SEASIDE GROUNDWATER BASIN WATERMASTER
PROPOSED
PLANNING AND MONITORING PLAN - OPERTIONAL BUDGET
ADMINISTRATIVE YEAR 2006

Professional Services	$100,000
Computer Software & Supplies	100,000
Total	$200,000

ATTACHMENT 4B

SEASIDE GROUNDWATER BASIN WATERMASTER
PROPOSED
CAPITAL REPLENISHMENT BUDGET
ADMINISTRATIVE YEAR 2006

Exploratory Drilling, Geophysical Surveying and Monitor Well Drilling	$1,000,000
Total	$1,000,000

ATTACHMENT 4C

ATTACHMENT 5

SEASIDE GROUNDWATER BASIN WATERMASTER

PROPOSED
ADMINISTRATIVE BUDGET
Administrative Year 2007
(January 1 through December 31, 2007)

CEO-Compensation	$60,000
Professional Services:	
Legal—(6 mo. @ $1,000 and 6 mo. @ $500)	10,000
Administrative Support—(Minutes, agendas, filing, etc.)	8,000
Total Personnel Budget	$78,000
Office Consumables and Other Expenses (Supplies, postage, printing, insurance, etc.)	6,000
Office Rental	3,500
Computer Maintenance and Supplies	3,000
Meetings, Travel, Publications and Memberships	2,000
Mileage Reimbursement	1,500
Utilities (Power, Gas, Water, Waste, Telephone, Internet, etc.)	1,000
Office Equipment Maintenance	1,000
Total Budget	$96,000

Note:
Budget and Finance Committee recommends that a separate reserve account of $25,000 be established that will only be used with the approval of the Watermaster Board of Directors

ATTACHMENT 5A

SEASIDE GROUNDWATER BASIN WATERMASTER

MONITORING AND MANAGEMENT PLAN BUDGET
OPERATING

PLANNING AND MONITORING
Administrative Year 2007
(January 1 through December 31, 2007)

Original Judgment Assessment (collected in March, 2006)	$200,000
Watermaster Board Assessment for 2007	200,000
Total Available	$400,000
Consulting costs:	
Martin Feeney Contract	$14,600
Modeling Consultants Meeting expenses	16,370
Basic groundwater resource database	
Annual maintenance: 40 hours/quarter	11,200
Develop/populate: 200 hours	14,000
Monitoring of coastal "sentinel" monitor wells	48,240
Monitoring of inland monitor wells	2,240
Total current estimated costs	$106,650
Projected to Reserve	$293,350

Notes:

1. Cost estimates are at the preliminary "order of magnitude" level, with estimated accuracy of +/-40% (an industry standard)

ATTACHMENT 5B

2. Mr. Feeney is tasked with bringing the parties' hydrologic experts together to discuss, and if necessary, improve upon the Basin groundwater flow modeling that was previously performed, and to issue a recommendation to Watermaster concerning additional modeling work. As indicated in the Budget, Mr. Feeney's expenses are anticipated to be approximately $14,600. Mr. Feeney will collaborate with Gus Yates, Joe Scalmanini, Terry Foreman, and Tim Durbin in assessing the model and future modeling work. An additional expense of roughly $14,000 is necessary to reimburse these four experts for their participation and contributions to this collaborative process.

3. Watermaster staff has received three responses to its Requests for Proposals (RFP) to manage and administering the monitoring component of the Basin Monitoring and Management Program, including the drilling and construction of the additional monitoring wells. A recommendation will be made to the Watermaster Board, and the Board is scheduled to select a consultant to perform this work at a special meeting, set for November 15, 2006. The costs for this work will be included in a revised budget once the consultant is selected.

4. As indicated in the Budget, Watermaster presently possesses $200,000 in this Budget, which was assessed in 2006. The Watermaster Board approved a 2007 assessment of an additional $200,000 for this budget for Administrative (Calendar) Year 2007, and instructed that this assessment be collected on or before January 15, 2007. The collective surplus of $309,720, which is in addition to the known expenses that are itemized in the Budget, will be used to fund the still-uncertain expenses noted above, including those arising from the groundwater flow modeling work, and the administrative and preparatory cost of the monitoring work.

5. In approving this Budget, Watermaster acknowledged the uncertainty of several anticipated expenses. Accordingly, Watermaster agreed to a quarterly review of the Budget to revise the Budget as more accurate costs are determined.

SEASIDE GROUNDWATER BASIN WATERMASTER

MONITORING AND MANAGEMENT PLAN BUDGET

CAPITAL IMPROVEMENT
Administrative Year 2007
(January 1 through December 31, 2007)

Judgment Assessment	$1,000,000
Monitor Well Construction—(4 to 6) well sites per adopted Seaside Groundwater Basin Monitoring and Management Plan @ approximately $180,000 per well site (based on 5 well sites)	$900,000
Coastal Well sites Dataloggers (22)—(6 existing wells & 16 new wells)	44,000
Inland Well sites Dataloggers (2 existing well sites)	4,000
Total estimated expense	$948,000
Projected Reserve	$52,000

Notes:

1. Cost estimates are preliminary "order of magnitude" level, with estimated accuracy of +/-40% (an industry standard)

2. The number of well sites and cost estimates are subject to change as plans and scope are refined by Watermaster. The budgeted $900,000 figure is based on the approximate cost of constructing 5 well sites at the estimated cost of $180,000 per well site. In approving this Budget, Watermaster acknowledged the uncertainty of the estimates relating the capital elements of this Budget. Accordingly, Watermaster agreed to a quarterly review of the Budget to revise the Budget as more accurate costs are determined.

