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CENTRAL COAST WATER BOARD
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TASK 3

LOS OSOS UPPER AQUIFER WATER QUALITY CHARACTERIZATION

Prepared for the

LOS OSOS COMMUNITY SERVICES DISTRICT

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INTRODUCTION

The Los Osos Valley ground water basin is currently in overdraft. Sea water intrusion is active in the heavily pumped lower aquifer, while the upper aquifer has been underutilized by purveyors due to elevated nitrate concentrations. The July 2005 Draft Water Management Plan includes management strategies aimed at balancing production between upper and lower aquifer zones, mitigating sea water intrusion, and providing a sustainable water supply for the community at buildout. One of the strategies for balancing production is to incorporate more upper aquifer water into the community water supply. This strategy is currently being pursued by the Los Osos Community Services District with funding through the California Infrastructure and Economic Development Bank (CIEDB) program.

Water quality of the upper aquifer in Los Osos has historically been characterized primarily with respect to general minerals and nitrogen compounds. Task 3 of the July 2005 Water Management Plan expands the scope of testing to include contaminants that may be associated with wastewater return flows or with other local land uses. The purpose of Task 3 is to provide characterization of upper aquifer water quality so that the potential monitoring and treatment requirements for future uses of this resource can be anticipated. The scope of work for Task 3 included water sampling, laboratory testing, and interpretation of the analytical results with respect to the implications for expanded use of the upper aquifer. Cleath & Associates would like to acknowledge the participation and assistance of the Los Osos Community Services District Utilities Department, Golden State Water Company, Calscience Environmental Laboratories, and the University of Iowa Hygienic Laboratory.

CONSTITUENTS OF ANALYSIS

Prioritized listings of possible contaminating activities surrounding existing Los Osos Community Services District supply wells were developed under the Drinking Water Source Assessment and Protection (DWSAP) program in 2001. Those activities common to most of the areas reviewed that produced the greatest well vulnerability score included high density septic systems, permitted waste discharges from commercial or multi-family leach fields, high density housing, gas stations (existing and historic), and storm water detention facilities/discharge points. Other activities producing high well vulnerability scores in some of the areas reviewed included contractor equipment yards, parking lots/malls, animal feeding activities, recreation/surface water, road right-of-way (major routes only) and a variety of businesses (dry cleaners, furniture repair, electrical power supply manufacturing, photo processing/printing, and auto repair).

Constituents of concern in ground water, based on the possible contaminating activities, could include mineral salts (including nitrate), inorganic compounds (metals), organic wastewater compounds (emerging contaminants), pesticides and herbicides, service station products, and various solvents. The constituents of analysis for the Task 3 characterization study were presented for review in the Task 3 Water Sampling Plan (Cleath & Associates, 2006) and are summarized below.

General water quality parameters

- General minerals suite
- General physical parameters
- Inorganic suite (metals)
- Total Organic Carbon (TOC)

Solvents, service station products, PCB's

- Volatile Organic Compounds (with MIBK, Acrolein, Acrylonitrile, and Oxygenates)
- Semi-Volatile Organic Compounds
- Ethylene Glycol
- 1,2,3-Trichloropropane
-

Herbicides, pesticides

- Semi-Volatile Organic Compounds
- Carbamates suite
- Chlorinated herbicides suite
- Diquat
- Endothall
- Glyphosate
- Pesticides suite

Emerging contaminants

- NDMA
- 1,4-Dioxane
- Pharmaceuticals/Personal Care Products (PPCP) suite
- Steroids/Hormones suite

Most of the analytical work was performed by Calscience Environmental Laboratories, Inc (Garden Grove) and Fruit Growers Laboratory (Santa Paula), both full-service, nationally accredited laboratories. The PPCP and Steroids/Homones suites were analyzed by the University Hygienic Laboratory (Iowa City, Iowa), a state-owned facility with experienced staff and highly sensitive equipment.

SAMPLING LOCATIONS

Three separate objectives were met with respect to upper aquifer water sampling locations:

- locations included aquifer zones targeted for potential community supply.
- locations included nitrate-impacted areas and worst-case water quality.
- locations included diverse depths to water and sampling intervals.

These objectives support the purpose of Task 3 mentioned previously, which is to characterize upper aquifer water quality so that the potential monitoring and treatment requirements for future domestic use of this resource can be anticipated. The future monitoring requirements would follow from the analysis of the worst-case water quality, while treatment requirements would follow from the quality of the actual aquifer zones tapped by supply wells. The third objective, sampling at locations with diverse depths to water and at diverse sampling intervals, is intended to provide data for contaminant fate and transport evaluations.

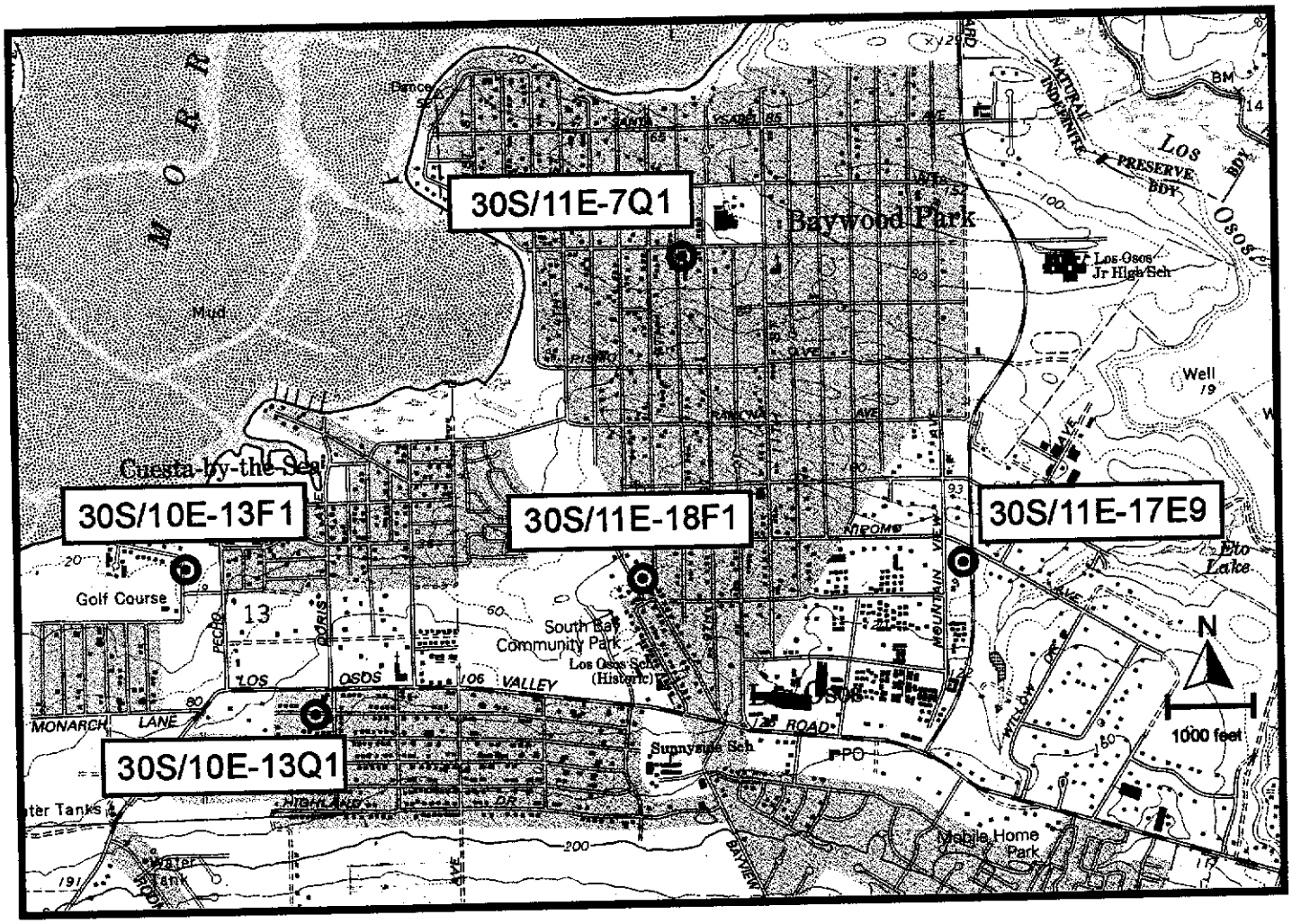
Overall worst-case water quality in the upper aquifer is assumed to reside near the top of the aquifer, closer to the sources of contamination. Future community supply wells would avoid the shallowest water bearing zones, however, and would tap the deeper zones where greater dilution and filtration of contaminants was possible. A total of five ground water wells were sampled during Task 3 activities (Figure 1). These locations and the rationale for selection are as follows:

30S/10E-13F1

Well 13F1 is an inactive community water supply well on the west side of the basin that was taken out of service in 1996 due to elevated nitrate concentrations. This well is equipped and operational but not in use. Sampling at this location meets the objective of characterizing future community supply source water for the upper aquifer. Well 13F1 taps the bottom portion of the upper aquifer in an area of shallow water levels. Nitrate as nitrogen concentrations were measured at 20 mg/l in water samples collected from this well in August 2002.

30S/10E-13Q1

Well 13Q1 is a nitrate monitoring program well on the west side of the basin that has consistently shown elevated nitrate concentrations in excess of the drinking water standard, and has averaged 20 mg/l nitrate as nitrogen over the last few years. The original 13Q1 monitoring well constructed in 1982 by Brown & Caldwell was replaced in 2002. During the replacement operation, the borehole was deepened from 100 to 105 feet and a new casing installed with an annular seal placed from ground surface to 80 feet depth. Sampling at this location tests water quality at the top of the upper aquifer in an impacted area with relatively deep water levels (83 feet depth).



Base map: USGS Topo, Morro Bay South
Map Scale: 1 inch = 2,000 feet

Sampling location

Figure 1

Sampling Locations
Task 3 Water Quality
Characterization
Los Osos CSD

Cleath & Associates

30S/11E-7Q1

Well 7Q1 is an inactive community supply well that was taken out of service in 1977 due to elevated nitrate concentrations and now serves as a monitoring well. The well is 75 feet deep and taps the top portion of the upper aquifer in a residential area of Baywood Park where ground water is less than five feet deep. Nitrate concentrations have been close to 20 mg/l as nitrogen in recent years, and ammonia nitrogen has also been detected. Well 7Q1 should represent the overall worst-case water quality in the upper aquifer. A community supply well is also planned for this location, although it would tap a deeper portion of the upper aquifer (not the potentially worst-case water quality zone).

30S/11E-17E9

Well 17E9 is a monitoring well that taps the bottom portion of the upper aquifer (184-194 feet depth). The nitrate concentration in ground water at 17E9 was checked prior to the Task 3 characterization study and measured 13 mg/l as nitrogen. This well was selected for Task 3 sampling because it taps a zone of the upper aquifer targeted for development under the CIEDB program. Depth to water is close to 85 feet.

30S/11E-18F1

Well 18F1 is an inactive community supply well that was taken out of service in 1981 due to declines in specific capacity, possibly from sanding. This well was originally perforated in both the upper and lower aquifers. In May 2006, isolation of the upper aquifer was accomplished by sealing off the lower portion of the well. This well has also been selected for Task 3 sampling because it taps an upper aquifer zone targeted for development under the CIEDB program. Nitrate concentrations for the upper aquifer zone at this location were not available prior to the Task 3 sampling.

A summary of the sampling locations is presented below in Table 1. Assignment of sampling location to the various Task 3 objectives is presented in Table 2.

Table 1
Upper Aquifer Sampling Locations

Well ID	Location	Well Depth	Perforated Interval	Depth to Water[1]
		Depths in feet below top of casing		
30S/10E-13F1	Solano/Butte	195	90-195	15
30S/10E-13Q1	Woodland/Doris	105	95-105	83
30S/11E-7Q1	8th Street/El Moro	75	29-43, 54-75	3
30S/11E-17E9	South Bay/Nipomo	204	184-194	82
30S/11E-18F1	Ferrell/7th	280[2]	183-231	95

Notes: [1]Measured on day of sampling , April 6, 2006 for all wells except 18F1 which was sampled on May 8, 2006.
[2]18F1 well depth originally 346 feet. Lower set of perforations sealed off prior to sampling.

Table 2
Upper Aquifer Sampling Objectives

Well ID	Nitrate-Impacted area	Worst-Case water quality	Future Targeted Supply Aquifer	DTW/Sampling Zone
30S/10E-13F1	yes		yes	shallow/bottom
30S/10E-13Q1	yes			deep/top
30S/11E-7Q1	yes	yes		shallow/top
30S/11E-17E9	yes		yes	deep/bottom
30S/11E-18F1	no		yes	deep/bottom

DTW = depth to water
Sampling Zone indicates top or bottom portion of upper aquifer

Four of the five sample locations are in areas where the upper aquifer has been impacted by nitrates concentrations in excess of the drinking water standard. Sample location 30S/11E-7Q1 was expected to have the worst-case upper aquifer water quality. This shallow well is in an area of high ground water and has a long history of nitrate concentrations in excess of the drinking water standard, including detections of other of nitrogen compounds. Three of the wells are completed in existing or future aquifer zones specifically targeted for community supply. The well locations have both shallow and deep water levels and sampling intervals from both the top and bottom portions of the upper aquifer.

SAMPLING PROCEDURES

All five wells were purged prior to sampling. The Los Osos Community Services District sampling pump was used for wells 13Q1, 7Q1, and 17E9. Temperature, conductivity, and pH were monitored in accordance with the procedures included in Appendix A for these three wells. The sampling pump was decontaminated prior to the first use and between each unequipped well. Decontamination consisted of brushing the pump body, inlet screen, and power cable in a phosphate-free cleaning solution, followed by rinsing in distilled water, pumping distilled water, and a final distilled water rinsing. A new teflon-lined polyethylene discharge hose was used at each sample location, along with a clean tarp to avoid contact between the sampling equipment and ground surface. Purging at the two remaining wells (13F1 and 18F1) consisted of running their respective submersible pumps to remove a minimum of three well volumes prior to sampling (field logs of sampling attached in Appendix B).

Sample containers were obtained from the analytical laboratories for the specific constituents of analysis. Personnel collecting the samples used both talc-free latex gloves and nitrile gloves (depending on the type of sample being collected), eliminated head space and air entrapment in vials filled for volatile organic compounds analysis, prevented spillage of sample preservatives, and observed special precautions for the emerging contaminant sampling as directed by the testing laboratory.

Use of the sampling pump proceeded from the anticipated least contaminated to the most contaminated well (17E9, 13Q1, and 7Q1, respectively). Wells 13F1 and 18F1 had dedicated downhole pumps. For quality control purposes, two equipment blanks were collected for emerging contaminant analysis. The first equipment blank was drawn prior to sampling at the first well, and the second prior to sampling the last well. The equipment blanks consisted of distilled water which has been pumped through the sampling pump and discharge hose. A third blank for emerging contaminants analysis was collected directly from the distilled water container.

All samples were labeled and shipped on ice with chain-of-custody documentation to the receiving laboratories. Sampling and shipping times were coordinated to ensure receipt of samples by laboratory as soon as possible following sampling.

ANALYTICAL RESULTS

The results of the testing are summarized in below in Tables 3 through 6 and are grouped according to the broad categories identified during Task 3 work plan preparations. These categories include general water quality parameters (Table 3), solvents, service station products, and PCB's (Table 4), herbicides and pesticides (Table 5), and emerging contaminants (Table 6). Explanatory notes follow Table 6. Laboratory reports with results of the Task 3 water samples are included in Appendix C. Samples from wells 13F1, 13Q1, 7Q1, and 17E9 were collected on April 6, 2006. Samples from well 18F1 were collected on May 8, 2006.

