	Additional powers of Board of Supervisors
	surface water from coastal	52-71	Duties of Supervisors concerning litigation
	watershed area; prohibition;	52-72	Blank
	injunctive relief	52-73	Reports to Supervisors
52-22	Studies; groundwater basins; seawater intrusion; extraction	52-74	Reports of Board of Directors
	prohibition	52-75	Semiannual meeting of Board of Supervisors and Directors
52-23	Water tolls or charges	52-76	Appeals by Agency to Directors
52-24	Powers of Board	52-77	Adoption of rules relating to notice and hearing by Directors
52-24.1	Proceedings; application of procedures	52-78, 52-7	
52-25	Fees and taxes; referendum power	52-80	Decision of Directors final; no appeal to Supervisors
52-26	Bonds; resolutions; elections	52-81	No appeal from decision of Directors to Board of Supervisors;
52-27	Bonds; form; terms; maturity denominations; signatures		exception
52-28	Issuance and sale of bonds; payments from zone funds	52-82	Actions and decisions of Agency subject to judicial review
52-29	Bonds; payment from tax revenue	52-83	Assistance of County staff to Directors; assistance of attorney
52-30	Bond tax		representing County counsel
52-31	Bonds, law applicable	52-84	Joint meeting of Supervisors and Directors to study effectiveness of
52-32	Bonds; legal investments		Agency
52-33	Bonds; tax exemption; nature of district	52-85	Cooperation by and with Pajaro Valley Water Management Agency
52-33.1	Repealed		and Monterey Peninsula Water Management District; memorandum
52-34	Improvements; conformity with plans and specifications		of agreement
52-35	Additional bonds	52-86	Act not to alter authority of Monterey Peninsula Water Management
52-36	Defeat of bond proposal; waiting period for new election		District or Pajaro Valley Water Management Agency
52-37	Repeals or amendments; effect on obligations	52-87 to 52	-89 Blank
52-38	Right of way over public lands	52-90	Liberal construction
52-39	Judicial proceedings; commencement	52-91	Severability
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 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. <u>Powers of Agency.</u> 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 Untied 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. <u>Revenue bonds.</u>

(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 appropriative 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. <u>Water tolls or charges</u>. 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:

(MCWRA.ACT - 4/11/95)

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.
 - "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.
 - "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.
 - "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.
 - "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.

Chap. 15.08, MCC

Page 2 of 14

- 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.
- "Health Officer" means the Health Officer of the County of Monterey, or his authorized representative, including the Director of Environmental Health.
- "Inactive well" means a well not routinely operated but capable of being made an operating well with a minimum of effort.
- "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-ofway from private properties.
- "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:
 - 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
 - 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.

Chap. 15.08, MCC

Page 3 of 14

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 reperforate 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.

Chap. 15.08, MCC

Page 4 of 14

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:

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.
 - 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.
 - 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.

Chap. 15.08, MCC

Α.

Page 5 of 14

- 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:

- 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.
- Water generated during test pumping of wells shall be dispersed or disposed of in a manner which will not cause significant erosion.
- Modifications 1 and 2 may not apply to monitoring wells at the discretion of the Health Officer or his authorized representative.

B. <u>Casing</u>.

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:

- 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.
- All sanitization pipes for a subsurface pump discharge installation shall be kept sealed by a threaded or equivalently secure cap.
- 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.
- 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.

Chap. 15.08, MCC

Page 8 of 14

- 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:
- The well has no defects which will allow the impairment of quality of water in the well or in the water-bearing formations penetrated.
- 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.
- The well is marked so that it can be clearly seen.
- 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:
 - 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.

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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

Chap. 15.08, MCC

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
 - 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.
 - 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.
 - 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
 - The Health Officer shall submit a removal of notice of violation to the county recorder when:
 - It is determined by the Health Officer or the Board of Supervisors, after review, that no violation of this chapter exists; or
 - All required and corrective work has been completed and approved by the Health Officer.

 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:

- Cost of investigation;
- Court costs;
- 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.)

Chap. 15.08, MCC

Page 13 of 14

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)

Chai

ATTEST: ERNEST K. MORISHITA

Clerk of said Board By:

APPROVED AS TO FOR

29/88 Couns

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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 instream flows for new high-capacity wells, including high-capacity urban and agricultural production wells, where there may be a potential to affect existing adjacent domestic or water system wells adversely or in-stream flows, as determined by the Monterey County Water Resources Agency. In the case of new high-capacity wells for which an assessment shows the potential for significant adverse well interference, the County shall require that the proposed well site be relocated or otherwise mitigated to avoid significant interference. The following factors shall be used in developing criteria by ordinance for use in the evaluation and approval of adequacy of all such high-capacity wells, including but not limited to:
 - a. Effect on wells in the immediate vicinity as required by the Monterey County Water Resources Agency or Environmental Health Bureau.
 - b. Effects of additional extractions or diversion of water on in-stream flows necessary to support riparian vegetation, wetlands, fish, and other aquatic life including migration potential for steelhead, for the purpose of minimizing impacts to those resources and species.