3. The Watermaster Board has approved an assessment of $1,000,000 during the Administrative (Calendar) year 2006 to fund the capital projects set forth within this Budget. Watermaster adopted a phased collection of the $1,000,000 assessment. One quarter of the full $1,000,000 or $250,000, will be due on or before January 15, 2007. The remaining $750,000 will be assessed and be due approximately 30 days before the execution of contracts for the drilling and construction of the monitoring wells. This proposed schedule will be reviewed regularly by the Watermaster Board, and changed , as appropriate, to ensure that funds are received by Watermaster with sufficient time to pay all anticipated expenses set forth is this Budget.

ATTACHMENT 5C

ATTACHMENT 6

MONTEREY PENINSULA
WATER MANAGEMENT DISTRICT

5 HARRIS COURT, BLDG. G
POST OFFICE BOX 85
MONTEREY, CA 93942-0085 • (831) 658-5600
FAX (831) 644-9560 • http://www.mpwmd.dst.ca.us

SEASIDE BASIN WATERMASTER MEMORANDUM 2007-01

Date: February 2, 2007
To: Seaside Basin Watermaster
From: Joe Oliver, PG, CHg, Senior Hydrogeologist
Tom Lindberg, Associate Hydrologist
Subject: Results of Ground Water Quality Samples Collected in Fall 2006 from MWPMD Coastal Monitor Wells in and Near the Seaside Ground Water Basin

Summary

This memorandum transmits and summarizes ground water quality data collected in Fall 2006 by the Monterey Peninsula Water Management District (MPWMD) from its network of coastal monitor wells in and near the Seaside Ground Water Basin. This information is being provided to the Seaside Basin Watermaster Board for information purposes, and is in compliance with the monitoring protocols described in the Watermaster's *Seaside Basin Monitoring and Management Program* (revised September 5, 2006), which was prepared in response to the March 27, 2006 court decision in the Seaside Basin adjudication case. The chemical data from the Fall 2006 sampling of MPWMD's existing monitor well network do not indicate evidence of seawater intrusion at the locations monitored in and near the coastal area of the Seaside Basin.

MPWMD Seaside Basin Coastal Monitor Well Network

The MPWMD initiated a ground water quality monitoring program in the coastal portion of the Seaside Basin in 1990, and the network has been expanded since that time. The water quality data collected from the monitor wells are utilized for the purposes of: (1) characterizing the chemical nature of the ground water, (2) establishing long-term ground water quality trends, and (3) monitoring of seawater intrusion potential into the Seaside Basin. The chemical data reported herein provide information about present water quality conditions in the coastal portion of the basin, and serve as background water quality data for comparison in future studies. Currently, the MPWMD collects water quality data annually from 12 monitor wells at 6 separate sites, as shown on **Figure 1**. At each site, a "shallow" and "deep" monitor well have been installed (either in separate boreholes or as multiple completions in a single borehole), generally

corresponding to well completions within the two principal aquifer units in the Seaside Basin, known as the Paso Robles Formation (QTp) and Santa Margarita Sandstone (Tsm), respectively. The Pliocene/Pleistocene-Age QTp is a continental formation comprised of a fluvial mix of clay, silt, sand and gravel, deposited as ancestral valley fill sediments. The Miocene-Age Tsm is a marine and brackish-marine, fine- to coarse-grained arkosic sandstone, which overlies the shales of the Monterey Formation. The monitor wells are constructed of 2-inch PVC casing, with screens isolated in sand "packages" within each aquifer unit. The aquifer units are separated from each other in the wells by cement strata isolation seals. A summary of the monitor well completion data is provided in **Table 1**.

Water Sample Collection

Water sample collection is accomplished by "air-lift" pumping. The method utilizes a 3/4-inch PVC dedicated airline in the well, which is coupled to an air compressor. The wellhead configuration is fashioned after that shown in **Figure 2**. Due to the small diameter of the monitor wells, the well casing is used as the "eductor" pipe, rather than a separate eductor pipe inside the well. Through experience, it has been determined that acceptable pumping results can be achieved if the bottom of the airline is placed at a depth that gives approximately 50 percent pumping submergence (i.e., the ratio of the length of the airline below the pumping water level to the total length of the airline). The air-lift method can be inappropriate for certain water quality constituents due to chemistry changes brought about by air entrainment in the purged water; however, it is considered appropriate for the suite of inorganic constituents that are currently analyzed from the collected samples.

The volume of water removed from each well prior to sampling is generally three casing volumes, consistent with standard sampling protocol. Sampling is supplemented by field measurement of several indicator parameters that are collected during pumping, which ensures that water quality has stabilized prior to sample collection. An example of the recordation of field data is provided on the field ground water sampling form in **Figure 3**. Once the samples are collected, they are taken to a State-certified laboratory for analysis.

Fall 2006 Water Quality Results

Water chemistry analytical results for the ground water samples collected from the MPWMD's existing coastal monitor wells on October 24 and 25, 2006, are provided in **Table 2**. Historical water chemistry analytical results from samples collected at each monitor well are provided in the tables in **Appendix A**. The chemical data from the depth intervals sampled at these monitor wells do not indicate evidence of present or past seawater intrusion at these locations in and near the coastal area of the Seaside Basin. This is most clearly expressed by review of graphs showing Specific Electrical Conductance (SEC) and Chloride (Cl^-) concentration for the period of record at each well, as shown on the long-term plots provided in **Figures 4, 5 and 6**, for the three sites that are closest to the coastline: PCA West, MSC, and FO-09. These two parameters were selected because identification of saline water intrusion is always associated with an