Table 3 - General Water Quality Parameters

ANALYTE	R.L.	UNITS	MCL	NL/RL	RESULTS				
					13F1	13Q1	7Q1	17E9	18F1
Gen Min, Phys, Inorganic									
Specific Conductance	1	µmhos/cm	1600		600	760	790	510	200
Hardness, Total	2	mg/L	--		150	180	200	150	40
Color	1	units	15		**20**	5	5	5	ND
pH	0.01	pH units	--		6.3	6.07	6.08	6.37	6.43
Odor	1	TON	3		ND	ND	ND	ND	ND
Turbidity	0.1	NTU	5		**45**	2.6	4.3	0.28	1.3
Langlier Saturation Index	0.01	index	--		-1.96	-2.37	-2.24	-2.01	-2.9
Solids, Total Dissolved	1	mg/L	1000		354	454	432	302	146
Total Organic Carbon	0.5	mg/l	--		ND	ND	ND	ND	ND
Total Alkalinity (as CaCO3)	1	mg/L	--		92	60	76	88	28
Chloride	1	mg/L	500		61	130	120	64	26
Fluoride	1	mg/l	2		0.2	0.11	ND	ND	ND
Nitrate (as N)	0.1	mg/L	10		**19**	**18**	**18**	**12**	5
Nitrite (as N)	0.1	mg/L	1		ND	ND	ND	ND	ND
Sulfate	1	mg/L	500		33	29	44	19	4.6
Cyanide, Total	0.05	mg/L	0.15		ND	ND	ND	ND	ND
Surfactants	0.1	mg/L	0.5		ND	ND	ND	ND	ND
Aluminum	0.05	mg/L	1		0.235	0.102	ND	ND	0.058
Antimony	0.015	mg/L	0.006		ND	ND	ND	ND	ND
Arsenic	0.01	mg/L	0.05		ND	ND	ND	ND	ND
Barium	0.01	mg/L	1		0.0462	0.0439	0.0522	0.111	0.035
Beryllium	0.001	mg/L	0.004		ND	ND	ND	ND	ND
Boron	0.02	mg/L		1/10	0.0524	0.113	0.166	0.651	0.024
Cadmium	0.005	mg/L	0.005		ND	ND	ND	ND	ND
Calcium	0.1	mg/L	--		30.1	32.7	34.7	23.9	7.67
Chromium	0.005	mg/L	0.05		0.0103	ND	ND	ND	0.006
Cobalt	0.005	mg/L	--		ND	ND	ND	ND	ND
Copper	0.005	mg/L	1		0.0625	ND	ND	ND	ND
Iron	0.1	mg/L	0.3		ND	ND	**0.469**	ND	0.169
Lead	0.01	mg/L		0.015	**(0.092)**	ND	ND	ND	ND
Magnesium	0.1	mg/L	--		23	26.9	31.3	26.8	6.33
Manganese	0.005	mg/L	0.05		**0.054**	ND	**0.721**	ND	0.015
Molybdenum	0.005	mg/L	--		ND	ND	ND	ND	ND
Nickel	0.005	mg/L	0.1		0.0083	0.0062	0.0081	ND	ND
Phosphorus, Total	0.1	mg/L	--		0.105	ND	ND	ND	ND
Potassium	0.5	mg/L	--		1.78	1.71	4.66	1.53	0.877
Selenium	0.015	mg/L	0.05		ND	ND	ND	ND	ND
Silver	0.005	mg/L	0.1		ND	ND	ND	ND	ND
Sodium	0.5	mg/L	--		56.3	72.6	68.5	38.1	20.1
Thallium	0.015	mg/L	0.002		ND	ND	ND	ND	ND
Tin	0.05	mg/L	--		ND	ND	ND	ND	ND
Vanadium	0.005	mg/L		0.05/0.5	ND	ND	ND	0.007	ND
Zinc	0.01	mg/L	5		0.048	0.0575	0.0372	0.051	0.139
Mercury	0.0005	mg/L	0.002		ND	ND	ND	ND	ND

Table 4 - Solvents, Service Station Products, PCB's

ANALYTE	R.L.	UNITS	MCL	NL/RL	RESULTS				
Volatile Organic Compounds					13F1	13Q1	7Q1	17E9	18F1
1,1,1-Trichloroethane	0.5	µg/L	200		ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.5	µg/L	1		ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.5	µg/L	1200		ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.5	µg/L	5		ND	ND	ND	ND	ND
1,1-Dichloroethane	0.5	µg/L	5		ND	ND	ND	ND	ND
1,1-Dichloroethene	0.5	µg/L	6		ND	ND	ND	ND	ND
1,1-Dichloropropene	0.5	µg/L			ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0.5	µg/L			ND	ND	ND	ND	ND
1,2,3-Trichloropropane	0.005	µg/L		0.005/0.5	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.5	µg/L	5		ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.5	µg/L		330/3300	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	2	µg/L			ND	ND	ND	ND	ND
1,2-Dibromoethane	0.5	µg/L			ND	ND	ND	ND	ND
1,2-Dichlorobenzene	0.5	µg/L	600		ND	ND	ND	ND	ND
1,2-Dichlorobenzene-d4	0.5	µg/L			ND	ND	ND	ND	ND
1,2-Dichloroethane	0.5	µg/L	0.5		ND	ND	ND	ND	ND
1,2-Dichloropropane	0.5	µg/L	5		ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0.5	µg/L			ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0.5	µg/L			ND	ND	ND	ND	ND
1,3-Dichloropropane	0.5	µg/L			ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.5	µg/L	5		ND	ND	ND	ND	ND
2,2-Dichloropropane	0.5	µg/L			ND	ND	ND	ND	ND
2-Butanone	2	µg/L			ND	ND	ND	ND	ND
2-Chlorotoluene	0.5	µg/L		140/1400	ND	ND	ND	ND	ND
2-Hexanone	5	µg/L			ND	ND	ND	ND	ND
4-Chlorotoluene	0.5	µg/L		140/1400	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)	5	µg/L		120/1200	ND	ND	ND	ND	ND
Acetone	10	µg/L			ND	ND	ND	ND	ND
Acrolein	2	µg/L			ND	ND	ND	ND	ND
Acrylonitrile	2	µg/L			ND	ND	ND	ND	ND
Allyl Chloride	0.5	µg/L			ND	ND	ND	ND	ND
Benzene	0.5	µg/L	1		ND	ND	ND	ND	ND
Bromobenzene	0.5	µg/L			ND	ND	ND	ND	ND
Bromochloromethane	0.5	µg/L			ND	ND	ND	ND	ND
Bromodichloromethane	0.5	µg/L			ND	ND	ND	ND	ND
Bromoform	0.5	µg/L			ND	ND	ND	ND	ND
Bromomethane	0.5	µg/L			ND	ND	ND	ND	ND
Carbon Disulfide	0.5	µg/L		160/1600	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.5	µg/L	0.5		ND	ND	ND	ND	ND
Chlorobenzene	0.5	µg/L			ND	ND	ND	ND	ND
Chloroethane	0.5	µg/L			ND	ND	ND	ND	ND
Chloroform	0.5	µg/L			ND	ND	ND	ND	ND
Chloromethane	0.5	µg/L			ND	ND	ND	ND	ND
Dibromochloromethane	0.5	µg/L			ND	ND	ND	ND	ND

Table 4 - Solvents, Service Station Products, PCB's (Continued)

ANALYTE	R.L.	UNITS	MCL	NL/RL	RESULTS				
					13F1	13Q1	7Q1	17E9	18F1
Volatile Organic Compounds									
Dibromomethane	0.5	µg/L			ND	ND	ND	ND	ND
Dichlorodifluoromethane	0.5	µg/L		1000/10000	ND	ND	ND	ND	ND
Diethyl Ether	0.5	µg/L			ND	ND	ND	ND	ND
Ethanol	50	µg/L			ND	ND	ND	ND	62
Ethyl Methacrylate	0.5	µg/L			ND	ND	ND	ND	ND
Ethylbenzene	0.5	µg/L	300		ND	ND	ND	ND	ND
Hexachloro-1,3-Butadiene	0.5	µg/L			ND	ND	ND	ND	ND
Iodomethane	0.5	µg/L			ND	ND	ND	ND	ND
Isopropylbenzene	0.5	µg/L		770/7700	ND	ND	ND	ND	ND
Methyl Methacrylate	5	µg/L			ND	ND	ND	ND	ND
Methylene Chloride	2	µg/L			ND	ND	ND	ND	ND
Naphthalene	0.5	µg/L		17/170	ND	ND	ND	ND	ND
Styrene	0.5	µg/L	100		ND	ND	ND	ND	ND
Tetrachloroethene	0.5	µg/L	5		0.73	ND	ND	ND	ND
Toluene	0.5	µg/L	150		ND	ND	ND	ND	1.5
t-1,2-Dichloroethene	0.5	µg/L	10		ND	ND	ND	ND	ND
Trichloroethene	0.5	µg/L	5		ND	ND	ND	ND	ND
Trichlorofluoromethane	0.5	µg/L	150		ND	ND	ND	ND	ND
Vinyl Chloride	0.5	µg/L	0.5		ND	ND	ND	ND	ND
c-1,3-Dichloropropene	0.5	µg/L			ND	ND	ND	ND	ND
c-1,2-Dichloroethene	0.5	µg/L	6		ND	ND	ND	ND	ND
n-Butylbenzene	0.5	µg/L		260/2600	ND	ND	ND	ND	ND
n-Propylbenzene	0.5	µg/L		260/2600	ND	ND	ND	ND	ND
o-Xylene	0.5	µg/L	1750		ND	ND	ND	ND	ND
p-Isopropyltoluene	0.5	µg/L			ND	ND	ND	ND	ND
sec-Butylbenzene	0.5	µg/L		260/2600	ND	ND	ND	ND	ND
t-1,3-Dichloropropene	0.5	µg/L			ND	ND	ND	ND	ND
tert-Butylbenzene	0.5	µg/L		260/2600	ND	ND	ND	ND	ND
t-1,4-Dichloro-2-Butene	0.5	µg/L			ND	ND	ND	ND	ND
p,m-Xylene	0.5	µg/L	1750		ND	ND	ND	ND	ND
Methyl-t-Butyl Ether (MTBE)	0.5	µg/L	13		ND	ND	ND	ND	ND
Tetrahydrofuran	5	µg/L			ND	ND	ND	ND	ND
Tert-Butyl Alcohol (TBA)	10	µg/L		12/1200	ND	ND	ND	ND	ND
Diisopropyl Ether (DIPE)	2	µg/L			ND	ND	ND	ND	ND
Ethyl-t-Butyl Ether (ETBE)	2	µg/L			ND	ND	ND	ND	ND
Tert-Amyl-Methyl Ether (TAME)	2	µg/L			ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds									
Benzo(a)pyrene	0.1	µg/L	0.2		ND	ND	ND	ND	ND
bis(2-Ethylhexyl)adipate	1	µg/L	400		ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	3	µg/L	4		ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.02	µg/L	0.05		ND	ND	ND	ND	ND
Other									
Ethylene Glycol	1	mg/L		14/140	ND	ND	ND	ND	ND
PCB's (7 forms of PCB tested)	0.5	µg/L			ND	ND	ND	ND	ND

Table 5 - Herbicides and Pesticides

ANALYTE	R.L.	UNITS	MCL	NL/RL	RESULTS				
					13F1	13Q1	7Q1	17E9	18F1
Semi-Volatile Organic Compounds									
Atrazine	1	µg/L	1		ND	ND	ND	ND	ND
Bromacil	2	µg/L			ND	ND	ND	ND	ND
Butachlor	1	µg/L			ND	ND	ND	ND	ND
Diazinon	2	µg/L			ND	ND	ND	ND	ND
Dimethoate	2	µg/L			ND	ND	ND	ND	ND
Metolachlor	1	µg/L			ND	ND	ND	ND	ND
Metribuzin	0.5	µg/L			ND	ND	ND	ND	ND
Molinate	2	µg/L	20		ND	ND	ND	ND	ND
Prometryne	2	µg/L			ND	ND	ND	ND	ND
Propachlor	1	µg/L			ND	ND	ND	ND	ND
Simazine	1	µg/L	4		ND	ND	ND	ND	ND
Thiobencarb	1	µg/L	70		ND	ND	ND	ND	ND
Carbamates									
Aldicarb	3	µg/L			ND	ND	ND	ND	ND
Aldicarb Sulfone	2	µg/L			ND	ND	ND	ND	ND
Aldicarb Sulfoxide	3	µg/L			ND	ND	ND	ND	ND
Carbaryl	5	µg/L			ND	ND	ND	ND	ND
Carbofuran	5	µg/L	18		ND	ND	ND	ND	ND
3-Hydroxycarbofuran	10	µg/L			ND	ND	ND	ND	ND
Methomyl	5	µg/L			ND	ND	ND	ND	ND
Oxamyl	5	µg/L	50		ND	ND	ND	ND	ND
Chlorinated Herbicides									
Bentazon	2	µg/L	18		ND	ND	ND	ND	ND
2,4-D (DCAA)	2	µg/L	70		ND	ND	ND	ND	ND
Dalapon	10	µg/L	200		ND	ND	ND	ND	ND
Dicamba	1	µg/L			ND	ND	ND	ND	ND
Dinoseb	1	µg/L	7		ND	ND	ND	ND	ND
Pentachlorophenol	0.2	µg/L	1		ND	ND	ND	ND	ND
Picloram	1	µg/L	500		ND	ND	ND	ND	ND
2,4,5-TP (Silvex)	1	µg/L	50		ND	ND	ND	ND	ND
2,4,5-T	1	µg/L			ND	ND	ND	ND	ND
Other									
Alachlor	0.2	µg/L	2		ND	ND	ND	ND	ND
Aldrin	0.01	µg/L			ND	ND	ND	ND	ND
Diquat	2	µg/L	20		ND	ND	ND	ND	ND
Dieldrin	0.01	µg/L			ND	ND	ND	ND	ND
Endrin	0.01	µg/L	2		ND	ND	ND	ND	ND
Endothall	10	µg/L	100		ND	ND	ND	ND	ND
Formaldehyde	0.2	mg/L		0.1/1	**(0.25)**	ND	**(0.22)**	ND	ND
Glyphosate	20	µg/L	700		ND	ND	ND	ND	ND
Heptachlor	0.01	µg/L	0.01		ND	ND	ND	ND	ND
Heptachlor Epoxide	0.01	µg/L	0.01		ND	ND	ND	ND	ND
Hexachlorobenzene	0.01	µg/L	1		ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	0.1	µg/L	50		ND	ND	ND	ND	ND
Lindane	0.05	µg/L	0.2		ND	ND	ND	ND	ND
Methoxychlor	0.1	µg/L	30		ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	0.02	µg/L	0.2		ND	ND	ND	ND	ND

Table 6 - Emerging Contaminants

ANALYTE	R.L.	UNITS	NL/RL	BLANKS			RESULTS				
				EQ#1	EQ#2	CW	13F1	13Q1	7Q1	17E9	18F1
PPCPs											
Acetominophen	5	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Caffein	16	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Carbamazepine	1	ng/l		ND	ND	ND	ND	26	31	98	ND
Cotinine	1	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
1,7-Dimethylxanthine	1	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
DEET	10	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Ibuprofen	7	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Lincomycin	2	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Sulfadimethoxine	2	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Sulfamethazine	1	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Sulfamethoxazole	1	ng/l		ND	ND	ND	115	300	92	250	1.5
Sulfathiazole	10	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Triclosan	1	ng/l		2.1	ND	ND	ND	ND	ND	ND	1.4
Trimetoprim	2	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Tylosin	2	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Hormones & Steroids											
Testosterone	1000	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Equilenin	50	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Estriol	200	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Progesterone	1000	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Coprostan-3-ol	100	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Cholesterol	50	ng/l		430	420	600	350	310	570	420	700
Dihydrocholesterol	100	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Stigmasterol	100	ng/l		ND	ND	230	270	ND	ND	310	ND
Sitosterol	100	ng/l		100	ND	1600	1900	120	180	2200	150
Stigmastanol	100	ng/l		ND	ND	ND	ND	ND	ND	ND	ND
Other											
1,4-Dioxane	2	µg/L	3/300	na	na	na	ND	ND	ND	ND	ND
N-Nitrosodimethylamine (NDMA)	2	ng/L	10/200	na	na	na	ND	(12)	(17)	ND	ND

Table Notes

R.L. = reporting limit
MCL = Maximum Contaminant Level
NL/RL = Notification Level (customer notification required)/ Response Level (source removal recommended)
µmhos/cm = micromhos per centimeter
mg/L = milligrams per liter
µg/L = micrograms per liter
ng/L = nanograms per liter
EQ#1 = Equipment Blank #1
EQ#2 = Equipment Blank #2
CW = Clean Water (distilled water)

Results exceeding MCL or RL are bolded with shaded background
Results exceeding NL are bolded and in parentheses

General Water Quality Parameters

The results in Table 3 characterize general water quality parameters. Upper aquifer water in the Los Osos ground water basin is typically sodium-magnesium chloride-bicarbonate in character. Figure 2 presents Stiff diagrams for the Task 3 group of upper aquifer wells. These diagrams compare the proportions of the major cations (sodium, calcium, and magnesium) to the major anions (chloride, bicarbonate, and sulfate) in water. Besides confirmation of overall upper aquifer water character, the diagrams in Figure 2 also show variations attributable to specific depths and hydraulic conditions within the upper aquifer.