This policy is not intended to apply to replacement wells.

(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 FORTIONS 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 bardship 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 nanner, 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)

Attachment 2

rent yer. Anter 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.

2.01.02 PURFOSE

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 DEPINITIONS

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 Dlackic 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.

(NOMO180.ORD -- 9/14/93)

- 3 -

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; 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, and a copy of the written variance shall be provided to the applicant.

5 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.

L.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

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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. <u>SECTION 2. EFFECTIVE DATE.</u> This ordinance shall take effect 30 days after its final adoption by the Board of Supervisors.

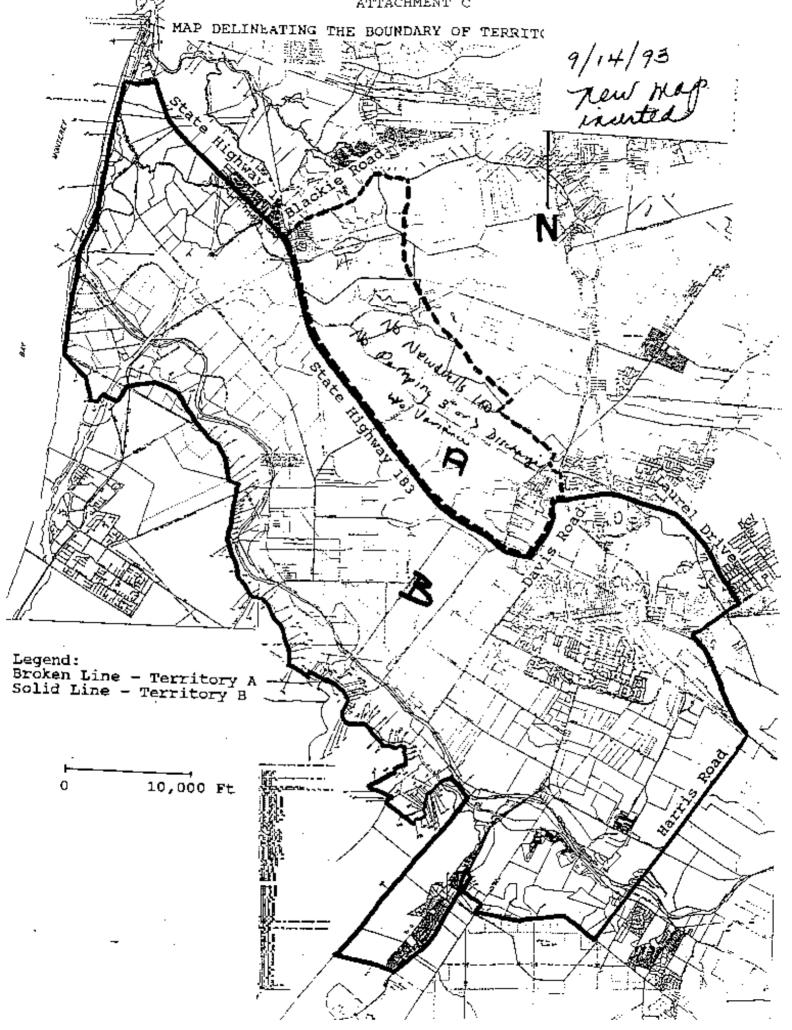
PASSED AND ADOPTED this <u>14t</u>bday of <u>Sept.</u>, 1993, by the following vote:

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 Бу 2 Deputy



APPENDIX K

MONTEREY COUNTY WATER RESOURCES AGENCY ORDINANCE NO. 3790

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Honterey 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.

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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.

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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

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.

On April 7, 1992, in Resolution No. 92-126, the Board of н. 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.

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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. Ĺ

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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.

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

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"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 INTRODED

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 JI -- 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, ho 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

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.

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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. ſ

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1.02.08 CLASSIFICATION OF WELLS

Λ. 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)

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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.
- 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.

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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:

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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.

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.

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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

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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:

 λ . 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

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.

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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.

в. 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.

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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.

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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.

<u>SECTION 2. EFFECTIVE DATE.</u> This ordinance shall take effect 30 days after its final adoption by the Board of Supervisors.

PASSED AND ADOPTED this <u>8th</u> day of <u>November</u>, 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

Βv 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

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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:
 - 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
 - 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.
 - 5) 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:
 - 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.

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- 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:
 - 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:
 - Neat cement grout
 - 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:
 - On site, continuous mixing of sealing materials from dry bulk form to liquid form.
 - Continuous operation sealing supplied from continuous mixing equipment.
 - Continuous monitoring of material density and quantities being placed with visible dial or gauge read-out.
 - 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.
 - 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.
 - 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 J: 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:
 - Review the location of the conductor casing and cement seals prior to well construction.
 - 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:

- Review reconstruction and destruction procedures and well data.
- b) Witness and inspect the cement sealing processes.

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APPROVED AS TO FORM

J.R. RAMOS SENIOR DEPUTY COUNTY COUNSEL

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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.)