increase in SEC (which is an indicator of Total Dissolved Solids concentration) and Cl^- concentration (which is the most-used tracer for seawater intrusion analysis). For all three graphs, the scales are similar to facilitate relative comparisons from each aquifer unit and well location. As shown in these figures, ground water sampled from the shallower QTp aquifer unit is generally less mineralized than the deeper Tsm aquifer unit, but water quality for both aquifer units is well below the typical seawater concentration of approximately 50,000 micromhos per centimeter for SEC, and 19,000 milligrams per liter for Cl^-. Most importantly, little overall change has occurred in terms of any trends in increasing SEC or Cl^- concentration in the zones monitored at these coastal locations. It should be noted that the data plots shown in **Figures 4, 5 and 6** do not include the first water quality sample results collected at each well after construction. These initial data were not included based upon the poor comparison of these early data with subsequent analyses. It has been our experience that even though each well undergoes rigorous development subsequent to construction and before initial sample collection, the results are not representative of the native aquifer chemistry, presumably due to the limited ability in these small-diameter monitor wells to completely flush residual drilling fluids in the vicinity of the borehole. Additional information regarding assessment of the ground water quality analytical results from the coastal monitor wells is available from the MPWMD.

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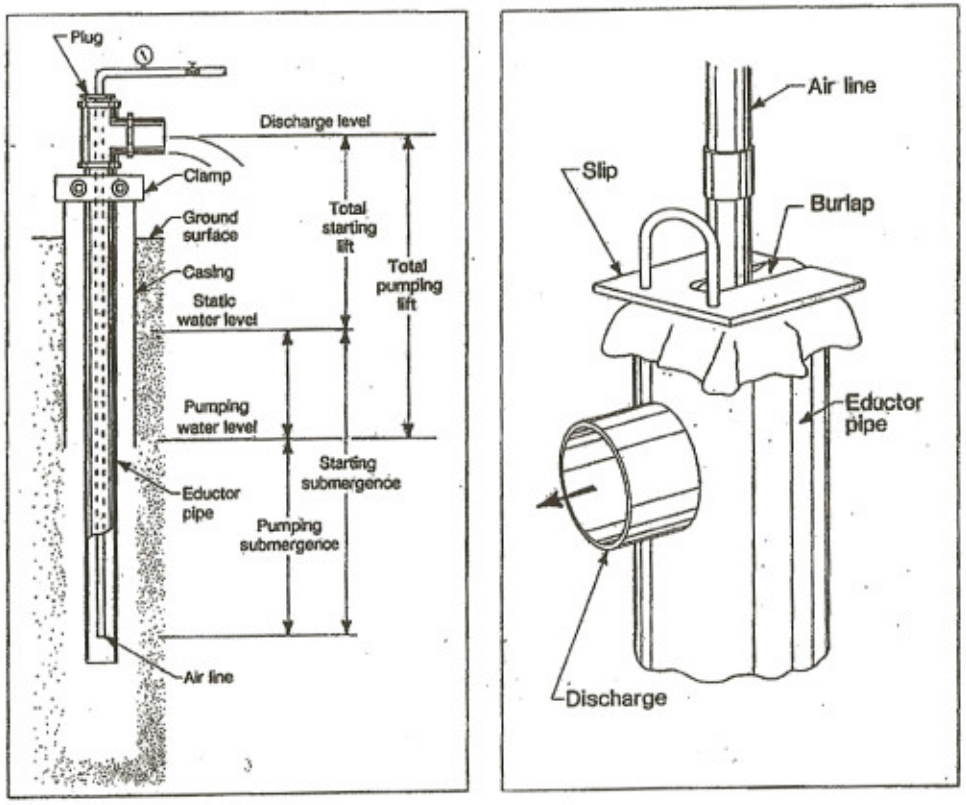

Figure 2. Diagrams illustrating the airlift-pumping method for water sample collection (from Driscoll, 1986, Figure 15.10)