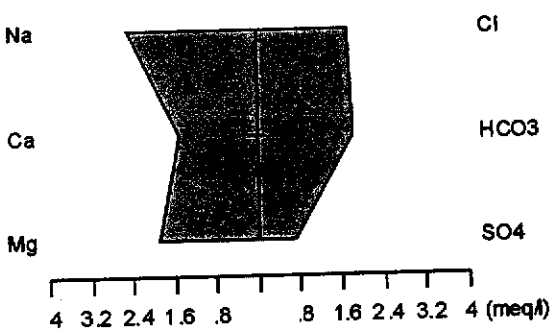
The Stiff diagrams for wells 13Q1 and 7Q1 have the greatest area, corresponding to the greatest total dissolved solids (TDS) concentration. There are notable increases in sodium and chloride compared to the water samples from the other Task 3 wells. Wells 13Q1 and 7Q1 have elevated nitrate as nitrogen (NO_3-N) concentrations and tap the shallowest portion of the upper aquifer, where salt loading from wastewater return flows are expected to be most concentrated.

Wells 13F1 and 17E9 also have elevated nitrate concentrations, but tap deeper portions of the upper aquifer, where the water is slightly less mineralized. Well 18F1, by comparison, has the lowest TDS, and a nitrate concentration below the drinking water standard. This particular well was modified as part of Task 3 to tap the upper aquifer at one of the deepest locations in the basin. The water quality at 18F1 is very similar to water quality at well 30S/11E-18L7 (Palisades Avenue) and well 30S/11E-18K3 (Los Olivos Avenue), indicating that this low TDS zone is laterally extensive at the base of the upper aquifer in the downtown area.

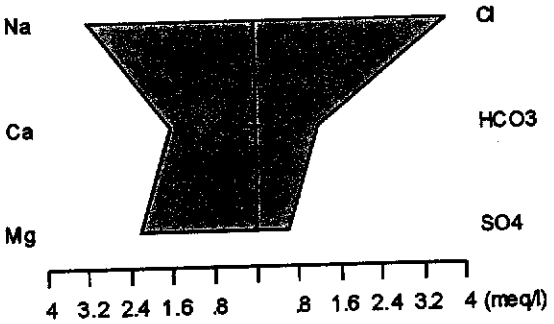
Nitrate as nitrogen concentrations exceeded the Maximum Contaminant Level (MCL) for drinking water in four of the five Task 3 wells. MCLs are state drinking water standards listed in the California Code of Regulations, Title 22. Results for two of the wells reported other general water quality parameters in excess of the MCL. Ground water from well 13F1 had color, turbidity, and manganese in excess of the MCL, and lead was detected in excess of the action level. Well 13F1 is an inactive production well that has not been operated on a regular basis since 1996. The presence of excessive color, turbidity, and lead in the discharge water is interpreted to be due to incomplete redevelopment of the well prior to sampling, and not the actual condition of native ground water. Manganese was detected just above the MCL, and may also decline following well redevelopment.

Ground water from Well 7Q1 contained iron and manganese concentrations in excess of the MCL. Drinking water standards for iron and manganese are classified as secondary (not health-based) and relate to taste, odor, and potential discoloration (staining) on fixtures or laundry. Treatment for iron and manganese removal is common in local water systems, including Los Osos.

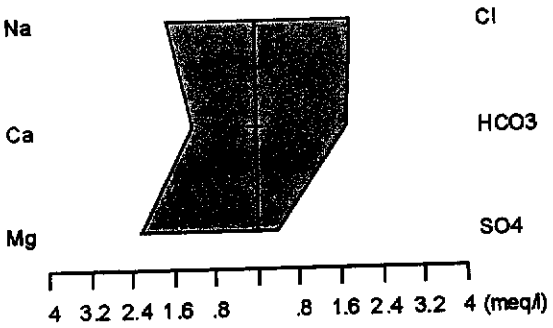
30S/10E-13F1
4/6/2006



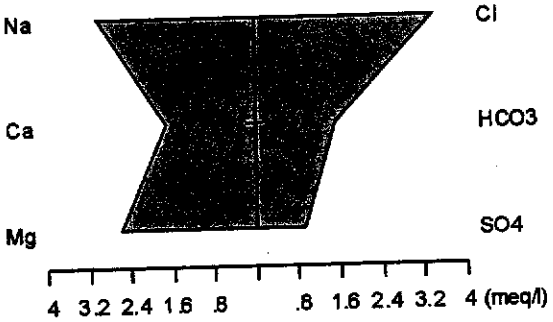
30S/10E-13Q1
4/6/2006



30S/11E-17E9
4/6/2006



30S/11E-7Q1
4/6/2006



30S/11E-18F1
5/9/2006

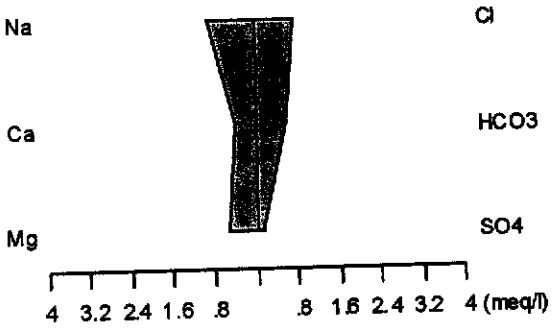


Figure 2

Stiff Diagrams
Task 3 Water Quality
Characterization
LOCSD

Cleath & Associates

Solvents, Service Station Products, and PCBs

Table 4 reports results for solvents, service station products, and polychlorinated biphenyls (PCBs). These compounds could be associated with various current or historical commercial land uses. A total of three compounds from this category were detected in water samples collected for Task 3.

Ethanol and Toluene were reported in water collected from well 18F1 at a levels very close to the laboratory reporting limits. Ethanol is used as component of fuel, distilled liquors, cleaning solutions, and solvents. There is no MCL for ethanol. Toluene is also used as a component of fuel, cleaning solutions, and solvents, with an MCL two orders of magnitude greater than the level reported in water collected from well 18F1.

Tetrachloroethene was reported in water collected from well 13F1 at a level very close to the laboratory reporting limit and below the MCL. Tetrachloroethene, also known as PCE, is widely used in dry cleaning and for metal degreasing. Well 13F1 is not located near any dry cleaners, metal fabricators, or auto repair shops.

No other compounds in the solvents, service station products, or PCBs category were reported. None of the reported levels exceeded applicable drinking water standards.

Herbicides and Pesticides

Table 5 reports results for herbicides and pesticides. Only one compound from this category, formaldehyde, was reported in water samples collected for Task 3. A formaldehyde concentration very close to the laboratory reporting was reported in water collected from wells 13F1 and 7Q1. The laboratory reporting limit in this case exceeded the consumer notification level, but results were below the response level where source removal is recommended. Formaldehyde is commonly used as a pesticide, preservative, or disinfectant, and in manufacturing.

Emerging Contaminants

Emerging contaminants generally refer to contaminants that are not commonly monitored but are potential health or environmental hazards. These contaminants may have been known for many years but have only recently been studied due to improvements in science and technology. The emerging contaminants investigated under Task 3 are listed in Table 6, and include pharmaceuticals and personal care products (PPCPs), hormones and steroids, and two compounds associated with domestic wastewater (1,4-dioxane and NDMA). Some of the compounds analyzed under Task 3 as emerging contaminants are not associated with health or environmental hazards but are part of the analytical suite performed by the laboratory.

Three compounds from the PPCP suite were reported in ground water samples (triclosan, sulfamethoxazole, and carbamazepine). Triclosan is an antibacterial chemical found in detergents, soaps, mouthwash, toothpaste, cosmetics, and many other products. Sulfamethoxazole is a human antibiotic that is commonly combined with another antibiotic, trimethoprim, and used to treat urinary infections. Carbamazepine is an anti-seizure drug use to treat a variety of physical and mental disorders.

Trace amounts of triclosan were reported in one of the equipment blanks and in ground water collected from well 18F1. Sulfamethoxazole was reported in all five ground water samples. Carbamazepine was reported in three of the five ground water samples (13Q1, 7Q1, and 17E9).

Three compounds from the hormones and steroids suite were reported in ground water samples, cholesterol, stigmasterol, and sitosterol. Cholesterol is an ubiquitous animal and plant sterol (a subclass of steroids) and a lipid present in body tissues and plant membranes. Stigmasterol and sitosterol are plant sterols that are included in some dietary supplements to reduce blood cholesterol levels. Cholesterol was reported in all five ground water samples and all three blanks. Stigmasterol was reported in water from well 13F1 and 17E9, and in the distilled water blank. Sitosterol was reported in water from all five wells and in two of the three blanks.

N-Nitrosodimethylamine (NDMA) was reported in ground water collected from wells 13Q1 and 7Q1 at levels exceeding the notification level but below the response level. NDMA is a byproduct of ion-exchange water treatment and chlorine, ozone, or chloramine disinfection.

DISCUSSION

Ground water samples were collected from five wells tapping the upper aquifer of the Los Osos ground water basin. Two of the five wells tested (13Q1 and 7Q1) tap the top portion of the upper aquifer and three wells (13F1, 17E9, and 18F1) tap the bottom portion being considered for community water supply development. Two hundred individual constituents were analyzed in each of the ground water samples collected, 74 of which are regulated by the State of California through primary and secondary drinking water standards, and 10 through action levels of notification and response.

The primary drinking water standard for nitrate was exceeded in the water samples for four of the five wells (well 18F1 was the exception). Secondary drinking water standards for iron and manganese were exceed in water collected from well 30S/11E-7Q1, and for manganese in water from well 30S/10E-13F1. Color and turbidity standards, and the lead action level were also exceeded in water from well 30S/10E-13F1, however, these are interpreted to be due to inactive facilities rather than aquifer contamination. Consumer notification levels for formaldehyde were exceeded in two wells (13F1 and 7Q1), and for NDMA in two wells (13Q1 and 7Q1). The formaldehyde detections were very close the laboratory reporting limits, and sampling using more sensitive analytical methods would be recommended in the future.

Wastewater influence on upper aquifer waters has historically been indicated by salt loading, including nitrate loading. Task 3 sampling also detected NDMA, sulfamethoxazole, and carbamazepine in water collected from multiple upper aquifer wells, which is interpreted to indicate wastewater influence. NDMA, a suspected carcinogen, was detected in water from the two wells that tap the shallowest upper aquifer zones (7Q1 and 13Q1), and was not reported in water from the deeper zones tested. Wells 7Q1 and 13Q1 also contained a greater level of salt loading. This is consistent with the assumption that the greatest wastewater influence would be expected at first water. The levels of NDMA detected in upper aquifer water were above the level at which customer notification is required, but below the response level at which source removal is recommended.

Sulfamethoxazole and carbamazepine are pharmaceuticals. The levels at which these compounds were detected are several orders of magnitude below human prescription levels, and they are indicators of wastewater influence. Concerns regarding the promotion of antimicrobial resistance for pathogenic microbial organisms has been expressed for increases in sulfanoamides (such as sulfamethoxazole) and other antimicrobial compounds in the environment. Carbamazepine, an anti-siezure drug, has been identified as a possible neuroteratogen, a compound that can affect neurological development in fetuses during pregnancy (Daughton, 2001).

A perspective on the PPCP and hormones/steroid results has been provided by Dr. John Vargo, the Environmental Health program manager for the University of Iowa Hygienic Laboratory where that portion of the Task 3 analyses were performed (Appendix D). Regarding the sulfamethoxazole and carbamazepine detections, Dr. Vargo writes, "Considering that these two chemicals are registered for use as human pharmaceuticals, it is unlikely they would present an adverse health risk at the levels they were detected." Dr. Vargo sums up his perspective as follows, "In my opinion, what has been found so far is not alarming but at the same time clearly indicates that some contamination of the water has occurred. Additional testing for other potential chemical contaminants should be considered if you have not already done so." Additional testing has been done, including the specific constituents listed by Dr. Vargo in his communication. Atrazine, carbon tetrachloride, 2,4-D, PCBs, and the polycyclic aromatic hydrocarbon benzo(a)pyrene were all tested for and not found. Task 3 has screened the upper aquifer for many potentially hazardous compounds, including suspected carcinogens (such as the volatile organic compounds) and endocrine disruptors (such as PCBs and pesticides).

With the exception of nitrate concentrations and iron and manganese concentrations locally, the constituents in upper aquifer ground water tested during Task 3 meet California State requirements for domestic use. Even after treatment for nitrate, iron and manganese removal or blending with lower aquifer water, however, use of the upper aquifer for a community drinking water supply is not without potential risks, based on the documented wastewater influence. The potential monitoring and treatment requirements for domestic use of upper aquifer water are not restricted to California Code of Regulations Title 22 constituents, but would include consideration of emerging contaminants such as NDMA, sulfamethoxazole and carbamazepine.

CONCLUSIONS

The following conclusions are based on the analytical results of Task 3 water quality characterization:

- Nitrate remains the primary regulated contaminant of concern in upper aquifer water, and is the only contaminant detected in excess of a primary (health-based) drinking water standards.

- With the exception of nitrate concentrations, and iron and manganese concentrations locally, the constituents in upper aquifer ground water tested during Task 3 meet California State requirements for domestic use. Color and turbidity concentrations measured in excess of secondary drinking water standards at one of the wells are interpreted to be related to inactive well facilities, and not the aquifer.

- Evidence of wastewater influence on upper aquifer water is not restricted to salt loading, and is indicated based on detections of NDMA and two PPCPs in multiple wells. NDMA was not reported in the deeper portions of the upper aquifer which are being considered for domestic use. The concentrations of NDMA in the top portion of the aquifer are above the consumer notification level, but below the response level at which discontinued use of the source is recommended by the State.

- Use of the upper aquifer for a community drinking water supply is not without potential risks, based on the documented wastewater influence. The monitoring and treatment requirements for domestic use of upper aquifer water may not be restricted to California Code of Regulations Title 22 constituents, but would include consideration of emerging contaminants such as NDMA, sulfamethoxazole and carbamazepine.

REFERENCES

Cleath & Associates, 2001, Drinking Water Source Assessment and Protection (DWSAP) program appendices for LOCSD wells, May 2001.

Cleath & Associates, 2005, Water Management Plan for the Los Osos Valley Ground Water Basin, July 2005 Draft.

Cleath & Associates, 2006, Task 3 Water Sampling Plan for Upper Aquifer Water Quality Characterization, Los Osos Valley Ground Water Basin, March 9, 2006.

Daughton, C.G., 2001, "Pharmaceuticals in the Environment: Overarching Issues and Overview," in Pharmaceuticals and Personal Care Products in the Environment: Scientific and Regulatory Issues, Daughton, C.G. and Jones-Lepp, T. (eds.), *Symposium Series 791*; American Chemical Society: Washington, D.C., 2001, pp. 2-38).

APPENDIX A

Sampling Procedures

Sampling Procedures

Water sampling procedures for general mineral and nitrogen sampling are presented below. The purpose of the sampling procedures are to ensure that communication is established with the aquifer prior to sample collection.

Non-equipped monitoring wells:

24) Calibrate field monitoring instruments each day prior to sampling.
25) Inspect wellhead condition and note any maintenance required (perform at earliest convenience).
26) Measure depth to static water (record to 0.01 inches) from surveyed reference point.
27) Install temporary pump to at least three feet below the water surface (deeper setting may be needed if water level draw down is too great).
28) Begin well purge, record flow rate.
29) Measure discharge water EC (measured to 10 μmhos/cm), pH (measured to 0.01 units), and temperature (measured to 0.1 degrees C) at regular intervals during well purging. Record time and gallons purged. Note discharge water color, odor, and turbidity (visual).
30) A minimum of three casing volumes of water should be removed during purging, or one borehole volume for small diameter monitoring wells*. In addition, a set of at least three consecutive field monitoring measurements with stable values should be recorded. For EC, stability within 5 percent of the first value in the set is sufficient (typically within 20-30 μmhos/cm). For pH, stability within 1 percent of the first value is sufficient (typically within 0.07 units). For temperature, stability within 1 percent of the first value is sufficient (typically within 0.2 degrees).
31) Collect sample directly from discharge tube, note sample color, odor, turbidity (visual). Use only laboratory-provided containers.
32) Place samples on-ice for transport to the laboratory.
33) Remove temporary pump and rinse with clean water.
34) Close well and secure well box lid.

*note: If a well is pumped dry at the minimum pumping rate, the well may be allowed to recover and then sampled by bailer within 24 hours.

Equipped wells:

The sampling port for an equipped well must be upstream of any water filtration or chemical feeds. Sample from the discharge line as close to the wellhead as possible. Sampling procedures for equipped wells will vary, based on whether the well is active or inactive. For active wells (i.e. wells used daily), the need for purging three casing volumes is unnecessary. The well should be turned on for a nominal 5 minutes, and one set of EC, pH, and temperature readings collected prior to sampling. For inactive wells, a field monitoring procedure similar to that described above for unequipped wells would be appropriate. Static water level measurements should also be taken before sampling, if a sounder access port is available. Water samples should always be transported on-ice to the laboratory.

APPENDIX B

Ground Water Monitoring Field Logs

Ground Water Monitoring Field Log
Los Osos Task 3 Monitoring

Date: 4/7/2006
Operator: SJH/PH
Well number and location: 30S/11E-13F1 Butte Avenue / Skyline Drive
Site and wellhead conditions: Sunny, cool.
Inactive community supply well in covered well house

Static water depth (feet): 15.00
Well depth (feet): 190.00
Water column (feet): 175.00
Casing diameter (inches): 14
Min purge Vol (gal): 4198
Pump rate (gpm): 50.00
Pump setting (feet):
Minimum purge time (min): 83.96
Time begin purge: 8:45 AM

Time	Gallons	EC	pH	Temp.	Comments*
8:45 AM	<200				Slightly turbid, reddish brown, odorless
10:25 AM	5000				Clear, colorless, odorless
10:25 AM					begin sampling

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Task 3 Monitoring

Date: 4/7/2006
Operator: SJH/DRW
Well number and location: 30S/10E-13Q1 Woodland Dr. W. of Doris
Site and wellhead conditions: Sunny, cool.
Casing below grade inside vault, gasket intact, locking slip plug in place

Static water depth (feet): 83.00
Well depth (feet): 104.50
Water column (feet): 21.50
Casing diameter (inches): 2
Min purge Vol (gal): 36.00
Pump rate (gpm): 2.83
Pump setting (feet): 102.00
Minimum purge time (min): 12.72
Time begin purge: 1:05 PM

Time	Gallons	EC	pH	Temp.	Comments*
1:05 PM	<3	679	5.82	18.7	Turbid, light brown, odorless
1:14 PM	25	776	5.89	18.9	Clear, colorless, odorless
1:17 PM	35	743	5.93	18.7	Clear, colorless, odorless
1:23 PM	50	764	5.95	18.7	Clear, colorless, odorless
1:28 PM	65	747	5.99	18.8	Clear, colorless, odorless
1:30 PM					begin sampling

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Task 3 Monitoring

Date: 4/7/2006
Operator: SJH/DRW
Well number and location: 30S/11E-7Q1 El Moro Avenue / 8th Street
Site and wellhead conditions: Sunny, cool.
Casing below grade inside vault, locking slip cap in place.

Static water depth (feet): 2.95
Well depth (feet): 75.00
Water column (feet): 72.05
Casing diameter (inches): 8
Min purge Vol (gal): 318.00
Pump rate (gpm): 6.00
Pump setting (feet): 70.00
Minimum purge time (min): 53.00
Time begin purge: 3:00 PM

Time	Gallons	EC	pH	Temp.	Comments*
3:00 PM	<1	637	6.64	20.2	Turbid, orange (rust), no odor
3:10 PM	60	610	6.73	21.5	Slightly turbid, orange (rust), no odor
3:20 PM	120	630	6.62	21.2	Slightly turbid, orange (rust), no odor
3:30 PM	180	647	6.42	20.8	Very slightly turbid, orange, no odor
3:40 PM	240	525	6.36	19.9	Very slightly turbid, orange, no odor
3:45 PM	270	525	6.27	20.1	Very slightly turbid, orange, no odor
3:50 PM	300	558	6.24	20.0	Very slightly turbid, orange, no odor
3:55 PM	330	588	6.21	20.0	Very slightly turbid, orange, no odor
4:00 PM	360	499	6.24	20.0	Very slightly turbid, orange, no odor
4:15 PM	450	410	6.17	20.1	Clear, colorless, odorless
4:30 PM	540	416	6.13	20.1	Clear, colorless, odorless
4:40 PM	600	410	6.18	20.0	Clear, colorless, odorless
4:40 PM					begin sampling

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Task 3 Monitoring

Date: 4/7/2006
Operator: SJH/DRW
Well number and location: 30S/11E-17E9 South Bay Blvd / Nipomo Ave
Site and wellhead conditions: Sunny, cool.
Casing above grade inside monument, locking cover, slip cap in place.

Static water depth (feet): 82.12
Well depth (feet): 204.00
Water column (feet): 121.88
Casing diameter (inches): 2
Min purge Vol (gal): 123.00
Pump rate (gpm): 2.90
Pump setting (feet): 149.00
Minimum purge time (min): 42.41
Time begin purge: 9:30 AM

Time	Gallons	EC	pH	Temp.	Comments*
9:30 AM	<1	448	6.09	20.8	Clear, colorless, odorless
9:39 AM	30	390	6.04	22.1	Clear, colorless, odorless
9:52 AM	60	462	6.10	23.3	Clear, colorless, odorless
10:02 AM	90	471	6.09	22.9	Clear, colorless, odorless
10:14 AM	120	479	6.16	22.2	Clear, colorless, odorless
10:21 AM	150	493	6.10	21.4	Clear, colorless, odorless
10:34 AM	180	507	6.19	20.4	Clear, colorless, odorless
10:45 AM	210	485	6.25	19.5	Clear, colorless, odorless
10:55 AM	240	475	6.25	20.7	Clear, colorless, odorless
11:05 AM	270	501	6.25	20.0	Clear, colorless, odorless
11:17 AM	300	485	6.29	19.4	Clear, colorless, odorless
11:29 AM	330	485	6.28	19.6	Clear, colorless, odorless
11:30 AM					begin sampling

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Task 3 Monitoring

Date: 5/8/2006
Operator: SJH/PJ
Well number and location: 30S/11E-18F1 Ferrell Avenue
Site and wellhead conditions: Sunny, cool.
Inactive community supply well in fenced enclosure

Static water depth (feet): 95.00
Well depth (feet): 280 (as modified)
Water column (feet): 185.00
Casing diameter (inches): 10
Min purge Vol (gal): 2264.24
Pump rate (gpm): 50.00
Pump setting (feet):
Minimum purge time (min): 45.28
Time begin purge: 9:55 AM

Time	Gallons	EC	pH	Temp.	Comments*
10:00 AM	250				Slightly turbid, light brown, odorless
10:25 AM	1500				Clear, colorless, odorless
3:00 PM	15250				begin sampling

*Turbidity, color, odor, sheen, debris, etc.

APPENDIX C

Laboratory Reports

NOTE: To facilitate review, the laboratory reports have been rearranged and results for both sampling dates combined to follow the approximate sequence in the tables contained in the text of this report. Many pages of quality control/quality assurance (spike/recovery, duplicate and method blank reports) that do not have sample results are not included herein. The complete laboratory reports are available electronically.

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ANALYTICAL REPORT

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920	Date Sampled: 04/06/06 Date Received: 04/07/06 Date Analyzed: 04/07/06 Work Order No.: 06-04-0319 Method: ASTMD 19
Attn: Spencer Harris RE: WMP TASK 3	Page 1 of 1

All concentrations are reported in mg/L (ppm).

Sample Number	Formaldehyde Concentration	Reporting Limit
30S/10E-13F1	0.25	0.20
30S/11E-17E9	ND	0.20
30S/10E-13Q1	ND	0.20
30S/11E-7Q1	0.22	0.20
Method Blank	ND	0.20

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ANALYTICAL REPORT

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920	Date Sampled: Date Received: Date Analyzed:	05/08/06 05/09/06 05/09/06
Attn: Spencer Harris RE: TASK 3 WATER QUALITY	Work Order No.: Method: Page 1 of 1	06-05-0545 ASTM D-19

All concentrations are reported in mg/L (ppm).

Sample Number	Formaldehyde Concentration	Reporting Limit
30S/11E-18F1	ND	0.20
Method Blank	ND	0.20

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Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received: 04/07/06
Work Order No: 06-04-0319

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix
30S/10E-13F1	06-04-0319-1	04/06/06	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Color	20	5	1		Color unit	N/A	04/07/06	EPA 110.2
Specific Conductance	600	1.0	1		umhos/cm	N/A	04/07/06	EPA 120.1
Hardness, Total	150	2	1		mg/L	N/A	04/11/06	EPA 130.2
Odor	ND	2.0	1		TON	N/A	04/07/06	EPA 140.1
pH	6.30	0.01	1		pH units	N/A	04/07/06	EPA 150.1
Solids, Total Dissolved	354	1.0	1		mg/L	N/A	04/10/06	EPA 160.1
Turbidity	45	1.0	1		NTU	N/A	04/07/06	EPA 180.1
Fluoride	0.20	0.10	1		mg/L	N/A	04/08/06	EPA 300.0
Chloride	61	10	10		mg/L	N/A	04/08/06	EPA 300.0
Nitrite (as N)	ND	0.10	1		mg/L	N/A	04/08/06	EPA 300.0
Nitrate (as N)	19	1	10		mg/L	N/A	04/08/06	EPA 300.0
Sulfate	33	10	10		mg/L	N/A	04/08/06	EPA 300.0
Cyanide, Total	ND	0.10	1		mg/L	04/16/06	04/16/06	EPA 335.2
Carbon, Total Organic	ND	0.50	1		mg/L	N/A	04/09/06	EPA 415.1
Surfactants	ND	0.10	1		mg/L	N/A	04/07/06	EPA 425.1
Alkalinity, Total (as CaCO3)	92	1.0	1		mg/L	N/A	04/11/06	SM 2320B

30S/11E-17E9	06-04-0319-2	04/06/06	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Color	5.0	5.0	1		Color unit	N/A	04/07/06	EPA 110.2
Specific Conductance	510	1.0	1		umhos/cm	N/A	04/07/06	EPA 120.1
Hardness, Total	150	2	1		mg/L	N/A	04/11/06	EPA 130.2
Odor	ND	2.0	1		TON	N/A	04/07/06	EPA 140.1
pH	6.37	0.01	1		pH units	N/A	04/07/06	EPA 150.1
Solids, Total Dissolved	302	1.0	1		mg/L	N/A	04/10/06	EPA 160.1
Turbidity	0.28	0.050	1		NTU	N/A	04/07/06	EPA 180.1
Fluoride	ND	0.10	1		mg/L	N/A	04/08/06	EPA 300.0
Chloride	64	10	10		mg/L	N/A	04/08/06	EPA 300.0
Nitrite (as N)	ND	0.10	1		mg/L	N/A	04/08/06	EPA 300.0
Nitrate (as N)	12	1	10		mg/L	N/A	04/08/06	EPA 300.0
Sulfate	19	10	10		mg/L	N/A	04/08/06	EPA 300.0
Cyanide, Total	ND	0.10	1		mg/L	04/16/06	04/16/06	EPA 335.2
Carbon, Total Organic	ND	0.50	1		mg/L	N/A	04/09/06	EPA 415.1
Surfactants	ND	0.10	1		mg/L	N/A	04/07/06	EPA 425.1
Alkalinity, Total (as CaCO3)	88	1.0	1		mg/L	N/A	04/11/06	SM 2320B

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received: 04/07/06
Work Order No: 06-04-0319

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix
30S/10E-13Q1	06-04-0319-3	04/06/06	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Color	5.0	5.0	1		Color unit	N/A	04/07/06	EPA 110.2
Specific Conductance	760	1.0	1		umhos/cm	N/A	04/07/06	EPA 120.1
Hardness, Total	180	2	1		mg/L	N/A	04/11/06	EPA 130.2
Odor	ND	2.0	1		TON	N/A	04/07/06	EPA 140.1
pH	6.07	0.01	1		pH units	N/A	04/07/06	EPA 150.1
Solids, Total Dissolved	454	1.0	1		mg/L	N/A	04/10/06	EPA 160.1
Turbidity	2.6	0.10	1		NTU	N/A	04/07/06	EPA 180.1
Fluoride	0.11	0.10	1		mg/L	N/A	04/08/06	EPA 300.0
Chloride	130	20	20		mg/L	N/A	04/11/06	EPA 300.0
Nitrite (as N)	ND	0.10	1		mg/L	N/A	04/08/06	EPA 300.0
Nitrate (as N)	18	1	10		mg/L	N/A	04/08/06	EPA 300.0
Sulfate	29	10	10		mg/L	N/A	04/08/06	EPA 300.0
Cyanide, Total	ND	0.10	1		mg/L	04/16/06	04/16/06	EPA 335.2
Carbon, Total Organic	ND	0.50	1		mg/L	N/A	04/09/06	EPA 415.1
Surfactants	ND	0.10	1		mg/L	N/A	04/07/06	EPA 425.1
Alkalinity, Total (as CaCO3)	60	1.0	1		mg/L	N/A	04/11/06	SM 2320B

30S/11E-7Q1	06-04-0319-5	04/06/06	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Color	5.0	5.0	1		Color unit	N/A	04/07/06	EPA 110.2
Specific Conductance	790	1.0	1		umhos/cm	N/A	04/07/06	EPA 120.1
Hardness, Total	200	2	1		mg/L	N/A	04/11/06	EPA 130.2
Odor	ND	2.0	1		TON	N/A	04/07/06	EPA 140.1
pH	6.08	0.01	1		pH units	N/A	04/07/06	EPA 150.1
Solids, Total Dissolved	432	1.0	1		mg/L	N/A	04/10/06	EPA 160.1
Turbidity	4.3	0.10	1		NTU	N/A	04/07/06	EPA 180.1
Fluoride	ND	0.10	1		mg/L	N/A	04/08/06	EPA 300.0
Chloride	120	20	20		mg/L	N/A	04/11/06	EPA 300.0
Nitrite (as N)	ND	0.10	1		mg/L	N/A	04/08/06	EPA 300.0
Nitrate (as N)	18	1	10		mg/L	N/A	04/08/06	EPA 300.0
Sulfate	44	10	10		mg/L	N/A	04/08/06	EPA 300.0
Cyanide, Total	ND	0.10	1		mg/L	04/16/06	04/16/06	EPA 335.2
Carbon, Total Organic	ND	0.50	1		mg/L	N/A	04/09/06	EPA 415.1
Surfactants	ND	0.10	1		mg/L	N/A	04/07/06	EPA 425.1
Alkalinity, Total (as CaCO3)	76	1.0	1		mg/L	N/A	04/11/06	SM 2320B

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received: 05/09/06
Work Order No: 06-05-0545

Project: TASK 3 WATER QUALITY

Client Sample Number	Lab Sample Number	Date Collected	Matrix
30S/11E-18F1	06-05-0545-1	05/08/06	Aqueous

Comment(s): (1) Sample analyzed outside recommended holding time.