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

SEASIDE BASIN COASTAL GROUND WATER QUALITY
MONITOR WELL LOCATIONS

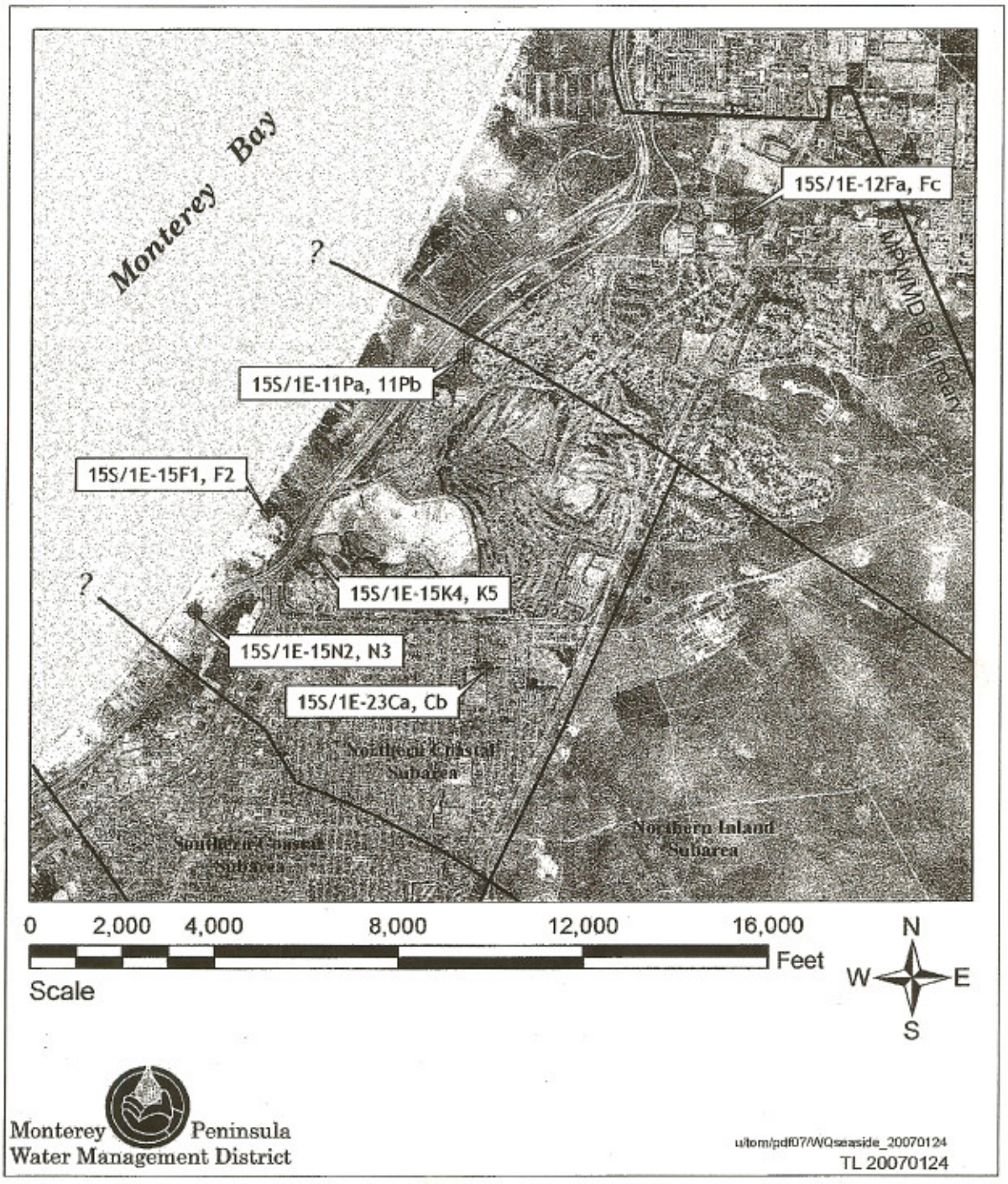

Figure 1. Seaside Basin Coastal Ground Water Quality Monitor Well Locations.

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

GROUND-WATER SAMPLING FORM

Well No. PCA East - Deep 15S/1E-15K4

Well Type: ☑ Monitor ☐ Extraction ☐ Other _____

Well Material: ☑ PVC ☐ St. Steel ☐ Other _____

Date 10/24/2006 Time 1310 hr

Recorded by _____ (Signature)

Sampled by JWO, TLL, TTC (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):

☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____

Total Depth of Casing (TD in feet BTOC): 710

Water Level Depth (WL in feet BTOC): 89.95

Number of Well Volumes to be purged (# Vols)

☑ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other _____

PURGE METHOD

☐ Bailer - Type: _____

☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: _____

☑ Other - Type: airlift - 185 H Sullair compressor

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☑ Other bottom of airline

Depth in feet (BTOC): _____ Screen Interval in feet (BTOC): from 650 to 700

PURGE VOLUME CALCULATION

(710 TD (feet) − 90 WL (feet)) X 2 D (inches)^2 X 3 # Vols X 0.0408 = 304 gallons

Calculated Purge Volume

PURGE TIME

1320 Start 1411 Stop 51 Elapsed

PURGE RATE

Initial 6+ gpm Final 6+ gpm

ACTUAL PURGE VOLUME

306+ gallons

FIELD PARAMETER MEASUREMENTS

Minutes Since Pumping Began		pH	Cond. (µmhos/cm)	T ☐°C ☑°F	Other #gal
1320	1	—	651	clr	6
1335	15		614	72	" 90
1345	25		577	74	" 150
1400	40		710	76	" 240
1411	51		714	76	" 306

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐°C ☐°F	Other
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor): slight H_2S odor after 90 gal pumped.

Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☑ Other directed to swale away from wellhead.

WELL SAMPLING

SAMPLING METHOD

☑ Same As Above

☐ Bailer - Type: _____

☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: _____

☐ Grab - Type: _____

☐ Other - Type: _____

SAMPLE DISTRIBUTION

Sample Series: _____

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
— see chain-of-custody record sheet —					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Figure 3. Example Ground Water Data Collection Form, Fall 2006 Water Quality Sampling.