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Color	ND	5.0	1		Color unit	N/A	05/09/06	EPA 110.2
Specific Conductance	200	1.0	1		umhos/cm	N/A	05/09/06	EPA 120.1
Hardness, Total	40	2	1		mg/L	N/A	05/09/06	EPA 130.2
Odor	ND	2.0	1		TON	N/A	05/09/06	EPA 140.1
pH	6.43	0.01	1		pH units	N/A	05/09/06	EPA 150.1
Solids, Total Dissolved	146	1.0	1		mg/L	N/A	05/11/06	EPA 160.1
Turbidity	1.3	0.10	1		NTU	N/A	05/10/06	EPA 180.1
Fluoride (1)	ND	0.10	1		mg/L	N/A	06/07/06	EPA 300.0
Chloride (1)	26	10	10		mg/L	N/A	06/07/06	EPA 300.0
Nitrite (as N) (1)	ND	0.10	1		mg/L	N/A	06/07/06	EPA 300.0
Nitrate (as N) (1)	5.0	0.1	1		mg/L	N/A	06/07/06	EPA 300.0
Sulfate (1)	4.6	1.0	1		mg/L	N/A	06/07/06	EPA 300.0
Cyanide, Total	ND	0.050	1		mg/L	05/17/06	05/18/06	EPA 335.2
Carbon, Total Organic	ND	0.50	1		mg/L	N/A	05/10/06	EPA 415.1
Surfactants	ND	0.10	1		mg/L	N/A	05/09/06	EPA 425.1
Alkalinity, Total (as CaCO3)	28	1.0	1		mg/L	N/A	05/10/06	SM 2320B

Method Blank	N/A	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Hardness, Total	ND	2.0	1		mg/L	N/A	05/09/06	EPA 130.2
Solids, Total Dissolved	ND	1.0	1		mg/L	N/A	05/11/06	EPA 160.1
Fluoride	ND	0.10	1		mg/L	N/A	06/07/06	EPA 300.0
Chloride	ND	1.0	1		mg/L	N/A	06/07/06	EPA 300.0
Nitrite (as N)	ND	0.10	1		mg/L	N/A	06/07/06	EPA 300.0
Nitrate (as N)	ND	0.10	1		mg/L	N/A	06/07/06	EPA 300.0
Sulfate	ND	1.0	1		mg/L	N/A	06/07/06	EPA 300.0
Cyanide, Total	ND	0.050	1		mg/L	05/17/06	05/18/06	EPA 335.2
Carbon, Total Organic	ND	0.50	1		mg/L	N/A	05/10/06	EPA 415.1
Surfactants	ND	0.10	1		mg/L	N/A	05/09/06	EPA 425.1

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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ANALYTICAL REPORT

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920	Date Sampled: 04/06/06 Date Received: 04/07/06 Date Analyzed: 04/11/06 Work Order No.: 06-04-0319 Method: Calculation
Attn: Spencer Harris RE: WMP TASK 3	Page 1 of 1

Sample Number	Langelier Saturation Index Concentration
30S/10E-13F1	-1.96
30S/11E-17E9	-2.01
30S/10E-13Q1	-2.37
30S/11E-7Q1	-2.24

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ANALYTICAL REPORT

Cleath & Associates 1390 Oceanaire Drive San Luis Obispo, CA 93405-4920	Date Sampled: 05/08/06 Date Received: 05/09/06 Date Analyzed: 05/10/06 Work Order No.: 06-05-0545 Method: Calculation
Attn: Spencer Harris RE: TASK 3 WATER QUALITY	Page 1 of 1

Sample Number	Langelier Saturation Index Concentration
30S/10E-18F1	-2.90

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Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	04/07/06
Work Order No:	06-04-0319
Preparation:	EPA 3005A Filt.
Method:	EPA 6010B
Units:	mg/L

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/10E-13F1	06-04-0319-1	04/06/06	Aqueous	04/07/06	04/10/06	060407L07

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Copper	0.0625	0.0050	1		Zinc	0.0480	0.0100	1	
Calcium	30.1	0.1	1		Iron	ND	0.100	1	
Magnesium	23.0	0.1	1		Manganese	0.0538	0.0050	1	
Potassium	1.78	0.50	1		Sodium	56.3	0.5	1	

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-17E9	06-04-0319-2	04/06/06	Aqueous	04/07/06	04/10/06	060407L07

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Copper	ND	0.00500	1		Zinc	0.0505	0.0100	1	
Calcium	23.9	0.1	1		Iron	ND	0.100	1	
Magnesium	26.8	0.1	1		Manganese	ND	0.00500	1	
Potassium	1.53	0.50	1		Sodium	38.1	0.5	1	

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/10E-13Q1	06-04-0319-3	04/06/06	Aqueous	04/07/06	04/10/06	060407L07

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Copper	ND	0.00500	1		Zinc	0.0575	0.0100	1	
Calcium	32.7	0.1	1		Iron	ND	0.100	1	
Magnesium	26.9	0.1	1		Manganese	ND	0.00500	1	
Potassium	1.71	0.50	1		Sodium	72.6	0.5	1	

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-7Q1	06-04-0319-5	04/06/06	Aqueous	04/07/06	04/10/06	060407L07

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Copper	ND	0.00500	1		Zinc	0.0372	0.0100	1	
Calcium	34.7	0.1	1		Iron	0.469	0.100	1	
Magnesium	31.3	0.1	1		Manganese	0.721	0.005	1	
Potassium	4.66	0.50	1		Sodium	68.5	0.5	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	05/09/06
Work Order No:	06-05-0545
Preparation:	EPA 3005A Filt.
Method:	EPA 6010B
Units:	mg/L

Project: TASK 3 WATER QUALITY

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-18F1	06-05-0545-1	05/08/06	Aqueous	05/09/06	05/10/06	060509L03

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Copper	ND	0.00500	1		Zinc	0.139	0.010	1	
Calcium	7.67	0.10	1		Iron	0.169	0.100	1	
Magnesium	6.33	0.10	1		Manganese	0.0146	0.0050	1	
Potassium	0.877	0.500	1		Sodium	20.1	0.5	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received: 04/07/06
Work Order No: 06-04-0319
Preparation: EPA 3010A Total / EPA 7470A Total
Method: EPA 6010B / EPA 7470A
Units: mg/L

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/10E-13F1	06-04-0319-1	04/06/06	Aqueous	04/07/06	04/10/06	060407L07

Comment(s): -Mercury was analyzed on 4/10/2006 4:07:28 PM with batch 060407L04

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.0150	1		Thallium	ND	0.0150	1	
Arsenic	ND	0.0100	1		Vanadium	ND	0.00500	1	
Barium	0.0462	0.0100	1		Aluminum	0.235	0.050	1	
Beryllium	ND	0.00100	1		Tin	ND	0.0500	1	
Cadmium	ND	0.00500	1		Boron	0.0524	0.0200	1	
Chromium	0.0103	0.0050	1		Cobalt	ND	0.00500	1	
Lead	0.0920	0.0100	1		Mercury	ND	0.000500	1	
Molybdenum	ND	0.00500	1		Nickel	0.00830	0.00500	1	
Phosphorus, Total	0.105	0.100	1		Selenium	ND	0.0150	1	
Silver	ND	0.00500	1						

30S/11E-17E9	06-04-0319-2	04/06/06	Aqueous	04/07/06	04/10/06	060407L07

Comment(s): -Mercury was analyzed on 4/10/2006 4:09:38 PM with batch 060407L04

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.0150	1		Thallium	ND	0.0150	1	
Arsenic	ND	0.0100	1		Vanadium	0.00651	0.00500	1	
Barium	0.111	0.010	1		Aluminum	ND	0.0500	1	
Beryllium	ND	0.00100	1		Tin	ND	0.0500	1	
Cadmium	ND	0.00500	1		Boron	0.0651	0.0200	1	
Chromium	ND	0.00500	1		Cobalt	ND	0.00500	1	
Lead	ND	0.0100	1		Mercury	ND	0.000500	1	
Molybdenum	ND	0.00500	1		Nickel	ND	0.00500	1	
Phosphorus, Total	ND	0.100	1		Selenium	ND	0.0150	1	
Silver	ND	0.00500	1						

30S/10E-13Q1	06-04-0319-3	04/06/06	Aqueous	04/07/06	04/10/06	060407L07

Comment(s): -Mercury was analyzed on 4/10/2006 4:11:49 PM with batch 060407L04

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.0150	1		Thallium	ND	0.0150	1	
Arsenic	ND	0.0100	1		Vanadium	ND	0.00500	1	
Barium	0.0439	0.0100	1		Aluminum	0.102	0.050	1	
Beryllium	ND	0.00100	1		Tin	ND	0.0500	1	
Cadmium	ND	0.00500	1		Boron	0.113	0.020	1	
Chromium	ND	0.00500	1		Cobalt	ND	0.00500	1	
Lead	ND	0.0100	1		Mercury	ND	0.000500	1	
Molybdenum	ND	0.00500	1		Nickel	0.00621	0.00500	1	
Phosphorus, Total	ND	0.100	1		Selenium	ND	0.0150	1	
Silver	ND	0.00500	1						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received: 04/07/06
Work Order No: 06-04-0319
Preparation: EPA 3010A Total / EPA 7470A Total
Method: EPA 6010B / EPA 7470A
Units: mg/L

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-7Q1	**06-04-0319-5**	**04/06/06**	**Aqueous**	**04/07/06**	**04/10/06**	**060407L07**

Comment(s): -Mercury was analyzed on 4/10/2006 4:18:30 PM with batch 060407L04

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.0150	1		Thallium	ND	0.0150	1	
Arsenic	ND	0.0100	1		Vanadium	ND	0.00500	1	
Barium	0.0522	0.0100	1		Aluminum	ND	0.0500	1	
Beryllium	ND	0.00100	1		Tin	ND	0.0500	1	
Cadmium	ND	0.00500	1		Boron	0.166	0.020	1	
Chromium	ND	0.00500	1		Cobalt	ND	0.00500	1	
Lead	ND	0.0100	1		Mercury	ND	0.000500	1	
Molybdenum	ND	0.00500	1		Nickel	0.00812	0.00500	1	
Phosphorus, Total	ND	0.100	1		Selenium	ND	0.0150	1	
Silver	ND	0.00500	1						

Method Blank	**099-04-008-2,435**	**N/A**	**Aqueous**	**04/07/06**	**04/07/06**	**060407L04**

Parameter	Result	RL	DF	Qual
Mercury	ND	0.000500	1	

Method Blank	**097-01-003-5,994**	**N/A**	**Aqueous**	**04/07/06**	**04/10/06**	**060407L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.0150	1		Vanadium	ND	0.00500	1	
Arsenic	ND	0.0100	1		Aluminum	ND	0.0500	1	
Barium	ND	0.0100	1		Tin	ND	0.0500	1	
Beryllium	ND	0.00100	1		Boron	ND	0.0200	1	
Cadmium	ND	0.00500	1		Chromium	ND	0.00500	1	
Cobalt	ND	0.00500	1		Lead	ND	0.0100	1	
Molybdenum	ND	0.00500	1		Nickel	ND	0.00500	1	
Phosphorus, Total	ND	0.100	1		Selenium	ND	0.0150	1	
Silver	ND	0.00500	1		Thallium	ND	0.0150	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received: 05/09/06
Work Order No: 06-05-0545
Preparation: EPA 3010A Total / EPA 7470A Total
Method: EPA 6010B / EPA 7470A
Units: mg/L

Project: TASK 3 WATER QUALITY

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-18F1	06-05-0545-1	05/08/06	Aqueous	05/09/06	05/10/06	060509L03

Comment(s): -Mercury was analyzed on 5/10/2006 3:28:14 PM with batch 060510L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.0150	1		Thallium	ND	0.0150	1	
Arsenic	ND	0.0100	1		Vanadium	ND	0.00500	1	
Barium	0.0349	0.0100	1		Aluminum	0.0580	0.0500	1	
Beryllium	ND	0.00100	1		Tin	ND	0.0500	1	
Cadmium	ND	0.00500	1		Boron	0.0243	0.0200	1	
Chromium	0.00564	0.00500	1		Cobalt	ND	0.00500	1	
Lead	ND	0.0100	1		Mercury	ND	0.000500	1	
Molybdenum	ND	0.00500	1		Nickel	ND	0.00500	1	
Phosphorus, Total	ND	0.100	1		Selenium	ND	0.0150	1	
Silver	ND	0.00500	1						

Method Blank	099-04-008-2,472	N/A	Aqueous	05/10/06	05/10/06	060510L02

Parameter	Result	RL	DF	Qual
Mercury	ND	0.000500	1	

Method Blank	097-01-003-6,102	N/A	Aqueous	05/09/06	05/10/06	060509L03

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.0150	1		Vanadium	ND	0.00500	1	
Arsenic	ND	0.0100	1		Aluminum	ND	0.0500	1	
Barium	ND	0.0100	1		Tin	ND	0.0500	1	
Beryllium	ND	0.00100	1		Boron	ND	0.0200	1	
Cadmium	ND	0.00500	1		Chromium	ND	0.00500	1	
Cobalt	ND	0.00500	1		Lead	ND	0.0100	1	
Molybdenum	ND	0.00500	1		Nickel	ND	0.00500	1	
Phosphorus, Total	ND	0.100	1		Selenium	ND	0.0150	1	
Silver	ND	0.00500	1		Thallium	ND	0.0150	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	04/07/06
Work Order No:	06-04-0319
Preparation:	EPA 5030B
Method:	EPA 524.2
Units:	ug/L

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/10E-13F1	06-04-0319-1	04/06/06	Aqueous	04/11/06	04/11/06	060411L01

Parameter	Result	RL	DF	Qual
Dichlorodifluoromethane	ND	0.50	1	
Chloromethane	ND	0.50	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.50	1	
Vinyl Chloride	ND	0.50	1	
Bromomethane	ND	0.50	1	
Chloroethane	ND	0.50	1	
Trichlorofluoromethane	ND	0.50	1	
Diethyl Ether	ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1	
Iodomethane	ND	0.50	1	
Acetone	ND	10	1	
Carbon Disulfide	ND	0.50	1	
Allyl Chloride	ND	0.50	1	
Methylene Chloride	ND	2.0	1	
Acrylonitrile	ND	2.0	1	
t-1,2-Dichloroethene	ND	0.50	1	
1,1-Dichloroethane	ND	0.50	1	
2-Butanone	ND	2.0	1	
c-1,2-Dichloroethene	ND	0.50	1	
2,2-Dichloropropane	ND	0.50	1	
Bromochloromethane	ND	0.50	1	
Tetrahydrofuran	ND	5.0	1	
Chloroform	ND	0.50	1	
1,1,1-Trichloroethane	ND	0.50	1	
1,1-Dichloropropene	ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1	
Benzene	ND	0.50	1	
Trichloroethene	ND	0.50	1	
1,2-Dichloropropane	ND	0.50	1	
Methyl Methacrylate	ND	5.0	1	
Dibromomethane	ND	0.50	1	
Bromodichloromethane	ND	0.50	1	
c-1,3-Dichloropropene	ND	0.50	1	
4-Methyl-2-Pentanone	ND	5.0	1	
Toluene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1	
Ethyl Methacrylate	ND	0.50	1	
1,1,2-Trichloroethane	ND	0.50	1	
1,3-Dichloropropane	ND	0.50	1	

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	95	68-122	

Parameter	Result	RL	DF	Qual
Tetrachloroethene	0.73	0.50	1	
2-Hexanone	ND	5.0	1	
Dibromochloromethane	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1	
Chlorobenzene	ND	0.50	1	
Ethanol	ND	50	1	
Acrolein	ND	2.0	1	
1,1,1,2-Tetrachloroethane	ND	0.50	1	
Ethylbenzene	ND	0.50	1	
p/m-Xylene	ND	0.50	1	
o-Xylene	ND	0.50	1	
Styrene	ND	0.50	1	
Bromoform	ND	0.50	1	
Isopropylbenzene	ND	0.50	1	
1,1,2,2-Tetrachloroethane	ND	0.50	1	
t-1,4-Dichloro-2-Butene	ND	0.50	1	
1,2,3-Trichloropropane	ND	0.50	1	
Bromobenzene	ND	0.50	1	
n-Propylbenzene	ND	0.50	1	
2-Chlorotoluene	ND	0.50	1	
4-Chlorotoluene	ND	0.50	1	
1,3,5-Trimethylbenzene	ND	0.50	1	
tert-Butylbenzene	ND	0.50	1	
1,2,4-Trimethylbenzene	ND	0.50	1	
sec-Butylbenzene	ND	0.50	1	
p-Isopropyltoluene	ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1	
n-Butylbenzene	ND	0.50	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1	
1,2-Dibromo-3-Chloropropane	ND	2.0	1	
1,2,4-Trichlorobenzene	ND	0.50	1	
Hexachloro-1,3-Butadiene	ND	0.50	1	
Naphthalene	ND	0.50	1	
1,2,3-Trichlorobenzene	ND	0.50	1	
Tert-Butyl Alcohol (TBA)	ND	10	1	
Diisopropyl Ether (DIPE)	ND	2.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	

Surrogates:	REC (%)	Control Limits	Qual
1,2-Dichlorobenzene-d4	90	71-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	04/07/06
Work Order No:	06-04-0319
Preparation:	EPA 5030B
Method:	EPA 524.2
Units:	ug/L

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-17E9	06-04-0319-2	04/06/06	Aqueous	04/11/06	04/11/06	060411L01

Parameter	Result	RL	DF	Qual
Dichlorodifluoromethane	ND	0.50	1	
Chloromethane	ND	0.50	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.50	1	
Vinyl Chloride	ND	0.50	1	
Bromomethane	ND	0.50	1	
Chloroethane	ND	0.50	1	
Trichlorofluoromethane	ND	0.50	1	
Diethyl Ether	ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1	
Iodomethane	ND	0.50	1	
Acetone	ND	10	1	
Carbon Disulfide	ND	0.50	1	
Allyl Chloride	ND	0.50	1	
Methylene Chloride	ND	2.0	1	
Acrylonitrile	ND	2.0	1	
t-1,2-Dichloroethene	ND	0.50	1	
1,1-Dichloroethane	ND	0.50	1	
2-Butanone	ND	2.0	1	
c-1,2-Dichloroethene	ND	0.50	1	
2,2-Dichloropropane	ND	0.50	1	
Bromochloromethane	ND	0.50	1	
Tetrahydrofuran	ND	5.0	1	
Chloroform	ND	0.50	1	
1,1,1-Trichloroethane	ND	0.50	1	
1,1-Dichloropropene	ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1	
Benzene	ND	0.50	1	
Trichloroethene	ND	0.50	1	
1,2-Dichloropropane	ND	0.50	1	
Methyl Methacrylate	ND	5.0	1	
Dibromomethane	ND	0.50	1	
Bromodichloromethane	ND	0.50	1	
c-1,3-Dichloropropene	ND	0.50	1	
4-Methyl-2-Pentanone	ND	5.0	1	
Toluene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1	
Ethyl Methacrylate	ND	0.50	1	
1,1,2-Trichloroethane	ND	0.50	1	
1,3-Dichloropropane	ND	0.50	1	

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	98	68-122	

Parameter	Result	RL	DF	Qual
Tetrachloroethene	ND	0.50	1	
2-Hexanone	ND	5.0	1	
Dibromochloromethane	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1	
Chlorobenzene	ND	0.50	1	
Ethanol	ND	50	1	
1,1,1,2-Tetrachloroethane	ND	0.50	1	
Acrolein	ND	2.0	1	
Ethylbenzene	ND	0.50	1	
p/m-Xylene	ND	0.50	1	
o-Xylene	ND	0.50	1	
Styrene	ND	0.50	1	
Bromoform	ND	0.50	1	
Isopropylbenzene	ND	0.50	1	
1,1,2,2-Tetrachloroethane	ND	0.50	1	
t-1,4-Dichloro-2-Butene	ND	0.50	1	
1,2,3-Trichloropropane	ND	0.50	1	
Bromobenzene	ND	0.50	1	
n-Propylbenzene	ND	0.50	1	
2-Chlorotoluene	ND	0.50	1	
4-Chlorotoluene	ND	0.50	1	
1,3,5-Trimethylbenzene	ND	0.50	1	
tert-Butylbenzene	ND	0.50	1	
1,2,4-Trimethylbenzene	ND	0.50	1	
sec-Butylbenzene	ND	0.50	1	
p-Isopropyltoluene	ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1	
n-Butylbenzene	ND	0.50	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1	
1,2-Dibromo-3-Chloropropane	ND	2.0	1	
1,2,4-Trichlorobenzene	ND	0.50	1	
Hexachloro-1,3-Butadiene	ND	0.50	1	
Naphthalene	ND	0.50	1	
1,2,3-Trichlorobenzene	ND	0.50	1	
Tert-Butyl Alcohol (TBA)	ND	10	1	
Diisopropyl Ether (DIPE)	ND	2.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	

Surrogates:	REC (%)	Control Limits	Qual
1,2-Dichlorobenzene-d4	89	71-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	04/07/06
Work Order No:	06-04-0319
Preparation:	EPA 5030B
Method:	EPA 524.2
Units:	ug/L

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/10E-13Q1	06-04-0319-3	04/06/06	Aqueous	04/11/06	04/11/06	060411L01

Parameter	Result	RL	DF	Qual
Dichlorodifluoromethane	ND	0.50	1	
Chloromethane	ND	0.50	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.50	1	
Vinyl Chloride	ND	0.50	1	
Bromomethane	ND	0.50	1	
Chloroethane	ND	0.50	1	
Trichlorofluoromethane	ND	0.50	1	
Diethyl Ether	ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1	
Iodomethane	ND	0.50	1	
Acetone	ND	10	1	
Carbon Disulfide	ND	0.50	1	
Allyl Chloride	ND	0.50	1	
Methylene Chloride	ND	2.0	1	
Acrylonitrile	ND	2.0	1	
t-1,2-Dichloroethene	ND	0.50	1	
1,1-Dichloroethane	ND	0.50	1	
2-Butanone	ND	2.0	1	
c-1,2-Dichloroethene	ND	0.50	1	
2,2-Dichloropropane	ND	0.50	1	
Bromochloromethane	ND	0.50	1	
Tetrahydrofuran	ND	5.0	1	
Chloroform	ND	0.50	1	
1,1,1-Trichloroethane	ND	0.50	1	
1,1-Dichloropropene	ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1	
Benzene	ND	0.50	1	
Trichloroethene	ND	0.50	1	
1,2-Dichloropropane	ND	0.50	1	
Methyl Methacrylate	ND	5.0	1	
Dibromomethane	ND	0.50	1	
Bromodichloromethane	ND	0.50	1	
c-1,3-Dichloropropene	ND	0.50	1	
4-Methyl-2-Pentanone	ND	5.0	1	
Toluene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1	
Ethyl Methacrylate	ND	0.50	1	
1,1,2-Trichloroethane	ND	0.50	1	
1,3-Dichloropropane	ND	0.50	1	

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	96	68-122	

Parameter	Result	RL	DF	Qual
Tetrachloroethene	ND	0.50	1	
2-Hexanone	ND	5.0	1	
Dibromochloromethane	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1	
Chlorobenzene	ND	0.50	1	
Acrolein	ND	2.0	1	
Ethanol	ND	50	1	
1,1,1,2-Tetrachloroethane	ND	0.50	1	
Ethylbenzene	ND	0.50	1	
p/m-Xylene	ND	0.50	1	
o-Xylene	ND	0.50	1	
Styrene	ND	0.50	1	
Bromoform	ND	0.50	1	
Isopropylbenzene	ND	0.50	1	
1,1,2,2-Tetrachloroethane	ND	0.50	1	
t-1,4-Dichloro-2-Butene	ND	0.50	1	
1,2,3-Trichloropropane	ND	0.50	1	
Bromobenzene	ND	0.50	1	
n-Propylbenzene	ND	0.50	1	
2-Chlorotoluene	ND	0.50	1	
4-Chlorotoluene	ND	0.50	1	
1,3,5-Trimethylbenzene	ND	0.50	1	
tert-Butylbenzene	ND	0.50	1	
1,2,4-Trimethylbenzene	ND	0.50	1	
sec-Butylbenzene	ND	0.50	1	
p-Isopropyltoluene	ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1	
n-Butylbenzene	ND	0.50	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1	
1,2-Dibromo-3-Chloropropane	ND	2.0	1	
1,2,4-Trichlorobenzene	ND	0.50	1	
Hexachloro-1,3-Butadiene	ND	0.50	1	
Naphthalene	ND	0.50	1	
1,2,3-Trichlorobenzene	ND	0.50	1	
Tert-Butyl Alcohol (TBA)	ND	10	1	
Diisopropyl Ether (DIPE)	ND	2.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	

Surrogates:	REC (%)	Control Limits	Qual
1,2-Dichlorobenzene-d4	97	71-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	04/07/06
Work Order No:	06-04-0319
Preparation:	EPA 5030B
Method:	EPA 524.2
Units:	ug/L

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-7Q1	06-04-0319-5	04/06/06	Aqueous	04/11/06	04/11/06	060411L01

Parameter	Result	RL	DF	Qual
Dichlorodifluoromethane	ND	0.50	1	
Chloromethane	ND	0.50	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.50	1	
Vinyl Chloride	ND	0.50	1	
Bromomethane	ND	0.50	1	
Chloroethane	ND	0.50	1	
Trichlorofluoromethane	ND	0.50	1	
Diethyl Ether	ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1	
Iodomethane	ND	0.50	1	
Acetone	ND	10	1	
Carbon Disulfide	ND	0.50	1	
Allyl Chloride	ND	0.50	1	
Methylene Chloride	ND	2.0	1	
Acrylonitrile	ND	2.0	1	
t-1,2-Dichloroethene	ND	0.50	1	
1,1-Dichloroethane	ND	0.50	1	
2-Butanone	ND	2.0	1	
c-1,2-Dichloroethene	ND	0.50	1	
2,2-Dichloropropane	ND	0.50	1	
Bromochloromethane	ND	0.50	1	
Tetrahydrofuran	ND	5.0	1	
Chloroform	ND	0.50	1	
1,1,1-Trichloroethane	ND	0.50	1	
1,1-Dichloropropene	ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1	
Benzene	ND	0.50	1	
Trichloroethene	ND	0.50	1	
1,2-Dichloropropane	ND	0.50	1	
Methyl Methacrylate	ND	5.0	1	
Dibromomethane	ND	0.50	1	
Bromodichloromethane	ND	0.50	1	
c-1,3-Dichloropropene	ND	0.50	1	
4-Methyl-2-Pentanone	ND	5.0	1	
Toluene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1	
Ethyl Methacrylate	ND	0.50	1	
1,1,2-Trichloroethane	ND	0.50	1	
1,3-Dichloropropane	ND	0.50	1	

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	99	68-122	

Parameter	Result	RL	DF	Qual
Tetrachloroethene	ND	0.50	1	
2-Hexanone	ND	5.0	1	
Dibromochloromethane	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1	
Chlorobenzene	ND	0.50	1	
Acrolein	ND	2.0	1	
1,1,1,2-Tetrachloroethane	ND	0.50	1	
Ethanol	ND	50	1	
Ethylbenzene	ND	0.50	1	
p/m-Xylene	ND	0.50	1	
o-Xylene	ND	0.50	1	
Styrene	ND	0.50	1	
Bromoform	ND	0.50	1	
Isopropylbenzene	ND	0.50	1	
1,1,2,2-Tetrachloroethane	ND	0.50	1	
t-1,4-Dichloro-2-Butene	ND	0.50	1	
1,2,3-Trichloropropane	ND	0.50	1	
Bromobenzene	ND	0.50	1	
n-Propylbenzene	ND	0.50	1	
2-Chlorotoluene	ND	0.50	1	
4-Chlorotoluene	ND	0.50	1	
1,3,5-Trimethylbenzene	ND	0.50	1	
tert-Butylbenzene	ND	0.50	1	
1,2,4-Trimethylbenzene	ND	0.50	1	
sec-Butylbenzene	ND	0.50	1	
p-Isopropyltoluene	ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1	
n-Butylbenzene	ND	0.50	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1	
1,2-Dibromo-3-Chloropropane	ND	2.0	1	
1,2,4-Trichlorobenzene	ND	0.50	1	
Hexachloro-1,3-Butadiene	ND	0.50	1	
Naphthalene	ND	0.50	1	
1,2,3-Trichlorobenzene	ND	0.50	1	
Tert-Butyl Alcohol (TBA)	ND	10	1	
Diisopropyl Ether (DIPE)	ND	2.0	1	
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	

Surrogates:	REC (%)	Control Limits	Qual
1,2-Dichlorobenzene-d4	94	71-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	05/09/06
Work Order No:	06-05-0545
Preparation:	EPA 5030B
Method:	EPA 524.2
Units:	ug/L

Project: TASK 3 WATER QUALITY

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-18F1	06-05-0545-1	05/08/06	Aqueous	05/15/06	05/15/06	060515L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Dichlorodifluoromethane	ND	0.50	1		Tetrachloroethene	ND	0.50	1	
Chloromethane	ND	0.50	1		2-Hexanone	ND	5.0	1	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.50	1		Dibromochloromethane	ND	0.50	1	
Vinyl Chloride	ND	0.50	1		1,2-Dibromoethane	ND	0.50	1	
Bromomethane	ND	0.50	1		Chlorobenzene	ND	0.50	1	
Chloroethane	ND	0.50	1		Ethanol	62	50	1	
Trichlorofluoromethane	ND	0.50	1		Acrolein	ND	2.0	1	
Diethyl Ether	ND	0.50	1		1,1,1,2-Tetrachloroethane	ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1		Ethylbenzene	ND	0.50	1	
Iodomethane	ND	0.50	1		p/m-Xylene	ND	0.50	1	
Acetone	ND	10	1		o-Xylene	ND	0.50	1	
Carbon Disulfide	ND	0.50	1		Styrene	ND	0.50	1	
Allyl Chloride	ND	0.50	1		Bromoform	ND	0.50	1	
Methylene Chloride	ND	2.0	1		Isopropylbenzene	ND	0.50	1	
Acrylonitrile	ND	2.0	1		1,1,2,2-Tetrachloroethane	ND	0.50	1	
t-1,2-Dichloroethene	ND	0.50	1		t-1,4-Dichloro-2-Butene	ND	0.50	1	
1,1-Dichloroethane	ND	0.50	1		1,2,3-Trichloropropane	ND	0.50	1	
2-Butanone	ND	2.0	1		Bromobenzene	ND	0.50	1	
c-1,2-Dichloroethene	ND	0.50	1		n-Propylbenzene	ND	0.50	1	
2,2-Dichloropropane	ND	0.50	1		2-Chlorotoluene	ND	0.50	1	
Bromochloromethane	ND	0.50	1		4-Chlorotoluene	ND	0.50	1	
Tetrahydrofuran	ND	5.0	1		1,3,5-Trimethylbenzene	ND	0.50	1	
Chloroform	ND	0.50	1		tert-Butylbenzene	ND	0.50	1	
1,1,1-Trichloroethane	ND	0.50	1		1,2,4-Trimethylbenzene	ND	0.50	1	
1,1-Dichloropropene	ND	0.50	1		sec-Butylbenzene	ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		p-Isopropyltoluene	ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1		1,3-Dichlorobenzene	ND	0.50	1	
Benzene	ND	0.50	1		1,4-Dichlorobenzene	ND	0.50	1	
Trichloroethene	ND	0.50	1		n-Butylbenzene	ND	0.50	1	
1,2-Dichloropropane	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
Methyl Methacrylate	ND	5.0	1		1,2-Dichlorobenzene	ND	0.50	1	
Dibromomethane	ND	0.50	1		1,2-Dibromo-3-Chloropropane	ND	2.0	1	
Bromodichloromethane	ND	0.50	1		1,2,4-Trichlorobenzene	ND	0.50	1	
c-1,3-Dichloropropene	ND	0.50	1		Hexachloro-1,3-Butadiene	ND	0.50	1	
4-Methyl-2-Pentanone	ND	5.0	1		Naphthalene	ND	0.50	1	
Toluene	1.9	0.5	1		1,2,3-Trichlorobenzene	ND	0.50	1	
t-1,3-Dichloropropene	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
Ethyl Methacrylate	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	2.0	1	
1,1,2-Trichloroethane	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
1,3-Dichloropropane	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	91	68-122		1,2-Dichlorobenzene-d4	99	71-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

OILFIELD ENVIRONMENTAL AND COMPLIANCE, INC.

Client: Calscience Environmental Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92841-1432
Attn: Bob Stearns

Project: 06-04-0319

SAMPLE ID: 06-0793-1->4
Date Sampled: 04/06/06
Date Analyzed: 04/07/06
Date Received: 04/07/06

Lab Contact: J. Carstens

Report Of Analytical Results

OEC ID	Client ID	Constituent	Results[2]	Units	Method[1]	PQL
06-0793-01	Skyline	Glycol	ND	mg/L	Colormetric	1.0
06-0793-01 Dup	Skyline	Glycol	ND	mg/L	Colormetric	1.0
06-0793-02	South Bay Blvd.	Glycol	ND	mg/L	Colormetric	1.0
06-0793-03	Woodland	Glycol	ND	mg/L	Colormetric	1.0
06-0793-04	El Moro	Glycol	ND	mg/L	Colormetric	1.0

Results listed as ND would have been reported if present at or above the listed PQL(Practical Quantitation Limit).
[1]Quantitative Analytical Chemistry, James S. Fritz, George H. Schenk, 4th ed., p.277, 1979.
[2]Results reported as ethylene glycol.

Julius G Carstens, Lab Director

307 ROEMER WAY | SUITE 300 | SANTA MARIA | CA 93454 | (805) 922-4772 | FAX (805) 925-3376

OILFIELD ENVIRONMENTAL AND COMPLIANCE, INC.

Client: Calscience Environmental Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92841-1432
Attn: Bob Stearns

Project: 05-0545

SAMPLE ID: 06-1043-01
Date Sampled: 05/08/06
Date Analyzed: 05/10/06
Date Received: 05/09/06

Lab Contact: J. Carstens

Report Of Analytical Results

OEC ID	Client ID	Constituent	Results[2]	Units	Method[1]	PQL
06-1043-01	30S/11E-18F1	Glycol	ND	mg/L	Colormetric	1.0
06-1043-01 Dup	30S/11E-18F1	Glycol	ND	mg/L	Colormetric	1.0

Results listed as ND would have been reported if present at or above the listed PQL(Practical Quantitation Limit).
[1]Quantitative Analytical Chemistry, James S. Fritz, George H. Schenk, 4th ed., p.277, 1979.
[2]Results reported as ethylene glycol.