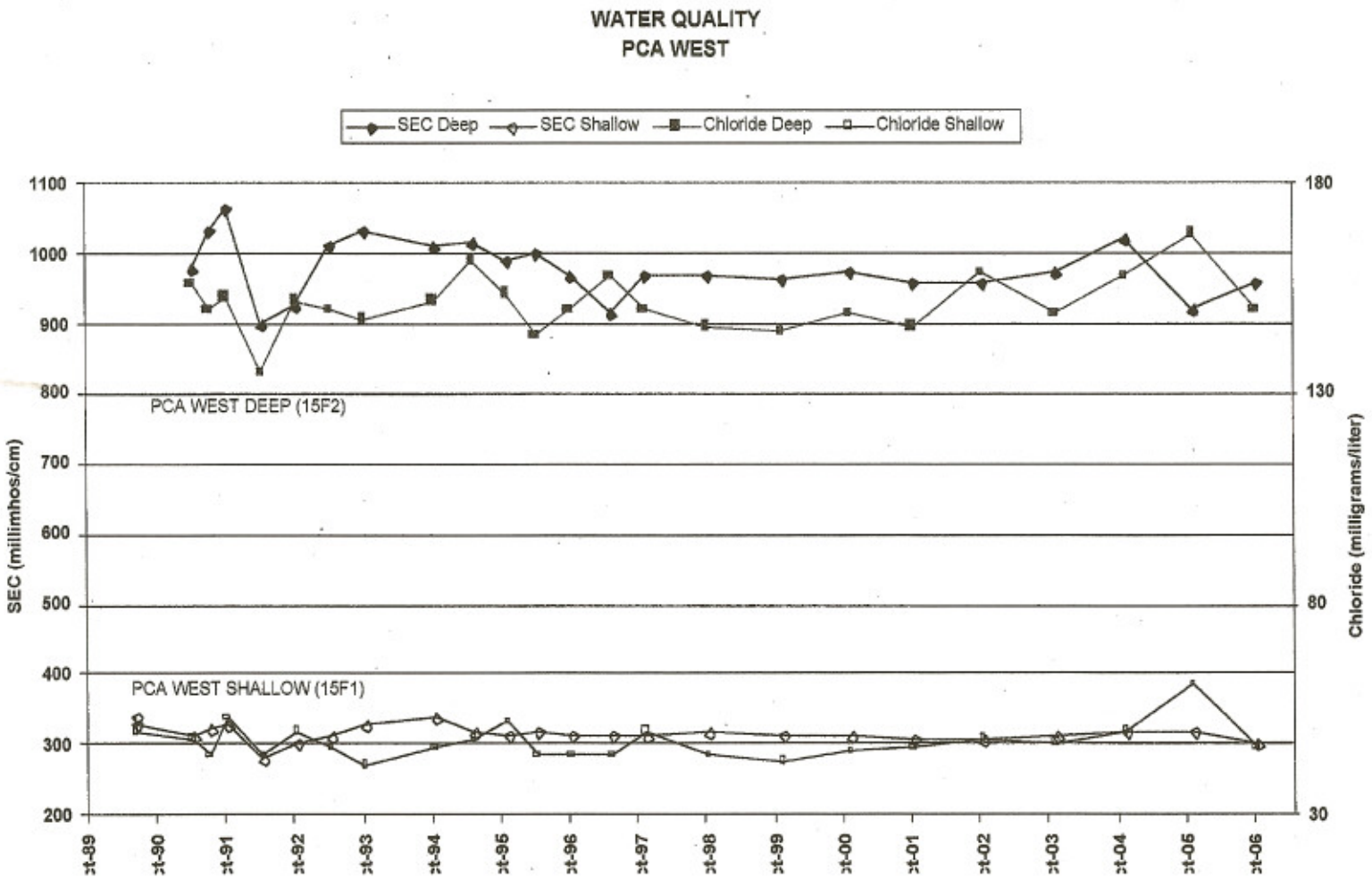

Figure 4. MPWMD PCA West Monitor Well Site: Historical Specific Electrical Conductance and Chloride Concentration.

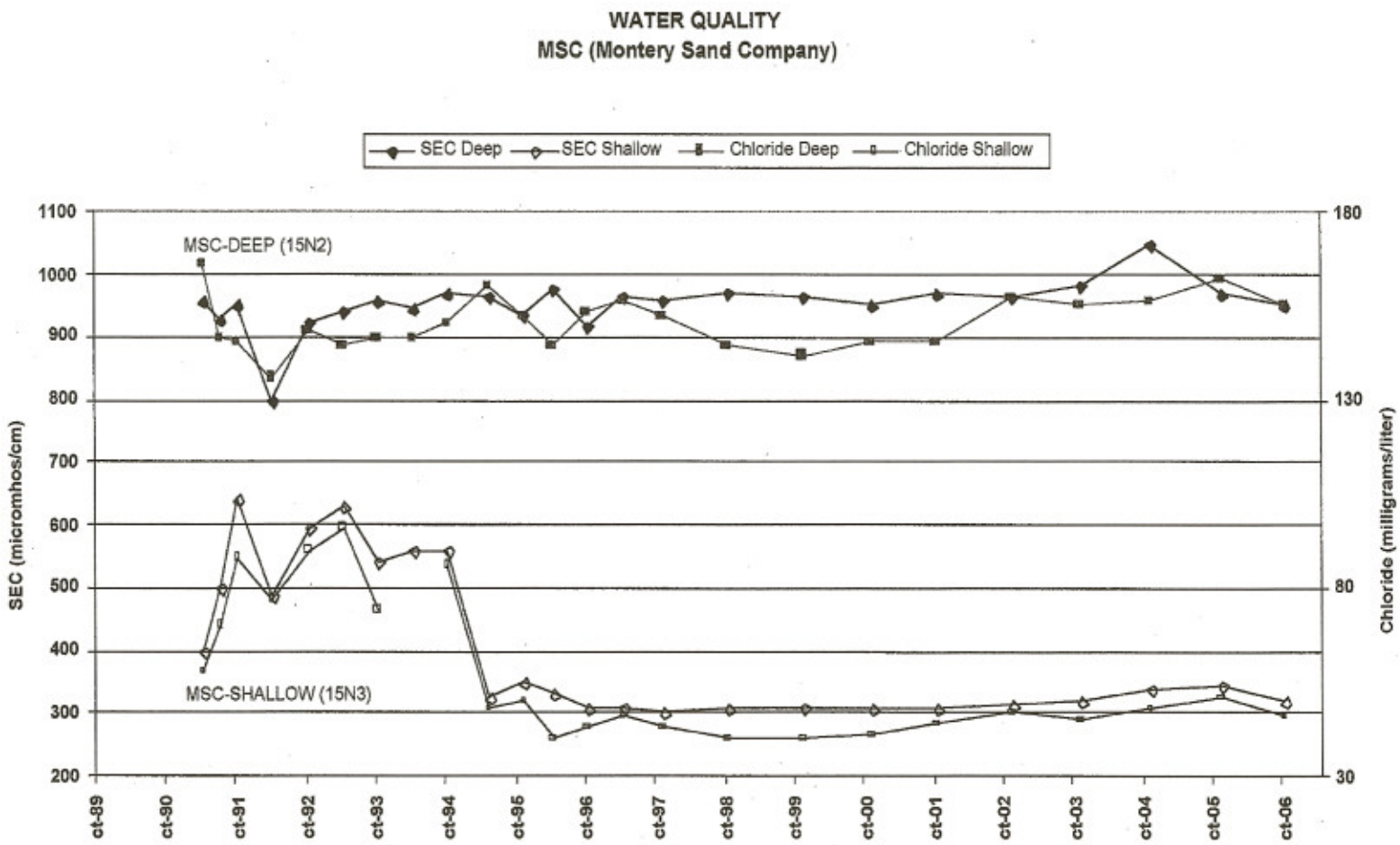

Figure 5. MPWMD MSC Monitor Well Site: Historical Specific Electrical Conductance and Chloride Concentration.