Julius G Carstens, Lab Director

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Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	04/07/06
Work Order No:	06-04-0319
Preparation:	EPA 504.1 Ext.
Method:	EPA 504.1
Units:	ug/L

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/10E-13F1	06-04-0319-1	04/06/06	Aqueous	04/07/06	04/10/06	060407L09

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2-Dibromoethane	ND	0.020	1		1,2-Dibromo-3-Chloropropane	ND	0.020	1	

30S/11E-17E9	06-04-0319-2	04/06/06	Aqueous	04/07/06	04/10/06	060407L09

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2-Dibromoethane	ND	0.020	1		1,2-Dibromo-3-Chloropropane	ND	0.020	1	

30S/10E-13Q1	06-04-0319-3	04/06/06	Aqueous	04/07/06	04/10/06	060407L09

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2-Dibromoethane	ND	0.020	1		1,2-Dibromo-3-Chloropropane	ND	0.020	1	

30S/11E-7Q1	06-04-0319-5	04/06/06	Aqueous	04/07/06	04/10/06	060407L09

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2-Dibromoethane	ND	0.020	1		1,2-Dibromo-3-Chloropropane	ND	0.020	1	

Method Blank	095-01-005-992	N/A	Aqueous	04/07/06	04/07/06	060407L09

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2-Dibromoethane	ND	0.020	1		1,2-Dibromo-3-Chloropropane	ND	0.020	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	05/09/06
Work Order No:	06-05-0545
Preparation:	EPA 504.1 Ext.
Method:	EPA 504.1
Units:	ug/L

Project: TASK 3 WATER QUALITY

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-18F1	**06-05-0545-1**	**05/08/06**	**Aqueous**	**05/09/06**	**05/09/06**	**060508L04**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2-Dibromoethane	ND	0.020	1		1,2-Dibromo-3-Chloropropane	ND	0.020	1	

Method Blank	**095-01-005-996**	**N/A**	**Aqueous**	**05/08/06**	**05/09/06**	**060508L04**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2-Dibromoethane	ND	0.020	1		1,2-Dibromo-3-Chloropropane	ND	0.020	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

ENVIRONMENTAL

ANALYTICAL CHEMISTS

April 25, 2006

Calscience Environmental Laboratories
7440 Lincoln Way
Garden Grove, CA 92841-1432

Lab ID : SP 603374-01
Customer ID: 2-17756

Sampled On : April 6, 2006-10:25
Sampled By : S. Harris
Received On: April 7, 2006-11:40
Matrix : Drinking Water

Description : 30S/10E-13F1
Project : 06-04-0319

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 525.2 AGT:1							
Perylene-d12-Surrogate	96.3	70-130	% Rec		525.2	04/09/06:A210	04/16/2006:A01
Benzo(a)pyrene	ND	0.1	ug/L	0.2	525.2	04/09/06:A210	04/16/2006:A01
bis(2-Ethylhexyl)adipate	ND	1	ug/L	400	525.2	04/09/06:A210	04/16/2006:A01
bis(2-Ethylhexyl)phthalate	ND	3	ug/L	4	525.2	04/09/06:A210	04/16/2006:A01
EPA 505 VOA:1							
Alachlor	ND	0.2	ug/L	2	505	04/10/06:A204	04/13/2006:A02
Aldrin	ND	0.01	ug/L		505	04/10/06:A204	04/13/2006:A02
Chlordane	ND	0.1	ug/L	0.1	505	04/10/06:A204	04/13/2006:A02
Dieldrin	ND	0.01	ug/L		505	04/10/06:A204	04/13/2006:A02
Endrin	ND	0.01	ug/L	2	505	04/10/06:A204	04/13/2006:A02
Heptachlor	ND	0.01	ug/L	0.01	505	04/10/06:A204	04/13/2006:A02
Heptachlor Epoxide	ND	0.01	ug/L	0.01	505	04/10/06:A204	04/13/2006:A02
Hexachlorobenzene	ND	0.01	ug/L	1	505	04/10/06:A204	04/13/2006:A02
Hexachlorocyclopentadiene	ND	0.1	ug/L	50	505	04/10/06:A204	04/13/2006:A02
Lindane	ND	0.05	ug/L	0.2	505	04/10/06:A204	04/13/2006:A02
Methoxychlor	ND	0.1	ug/L	30	505	04/10/06:A204	04/13/2006:A02
Toxaphene	ND	0.5	ug/L	3	505	04/10/06:A204	04/13/2006:A02
PCB 1016	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1221	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1232	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1242	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1248	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1254	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1260	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02

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Mobile: (559) 737-2399

April 25, 2006

Calscience Environmental Laboratories

Lab ID : SP 603374-01
Customer ID: 2-17756
Description : 30S/10E-13F1

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 507 AGT:1							
Triphenylphosphate-Surrogate	31.7	70-130	% Rec	560*	507	04/20/06:A205	04/25/2006:A02
Alachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Atrazine	ND	0.5	ug/L	1	507	04/20/06:A205	04/25/2006:A02
Bromacil	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Butachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Diazinon	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Dimethoate	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Metolachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Metribuzin	ND	0.5	ug/L		507	04/20/06:A205	04/25/2006:A02
Molinate	ND	2	ug/L	20	507	04/20/06:A205	04/25/2006:A02
Prometryn	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Propachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Simazine	ND	1	ug/L	4	507	04/20/06:A205	04/25/2006:A02
Thiobencarb	ND	1	ug/L	70[2]	507	04/20/06:A205	04/25/2006:A02
EPA 515.3 AGT:1							
2,4-DCAA-Surrogate	111	70-130	% Rec		515.3	04/11/06:A241	04/18/2006:A02
Bentazon	ND	2	ug/L	18	515.3	04/11/06:A241	04/18/2006:A02
2,4-D	ND	2	ug/L	70	515.3	04/11/06:A241	04/18/2006:A02
Dalapon	ND	10	ug/L	200	515.3	04/11/06:A241	04/18/2006:A02
Dicamba	ND	1	ug/L		515.3	04/11/06:A241	04/18/2006:A02
Dinoseb	ND	2	ug/L	7	515.3	04/11/06:A241	04/18/2006:A02
Pentachlorophenol	ND	0.2	ug/L	1	515.3	04/11/06:A241	04/18/2006:A02
Picloram	ND	1	ug/L	500	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-TP (Silvex)	ND	1	ug/L	50	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-T	ND	1	ug/L		515.3	04/11/06:A241	04/18/2006:A02
EPA 531.1 AGT:1,8							
Aldicarb	ND	3	ug/L	3 X	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb Sulfone	ND	4	ug/L	4 X	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb Sulfoxide	ND	3	ug/L	3 X	531.1	04/06/06:A211	04/07/2006:A03
Carbaryl	ND	5	ug/L		531.1	04/06/06:A211	04/07/2006:A03
Carbofuran	ND	5	ug/L	18	531.1	04/06/06:A211	04/07/2006:A03
3-Hydroxycarbofuran	ND	3	ug/L	3 X	531.1	04/06/06:A211	04/07/2006:A03
Methomyl	ND	2	ug/L		531.1	04/06/06:A211	04/07/2006:A03
Oxamyl	ND	5	ug/L	50	531.1	04/06/06:A211	04/07/2006:A03

Table continued next page...

April 25, 2006

Calscience Environmental Laboratories

Lab ID : SP 603374-01
Customer ID: 2-17756
Description : 30S/10E-13F1

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	04/17/06:A212	04/17/2006:A01
EPA 548.1 AGT:1 Endothall	ND	40	ug/L	100	548.1	04/13/06:A213	04/20/2006:A01
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	04/13/06:A214	04/20/2006:A01

ND=Non-Detect. PQL=Practical Quantitation Limit. ♦ PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.
MCL = Maximium Contaminat Level. [2] - Secondary Standard.
Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C, (8) Monochloracetic Buffer
560 Surrogate percent recoveries not within the Acceptance Range (AR) due to suspected matrix interferences.

ENVIRONMENTAL

ANALYTICAL CHEMISTS

April 25, 2006

Calscience Environmental Laboratories
7440 Lincoln Way
Garden Grove, CA 92841-1432

Lab ID : SP 603374-02
Customer ID: 2-17756

Sampled On : April 6, 2006-11:30
Sampled By : S. Harris
Received On: April 7, 2006-11:40
Matrix : Drinking Water

Description : 30S/11E-7E9
Project : 06-04-0319

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 525.2 AGT:1							
Perylene-d12-Surrogate	95.1	70-130	% Rec		525.2	04/09/06:A210	04/17/2006:A01
Benzo(a)pyrene	ND	0.1	ug/L	0.2	525.2	04/09/06:A210	04/17/2006:A01
bis(2-Ethylhexyl)adipate	ND	1	ug/L	400	525.2	04/09/06:A210	04/17/2006:A01
bis(2-Ethylhexyl)phthalate	ND	3	ug/L	4	525.2	04/09/06:A210	04/17/2006:A01
EPA 505 VOA:1							
Alachlor	ND	0.2	ug/L	2	505	04/10/06:A204	04/13/2006:A02
Aldrin	ND	0.01	ug/L		505	04/10/06:A204	04/13/2006:A02
Chlordane	ND	0.1	ug/L	0.1	505	04/10/06:A204	04/13/2006:A02
Dieldrin	ND	0.01	ug/L		505	04/10/06:A204	04/13/2006:A02
Endrin	ND	0.01	ug/L	2	505	04/10/06:A204	04/13/2006:A02
Heptachlor	ND	0.01	ug/L	0.01	505	04/10/06:A204	04/13/2006:A02
Heptachlor Epoxide	ND	0.01	ug/L	0.01	505	04/10/06:A204	04/13/2006:A02
Hexachlorobenzene	ND	0.01	ug/L	1	505	04/10/06:A204	04/13/2006:A02
Hexachlorocyclopentadiene	ND	0.1	ug/L	50	505	04/10/06:A204	04/13/2006:A02
Lindane	ND	0.05	ug/L	0.2	505	04/10/06:A204	04/13/2006:A02
Methoxychlor	ND	0.1	ug/L	30	505	04/10/06:A204	04/13/2006:A02
Toxaphene	ND	0.5	ug/L	3	505	04/10/06:A204	04/13/2006:A02
PCB 1016	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1221	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1232	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1242	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1248	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1254	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1260	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02

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April 25, 2006

Calscience Environmental Laboratories

Lab ID : SP 603374-02
Customer ID: 2-17756
Description : 30S/11E-7E9

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 507 AGT:1							
Triphenylphosphate-Surrogate	85.4	70-130	% Rec		507	04/20/06:A205	04/25/2006:A02
Alachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Atrazine	ND	0.5	ug/L	1	507	04/20/06:A205	04/25/2006:A02
Bromacil	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Butachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Diazinon	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Dimethoate	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Metolachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Metribuzin	ND	0.5	ug/L		507	04/20/06:A205	04/25/2006:A02
Molinate	ND	2	ug/L	20	507	04/20/06:A205	04/25/2006:A02
Prometryn	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Propachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Simazine	ND	1	ug/L	4	507	04/20/06:A205	04/25/2006:A02
Thiobencarb	ND	1	ug/L	70[2]	507	04/20/06:A205	04/25/2006:A02
EPA 515.3 AGT:1							
2,4-DCAA-Surrogate	129	70-130	% Rec		515.3	04/11/06:A241	04/18/2006:A02
Bentazon	ND	2	ug/L	18	515.3	04/11/06:A241	04/18/2006:A02
2,4-D	ND	2	ug/L	70	515.3	04/11/06:A241	04/18/2006:A02
Dalapon	ND	10	ug/L	200	515.3	04/11/06:A241	04/18/2006:A02
Dicamba	ND	1	ug/L		515.3	04/11/06:A241	04/18/2006:A02
Dinoseb	ND	2	ug/L	7	515.3	04/11/06:A241	04/18/2006:A02
Pentachlorophenol	ND	0.2	ug/L	1	515.3	04/11/06:A241	04/18/2006:A02
Picloram	ND	1	ug/L	500	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-TP (Silvex)	ND	1	ug/L	50	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-T	ND	1	ug/L		515.3	04/11/06:A241	04/18/2006:A02
EPA 531.1 AGT:1,8							
Aldicarb	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb Sulfone	ND	4	ug/L	4	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb Sulfoxide	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Carbaryl	ND	5	ug/L		531.1	04/06/06:A211	04/07/2006:A03
Carbofuran	ND	5	ug/L	18	531.1	04/06/06:A211	04/07/2006:A03
3-Hydroxycarbofuran	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Methomyl	ND	2	ug/L		531.1	04/06/06:A211	04/07/2006:A03
Oxamyl	ND	5	ug/L	50	531.1	04/06/06:A211	04/07/2006:A03

Table continued next page...

April 25, 2006

Calscience Environmental Laboratories

Lab ID : SP 603374-02
Customer ID: 2-17756
Description : 30S/11E-7E9

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	04/17/06:A212	04/18/2006:A01
EPA 548.1 AGT:1 Endothall	ND	40	ug/L	100	548.1	04/13/06:A213	04/20/2006:A01
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	04/13/06:A214	04/20/2006:A01

ND=Non-Detect. PQL=Practical Quantitation Limit. ♦ PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.
MCL = Maximium Contaminat Level. [2] - Secondary Standard.
Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C, (8) Monochloracetic Buffer

ENVIRONMENTAL

ANALYTICAL CHEMISTS

April 25, 2006

Calscience Environmental Laboratories
7440 Lincoln Way
Garden Grove, CA 92841-1432

Lab ID : SP 603374-03
Customer ID: 2-17756

Sampled On : April 6, 2006-13:30
Sampled By : S. Harris
Received On: April 7, 2006-11:40
Matrix : Drinking Water

Description : 30S/10E-13Q1
Project : 06-04-0319

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 525.2 AGT:1							
Perylene-d12-Surrogate	94.8	70-130	% Rec		525.2	04/09/06:A210	04/17/2006:A01
Benzo(a)pyrene	ND	0.1	ug/L	0.2	525.2	04/09/06:A210	04/17/2006:A01
bis(2-Ethylhexyl)adipate	ND	1	ug/L	400	525.2	04/09/06:A210	04/17/2006:A01
bis(2-Ethylhexyl)phthalate	ND	3	ug/L	4	525.2	04/09/06:A210	04/17/2006:A01
EPA 505 VOA:1							
Alachlor	ND	0.2	ug/L	2	505	04/10/06:A204	04/13/2006:A02
Aldrin	ND	0.01	ug/L		505	04/10/06:A204	04/13/2006:A02
Chlordane	ND	0.1	ug/L	0.1	505	04/10/06:A204	04/13/2006:A02
Dieldrin	ND	0.01	ug/L		505	04/10/06:A204	04/13/2006:A02
Endrin	ND	0.01	ug/L	2	505	04/10/06:A204	04/13/2006:A02
Heptachlor	ND	0.01	ug/L	0.01	505	04/10/06:A204	04/13/2006:A02
Heptachlor Epoxide	ND	0.01	ug/L	0.01	505	04/10/06:A204	04/13/2006:A02
Hexachlorobenzene	ND	0.01	ug/L	1	505	04/10/06:A204	04/13/2006:A02
Hexachlorocyclopentadiene	ND	0.1	ug/L	50	505	04/10/06:A204	04/13/2006:A02
Lindane	ND	0.05	ug/L	0.2	505	04/10/06:A204	04/13/2006:A02
Methoxychlor	ND	0.1	ug/L	30	505	04/10/06:A204	04/13/2006:A02
Toxaphene	ND	0.5	ug/L	3	505	04/10/06:A204	04/13/2006:A02
PCB 1016	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1221	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1232	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1242	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1248	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1254	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1260	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02

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Visalia, California
TEL: (559) 734-9473
FAX: (559) 734-8435
Mobile: (559) 737-2399