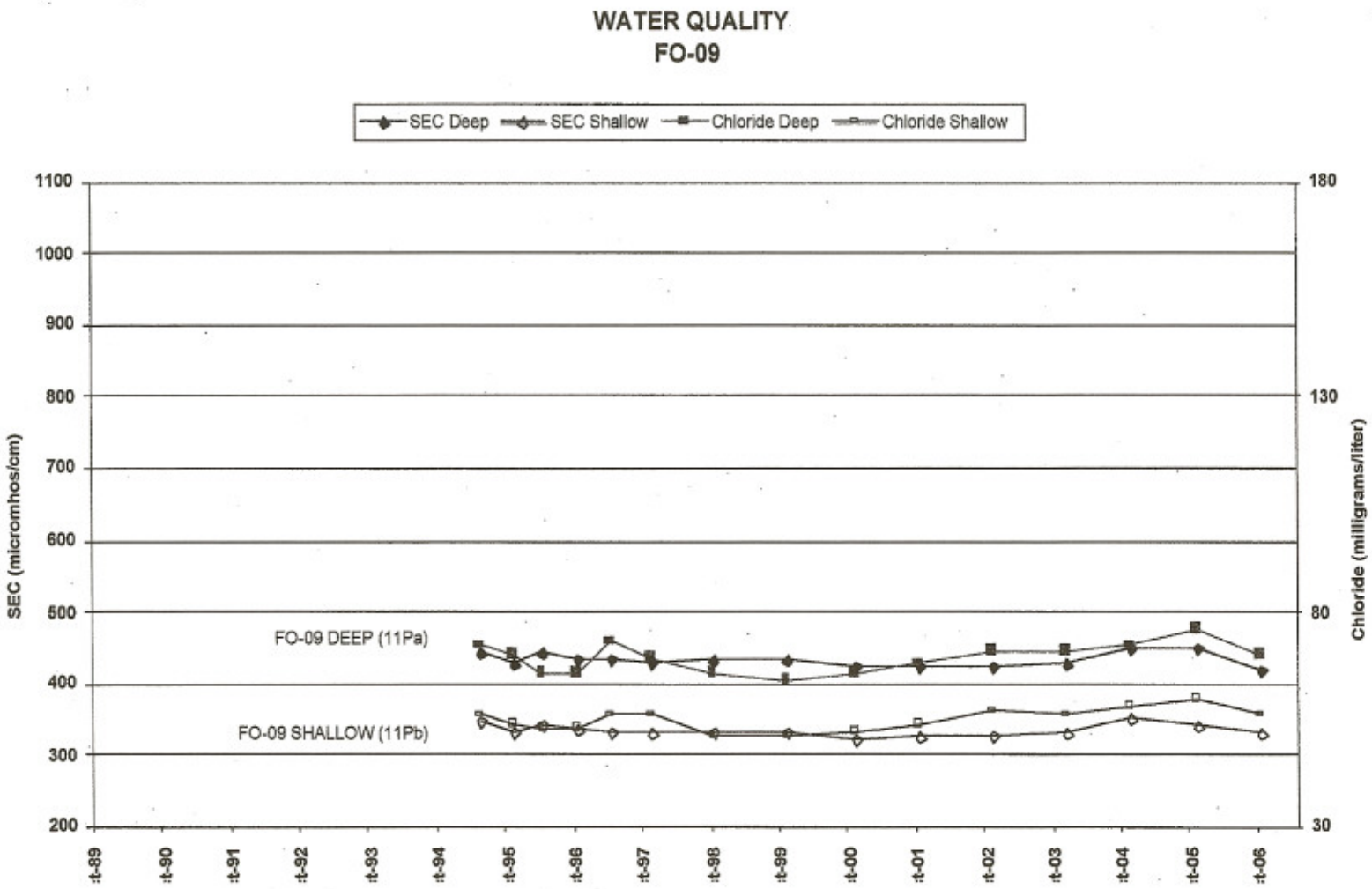

Figure 6. MPWMD FO-09 Monitor Well Site: Historical Specific Electrical Conductance and Chloride Concentration.

Table 1.

SUMMARY OF MPWMD COASTAL SEASIDE BASIN GROUND WATER QUALITY MONITOR WELLS

Site	Well Name	Location Description	Well Number	Date Drilled	DWR Drillers Log	Hole Depth (feet)	Well Depth (feet)	Screened Interval (feet)	Strata Seal (feet)	Casing Type	Geologic Unit	E-Log	Elevation (feet AMSL)
MSC		***former MSC mine north of Playa Ave. and west of Hwy. 1***											
	MSC-Shallow	approx. 10' S of north property line	15S/1E-15N3	5/25/199	338413	720	695	490 - - 680	95 - 275	2" pvc	QTp	- - -	80.58 (s1
	MSC-Deep	approx. 7' E of MSC-Shallow	15S/1E-15N2	5/25/199	338425	920	865	810 - 850	725 - 775	2" pvc	Tsm	yes	80.78 (s1
PCA WEST		***former PCA mine W of Hwy. 1***											
	PCA-W Shallow	approx. 200' SE of ocean bluff	15S/1E-15F	3/28/199	338400	600	585	525 - 575	120 - 150	2"pvc	QTp	- - -	64.64 (s1
	PCA-W Deep	approx. 50' E of PCA-W Shallow	15S/1E-15F2	3/90	338401	900	885	825 - 875	760 - 790	2" pvc	Tsm	yes	65.60 (s1
PCA EAST		***vacant lot NE of Seaside High baseball field***											
	PCA-E Shallow	approx. 300' E Monterey Rd, 50" N fence	15S/1E-15K	4/16/199	338402	863	410	350 - 400	110 - 150	2" pvc	QTp	- - -	69.31 (s1
	PCA-E Deep	(same borehole as shallow well)	15S/1E-15K	4/16/199	338402	863	710	650 - 700	580 - 620	2" pvc	Tsm	yes	69.31 (s1
ORD TERRACE		***Ord Terrace School property south of Ord Grove Ave.***											
	OT-Shallow	1700 block Ord Grove Ave.	15S/1E-23Ca	8/5/1999	- - -	530	340	280 - 330	0 - 260	2" pvc	upper Tsm	- - -	230 (e)
	OT-Deep	(same borehole as shallow well)	15S/1E-23Cb	8/5/1999	- - -	530	450	390 - 440	350 - 377	2" pvc	lower Tsm	yes	230 (e)
MPWMD #FO-09		***E of Hwy.1, SE of Okinawa Rd.***											
	#9-Shallow	50' east of utility service rd.	15S/1E-11Pa	8/16/1994	- - -	1,110	660	610 - 650	500 - 540	2" pvc	QTp	- - -	119.11 (s
	#9-Deep	(same borehole as shallow well)	15S/1E-11Pb	8/16/1994	- - -	1,110	840	790 - 830	700 - 765	2" pvc	Tsm	yes	119.15 (s2
MPWMD #FO-10		***south of Light Fighter Drive, behind Barker Theater Building***											
	#10-Shallow	20' north of access road curb	15S/1E-12Fa	9/3/1996	- - -	1,500	650	620 - 640	480 - 500	2" pvc	QTp	- - -	201.19 (s2
	#10-Deep	(same borehole as shallow well)	15S/1E-12Fc	9/3/1996	- - -	1,500	1,420	1380 - 1410	1280 - 1300	2" pvc	Tsm (?)	yes	201.10 (s2

NOTES:

1. Official State well numbers end with a numeral; unofficial MPWMD well numbers end with a small case letter.
2. Geologic Unit refers to the unit adjacent to the screened interval: QTp = Paso Robles Formation; Tsm = Santa Margarita Sandstone.
3. Elevation refers to the reference point elevation: (s1) = surveyed by Land Data Services (1990 and 1992); (s2) = surveyed by Sandis Humber Jones (1995); (e) = altimeter estimate.
4. Well completion data at site MSC are documented in "Installation of Monitoring Well Cluster, Monterey Sand Company", Staal, Gardner & Dunne, Inc. (SGD), July 1990.
5. Well completion data at sites PCA West and PCA East are documented in "Hydrogeologic Investigation, PCA Well Aquifer Test", SGD, July 1990.
6. Well completion data at site MPWMD FO-09 are documented in "Summary of 1994 Fort Ord Monitor Well Installations", MPWMD Tech. Mem. 94-07.
7. Well completion data at site MPWMD FO-10 are documented in "Summary of 1996 Seaside Basin Monitor Well Installations", MPWMD Tech. Mem. 97-04.
8. Two dashes (i.e., "- -") indicate multiple screened intervals.
9. Three dashes (i.e., "- - -") indicate not applicable or not available.

Table 2.

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

GROUND WATER QUALITY MONITORING RESULTS

Seaside Basin Sample Collection Date: October 24 and October 25, 2006

Units are milligrams per liter unless otherwise noted.

Water Quality Constituent	Specific Conductance (micromhos/cm)	Total Alkalinity (as CACO3)	pH	Chloride	Sulfate	Ammonia Nitrogen (as NH3)	Nitrate Nitrogen (as NO3)	Total Organic Carbon	Calcium	Sodium	Magnesium	Potassium	Iron	Manganese	Orthophosphate	Boron
Drinking Water Standard	900(1)1600 2200 (2)	NA	NA	250 500 600 (2)	250 500 600 (2)	NA	45	NA	NA	NA	NA	NA	0.3	0.05	NA	NA
Sampling Location																
15S/1E-15N3 (shal)	320	72	7.8	46	17	0.06	<1	<0.20	17	39	4.8	3.8	<0.10	<0.0005	0.04	0.39
15S/1E-15N2 (deep)	950	240	8.2	155	45	0.09	<1	<0.20	73	105	16	5.0	<0.10	0.051	<0.03	0.29
15S/1E-23Ca (shal)	800	212	8.3	106	37	<0.05	6	0.35	68	79	17	4.4	1.080	0.077	<0.03	0.29
15S/1E-23Cb (deep)	1280	318	8.2	181	89	0.47	<1	0.84	107	132	26	7.1	0.169	0.026	<0.03	0.58
15S/1E-15F1 (shal)	300	68	7.8	46	10	<0.05	4	<0.20	19	33	5.6	2.5	<0.10	<0.0005	<0.03	0.32
15S/1E-15F2 (deep)	960	246	7.7	150	42	0.08	<1	0.27	77	109	18	5.4	0.541	0.085	<0.03	0.34
15S/1E-15K5 (shal)	330	68	7.9	50	10	<0.05	3	<0.20	20	39	6.2	2.9	2.390	0.068	<0.03	0.28
15S/1E-15K4 (deep)	790	208	8.2	109	35	<0.05	<1	<0.20	57	93	12	4.2	0.216	0.092	<0.03	0.33
15S/1E-11Pa (shal)	330	64	7.8	56	12	<0.05	<1	0.42	22	34	4.5	4.1	<0.10	<0.0005	0.04	0.28
15S/1E-11Pb (deep)	420	92	7.9	70	14	<0.05	<1	0.31	26	53	3.7	3.7	<0.10	<0.0005	<0.03	0.31
15S/1E-12Fa (shal)	350	76	7.9	53	19	<0.05	<1	<0.20	22	40	5.7	2.2	<0.10	<0.0005	<0.03	0.23
15S/1E-12Fc (deep)	360	78	7.8	55	17	<0.05	<1	<0.20	22	40	5.5	2.8	<0.10	0.034	<0.03	0.32

NOTES:

(1) Maximum contaminant levels are from California Domestic Water Quality and Monitoring Regulations, Title 22, 1977.

(2) The three values listed for certain constituents refer to the "recommended" level, the "upper" level, and "short-term use" level, respectively.

SEASIDE BASIN WATERMASTER
MEMORANDUM 2007-01

APPENDIX A

Historical Ground Water Quality Monitoring Results
Seaside Coastal Monitor Wells

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

GROUND WATER QUALITY MONITORING RESULTS

WELL NO.: T15S/R1E-15N2 WELL NAME: MSC - Deep

Units are milligrams per liter unless otherwise noted.

Date	Specific Conductance (micromhos/cm)	Total Alkalinity (as CACO3)	pH (pH units)	Chloride	Sulfate	Ammonia Nitrogen (as NO3)	Nitrate Nitrogen (as NO3)	Total Organic	Calcium	Sodium	Magnesium	Potassium	Iron	Manganese	Orthophos-phate	Boron
DWS [1]	900 1600 220 [2]	NA	NA	250 500 60	250 500 600	NA	45	NA	NA	NA	NA	NA	0.3	0.05	NA	NA
5/31/1990	2500	488	7.3	420	371		<0.4		179	260	84		<0.05	<0.02		
4/26/1991	958	180	7.8	166	58	<0.5	0.5	2.6	58	121	9.4	5.9				
7/24/1991	928	186	7.9	146					55	112	10	5.6	<0.10	<0.03		
10/23/1991	952	200	7.5	145					57	116						
4/28/1992	800	216	7.2	136	40				70	116	12	5.2	<0.03			
6/3/1992				122	46		1.4		64	98	13	4.7	<0.01			
10/20/1992	925	216	8.4	148	46	<0.10	<0.05	0.4	69	112	11	5.0	<0.10	0.07		
4/28/1993	943	212	8.3	144	42	<0.10	<0.05	0.5	59	110	12	5.1	<0.10	<0.05		
10/28/1993	957	186	8.2	146	34	<0.01	<1.0	0.3	54	108	11	4.9	<0.10	0.09		
4/29/1994	944	150	8.2	146	38	<0.05	<1.0	1.7	66	121	13	5.1	<0.10	<0.03		
10/28/1994	968	218	8.2	150	70	<0.05	<1.0	0.4	70	109	12	5.0	<0.01	0.05		
5/3/1995	966	210	8.4	160	40	0.13	<1.0	0.8	70	112	12	4.7	<0.01	0.05		
11/30/1995	935	202	8.3	152	38	0.12	<1.0	1.3	62	105	13	4.9	<0.10	0.08	<0.03	
4/25/1996	978	219	7.8	144	45	<0.05	<1.0	0.7	62	107	14	4.8	<0.10	0.07	<0.03	
10/11/1996	917	205	7.8	153	43	0.28	1.0	1.5	57	109	13	5.1	<0.10	0.08	0.04	
4/24/1997	965	229	8.0	156	43	0.13	<1	0.4	54	107	13	4.9	<0.1	<0.03	<0.03	
11/19/1997	960	234	7.6	152	47	0.14	<1	1.3	72	104	16	4.9	<0.1	0.09	<0.03	
10/27/1998	972	234	7.8	144	42	0.08	<1	<0.2	73	112	15	5.2	<0.1	0.08	<0.03	
11/2/1999	967	236	8.4	142	42	0.11	<1	na	69	103	15	4.8	<0.1	0.06	<0.03	
11/1/2000	950	219	7.9	145	41	0.16	<1	1.0	75	105	15	4.7	<0.1	0.07	0.22	
10/26/2001	968	238	8.4	145	43	<0.05	<1	0.4	86	103	15	4.7	0.03	0.07	<0.03	
11/1/2002	965	238	8.3	157	45	0.10	<1	0.7	69	100	15	3.7	<0.1	0.07	<0.03	
11/6/2003	985	242	7.7	155	43	0.10	<1	0.5	75	103	14	4.8	0.13	0.05	<0.03	
11/8/2004	1050	221	7.9	156	45	0.15	<1	0.5	73	106	15	4.4	0.11	0.072	<0.03	0.28
11/2/2005	970	252	8.0	162	43	0.13	<1	0.5	76	111	15	4.6	<0.05	0.054	<0.03	0.51
10/25/2006	950	240	8.2	155	45	0.09	<1	<0.2	73	105	16	5.0	<0.10	0.051	<0.03	0.29

NOTES:

1 DWS = Drinking Water Standard; maximum contaminant levels are from California Domestic Water Quality and Monitoring Regulations, Title 22, 1977.

2 The three values for each constituent refer to the "recommended" level, the "upper" level and the "short-term use" level, respectively.