April 25, 2006

Calscience Environmental Laboratories

Lab ID : SP 603374-03
Customer ID: 2-17756
Description : 30S/10E-13Q1

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 507 AGT:1							
Triphenylphosphate-Surrogate	85.2	70-130	% Rec		507	04/20/06:A205	04/25/2006:A02
Alachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Atrazine	ND	0.5	ug/L	1	507	04/20/06:A205	04/25/2006:A02
Bromacil	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Butachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Diazinon	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Dimethoate	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Metolachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Metribuzin	ND	0.5	ug/L		507	04/20/06:A205	04/25/2006:A02
Molinate	ND	2	ug/L	20	507	04/20/06:A205	04/25/2006:A02
Prometryn	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Propachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Simazine	ND	1	ug/L	4	507	04/20/06:A205	04/25/2006:A02
Thiobencarb	ND	1	ug/L	70[2]	507	04/20/06:A205	04/25/2006:A02
EPA 515.3 AGT:1							
2,4-DCAA-Surrogate	111	70-130	% Rec		515.3	04/11/06:A241	04/18/2006:A02
Bentazon	ND	2	ug/L	18	515.3	04/11/06:A241	04/18/2006:A02
2,4-D	ND	2	ug/L	70	515.3	04/11/06:A241	04/18/2006:A02
Dalapon	ND	10	ug/L	200	515.3	04/11/06:A241	04/18/2006:A02
Dicamba	ND	1	ug/L		515.3	04/11/06:A241	04/18/2006:A02
Dinoseb	ND	2	ug/L	7	515.3	04/11/06:A241	04/18/2006:A02
Pentachlorophenol	ND	0.2	ug/L	1	515.3	04/11/06:A241	04/18/2006:A02
Picloram	ND	1	ug/L	500	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-TP (Silvex)	ND	1	ug/L	50	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-T	ND	1	ug/L		515.3	04/11/06:A241	04/18/2006:A02
EPA 531.1 AGT:1,8							
Aldicarb	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb Sulfone	ND	4	ug/L	4	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb Sulfoxide	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Carbaryl	ND	5	ug/L		531.1	04/06/06:A211	04/07/2006:A03
Carbofuran	ND	5	ug/L	18	531.1	04/06/06:A211	04/07/2006:A03
3-Hydroxycarbofuran	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Methomyl	ND	2	ug/L		531.1	04/06/06:A211	04/07/2006:A03
Oxamyl	ND	5	ug/L	50	531.1	04/06/06:A211	04/07/2006:A03

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April 25, 2006

Calscience Environmental Laboratories

Lab ID : SP 603374-03
Customer ID: 2-17756
Description : 30S/10E-13Q1

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	04/17/06:A212	04/18/2006:A01
EPA 548.1 AGT:1 Endothall	ND	40	ug/L	100	548.1	04/13/06:A213	04/20/2006:A01
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	04/13/06:A214	04/20/2006:A01

ND=Non-Detect. PQL=Practical Quantitation Limit. ♦ PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.
MCL = Maximium Contaminat Level. ² - Secondary Standard.
Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C, (8) Monochloracetic Buffer

ENVIRONMENTAL

ANALYTICAL CHEMISTS

April 25, 2006

Calscience Environmental Laboratories
7440 Lincoln Way
Garden Grove, CA 92841-1432

Lab ID : SP 603374-04
Customer ID: 2-17756

Sampled On : April 6, 2006-16:40
Sampled By : S. Harris
Received On: April 7, 2006-11:40
Matrix : Drinking Water

Description : 30S/11E-7Q1
Project : 06-04-0319

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 525.2 AGT:1							
Perylene-d12-Surrogate	98.9	70-130	% Rec		525.2	04/09/06:A210	04/17/2006:A01
Benzo(a)pyrene	ND	0.1	ug/L	0.2	525.2	04/09/06:A210	04/17/2006:A01
bis(2-Ethylhexyl)adipate	ND	1	ug/L	400	525.2	04/09/06:A210	04/17/2006:A01
bis(2-Ethylhexyl)phthalate	ND	3	ug/L	4	525.2	04/09/06:A210	04/17/2006:A01
EPA 505 VOA:1							
Alachlor	ND	0.2	ug/L	2	505	04/10/06:A204	04/13/2006:A02
Aldrin	ND	0.01	ug/L		505	04/10/06:A204	04/13/2006:A02
Chlordane	ND	0.1	ug/L	0.1	505	04/10/06:A204	04/13/2006:A02
Dieldrin	ND	0.01	ug/L		505	04/10/06:A204	04/13/2006:A02
Endrin	ND	0.01	ug/L	2	505	04/10/06:A204	04/13/2006:A02
Heptachlor	ND	0.01	ug/L	0.01	505	04/10/06:A204	04/13/2006:A02
Heptachlor Epoxide	ND	0.01	ug/L	0.01	505	04/10/06:A204	04/13/2006:A02
Hexachlorobenzene	ND	0.01	ug/L	1	505	04/10/06:A204	04/13/2006:A02
Hexachlorocyclopentadiene	ND	0.1	ug/L	50	505	04/10/06:A204	04/13/2006:A02
Lindane	ND	0.05	ug/L	0.2	505	04/10/06:A204	04/13/2006:A02
Methoxychlor	ND	0.1	ug/L	30	505	04/10/06:A204	04/13/2006:A02
Toxaphene	ND	0.5	ug/L	3	505	04/10/06:A204	04/13/2006:A02
PCB 1016	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1221	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1232	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1242	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1248	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1254	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02
PCB 1260	ND	0.5	ug/L		505	04/10/06:A204	04/13/2006:A02

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Visalia, California
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FAX: (559) 734-8435
Mobile: (559) 737-2399

April 25, 2006

Calscience Environmental Laboratories

Lab ID : SP 603374-04
Customer ID: 2-17756
Description : 30S/11E-7Q1

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 507 AGT:1							
Triphenylphosphate-Surrogate	113	70-130	% Rec		507	04/20/06:A205	04/25/2006:A02
Alachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Atrazine	ND	0.5	ug/L	1	507	04/20/06:A205	04/25/2006:A02
Bromacil	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Butachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Diazinon	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Dimethoate	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Metolachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Metribuzin	ND	0.5	ug/L		507	04/20/06:A205	04/25/2006:A02
Molinate	ND	2	ug/L	20	507	04/20/06:A205	04/25/2006:A02
Prometryn	ND	2	ug/L		507	04/20/06:A205	04/25/2006:A02
Propachlor	ND	1	ug/L		507	04/20/06:A205	04/25/2006:A02
Simazine	ND	1	ug/L	4	507	04/20/06:A205	04/25/2006:A02
Thiobencarb	ND	1	ug/L	70[2]	507	04/20/06:A205	04/25/2006:A02
EPA 515.3 AGT:1							
2,4-DCAA-Surrogate	112	70-130	% Rec		515.3	04/11/06:A241	04/18/2006:A02
Bentazon	ND	2	ug/L	18	515.3	04/11/06:A241	04/18/2006:A02
2,4-D	ND	2	ug/L	70	515.3	04/11/06:A241	04/18/2006:A02
Dalapon	ND	10	ug/L	200	515.3	04/11/06:A241	04/18/2006:A02
Dicamba	ND	1	ug/L		515.3	04/11/06:A241	04/18/2006:A02
Dinoseb	ND	2	ug/L	7	515.3	04/11/06:A241	04/18/2006:A02
Pentachlorophenol	ND	0.2	ug/L	1	515.3	04/11/06:A241	04/18/2006:A02
Picloram	ND	1	ug/L	500	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-TP (Silvex)	ND	1	ug/L	50	515.3	04/11/06:A241	04/18/2006:A02
2,4,5-T	ND	1	ug/L		515.3	04/11/06:A241	04/18/2006:A02
EPA 531.1 AGT:1,8							
Aldicarb	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb Sulfone	ND	4	ug/L	4	531.1	04/06/06:A211	04/07/2006:A03
Aldicarb Sulfoxide	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Carbaryl	ND	5	ug/L		531.1	04/06/06:A211	04/07/2006:A03
Carbofuran	ND	5	ug/L	18	531.1	04/06/06:A211	04/07/2006:A03
3-Hydroxycarbofuran	ND	3	ug/L	3	531.1	04/06/06:A211	04/07/2006:A03
Methomyl	ND	2	ug/L		531.1	04/06/06:A211	04/07/2006:A03
Oxamyl	ND	5	ug/L	50	531.1	04/06/06:A211	04/07/2006:A03

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April 25, 2006

Calscience Environmental Laboratories

Lab ID : SP 603374-04
Customer ID: 2-17756
Description : 30S/11E-7Q1

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	04/17/06:A212	04/18/2006:A01
EPA 548.1 AGT:1 Endothall	ND	40	ug/L	100	548.1	04/13/06:A213	04/20/2006:A01
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	04/13/06:A214	04/20/2006:A01

ND=Non-Detect. PQL=Practical Quantitation Limit. ♦ PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.
MCL = Maximium Contaminat Level. [1] - Secondary Standard.
Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C, (8) Monochloracetic Buffer

ENVIRONMENTAL

ANALYTICAL CHEMISTS

May 31, 2006

Calscience Environmental Laboratories
7440 Lincoln Way
Garden Grove, CA 92841-1432

Lab ID : SP 604463-01
Customer ID: 2-17756

Sampled On : May 8, 2006-15:00
Sampled By : Spencer Harris
Received On: May 9, 2006-11:00
Matrix : Drinking Water

Description : 30S/11E-18F1 - Los Osos
Project : 05-0545

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 525.2 AGT:1							
Perylene-d12-Surrogate	90.4	70-130	% Rec		525.2	05/21/06:A210	05/27/2006:A01
Benzo(a)pyrene	ND	0.1	ug/L	0.2	525.2	05/21/06:A210	05/27/2006:A01
bis(2-Ethylhexyl)adipate	ND	1	ug/L	400	525.2	05/21/06:A210	05/27/2006:A01
bis(2-Ethylhexyl)phthalate	ND	3	ug/L	4	525.2	05/21/06:A210	05/27/2006:A01
EPA 505 VOA:1							
Alachlor	ND	0.2	ug/L	2	505	05/12/06:A204	05/12/2006:A01
Aldrin	ND	0.01	ug/L		505	05/12/06:A204	05/12/2006:A01
Chlordane	ND	0.1	ug/L	0.1	505	05/12/06:A204	05/12/2006:A01
Dieldrin	ND	0.01	ug/L		505	05/12/06:A204	05/12/2006:A01
Endrin	ND	0.01	ug/L	2	505	05/12/06:A204	05/12/2006:A01
Heptachlor	ND	0.01	ug/L	0.01	505	05/12/06:A204	05/12/2006:A01
Heptachlor Epoxide	ND	0.01	ug/L	0.01	505	05/12/06:A204	05/12/2006:A01
Hexachlorobenzene	ND	0.01	ug/L	1	505	05/12/06:A204	05/12/2006:A01
Hexachlorocyclopentadiene	ND	0.1	ug/L	50	505	05/12/06:A204	05/12/2006:A01
Lindane	ND	0.05	ug/L	0.2	505	05/12/06:A204	05/12/2006:A01
Methoxychlor	ND	0.1	ug/L	30	505	05/12/06:A204	05/12/2006:A01
Toxaphene	ND	0.5	ug/L	3	505	05/12/06:A204	05/12/2006:A01
PCB 1016	ND	0.5	ug/L		505	05/12/06:A204	05/12/2006:A01
PCB 1221	ND	0.5	ug/L		505	05/12/06:A204	05/12/2006:A01
PCB 1232	ND	0.5	ug/L		505	05/12/06:A204	05/12/2006:A01
PCB 1242	ND	0.5	ug/L		505	05/12/06:A204	05/12/2006:A01
PCB 1248	ND	0.5	ug/L		505	05/12/06:A204	05/12/2006:A01
PCB 1254	ND	0.5	ug/L		505	05/12/06:A204	05/12/2006:A01
PCB 1260	ND	0.5	ug/L		505	05/12/06:A204	05/12/2006:A01

Table continued next page...

Corporate Offices & Laboratory
P.O. Box 272 / 853 Corporation Street
Santa Paula, CA 93061-0272
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FAX: (805) 525-4172
CA NELAP Certification No. 01110CA
CA ELAP Certification No. 1573

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2500 Stagecoach Road
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FAX: (559) 734-8435
Mobile: (559) 737-2399

May 31, 2006

Calscience Environmental Laboratories

Lab ID : SP 604463-01
Customer ID: 2-17756
Description : 30S/11E-18F1 - Los Osos

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 507 AGT:1							
Triphenylphosphate-Surrogate	89.5	70-130	% Rec		507	05/10/06:A205	05/24/2006:A01
Alachlor	ND	1	ug/L		507	05/10/06:A205	05/24/2006:A01
Atrazine	ND	0.5	ug/L	1	507	05/10/06:A205	05/24/2006:A01
Bromacil	ND	2	ug/L		507	05/10/06:A205	05/24/2006:A01
Butachlor	ND	1	ug/L		507	05/10/06:A205	05/24/2006:A01
Diazinon	ND	2	ug/L		507	05/10/06:A205	05/24/2006:A01
Dimethoate	ND	2	ug/L		507	05/10/06:A205	05/24/2006:A01
Metolachlor	ND	1	ug/L		507	05/10/06:A205	05/24/2006:A01
Metribuzin	ND	0.5	ug/L		507	05/10/06:A205	05/24/2006:A01
Molinate	ND	2	ug/L	20	507	05/10/06:A205	05/24/2006:A01
Prometryn	ND	2	ug/L		507	05/10/06:A205	05/24/2006:A01
Propachlor	ND	1	ug/L		507	05/10/06:A205	05/24/2006:A01
Simazine	ND	1	ug/L	4	507	05/10/06:A205	05/24/2006:A01
Thiobencarb	ND	1	ug/L	70[2]	507	05/10/06:A205	05/24/2006:A01
EPA 515.3 AGT:1							
2,4-DCAA-Surrogate	107	70-130	% Rec		515.3	05/11/06:A241	05/23/2006:B01
Bentazon	ND	2	ug/L	18	515.3	05/11/06:A241	05/23/2006:B01
2,4-D	ND	2	ug/L	70	515.3	05/11/06:A241	05/23/2006:B01
Dalapon	ND	10	ug/L	200	515.3	05/11/06:A241	05/23/2006:B01
Dicamba	ND	1	ug/L		515.3	05/11/06:A241	05/23/2006:B01
Dinoseb	ND	2	ug/L	7	515.3	05/11/06:A241	05/23/2006:B01
Pentachlorophenol	ND	0.2	ug/L	1	515.3	05/11/06:A241	05/23/2006:B01
Picloram	ND	1	ug/L	500	515.3	05/11/06:A241	05/23/2006:B01
2,4,5-TP (Silvex)	ND	1	ug/L	50	515.3	05/11/06:A241	05/23/2006:B01
2,4,5-T	ND	1	ug/L		515.3	05/11/06:A241	05/23/2006:B01
EPA 531.1 AGT:1,8							
Aldicarb	ND	3	ug/L	3	531.1	05/12/06:A211	05/15/2006:A01
Aldicarb Sulfone	ND	4	ug/L	4	531.1	05/12/06:A211	05/15/2006:A01
Aldicarb Sulfoxide	ND	3	ug/L	3	531.1	05/12/06:A211	05/15/2006:A01
Carbaryl	ND	5	ug/L		531.1	05/12/06:A211	05/15/2006:A01
Carbofuran	ND	5	ug/L	18	531.1	05/12/06:A211	05/15/2006:A01
3-Hydroxycarbofuran	ND	3	ug/L	3	531.1	05/12/06:A211	05/15/2006:A01
Methomyl	ND	2	ug/L		531.1	05/12/06:A211	05/15/2006:A01
Oxamyl	ND	5	ug/L	50	531.1	05/12/06:A211	05/15/2006:A01

Table continued next page...

May 31, 2006

Calscience Environmental Laboratories

Lab ID : SP 604463-01
Customer ID: 2-17756
Description : 30S/11E-18F1 - Los Osos

Sample Results - Organic

Constituents	Results	PQL	Units	MCL	Preparation Method	Preparation Date/ID	Analysis Date/ID
EPA 547 AGT:1 Glyphosate	ND	20	ug/L	700	547	05/09/06:A212	05/09/2006:A01
EPA 548.1 AGT:1 Endothall	ND	40	ug/L	100	548.1	05/15/06:A213	05/25/2006:A01
EPA 549.2 AST:1 Diquat	ND	2	ug/L	20	549.2	05/15/06:A214	05/30/2006:A01

ND=Non-Detect. PQL=Practical Quantitation Limit. ◆ PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.
MCL = Maximium Contaminat Level. [1] - Secondary Standard.
Containers: (VOA) VOA, (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE Preservatives: (1) Cool 4°C, (B) Monochloracetic Buffer

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	05/09/06
Work Order No:	06-05-0545
Preparation:	EPA 3520B
Method:	EPA 1625CM

Project: TASK 3 WATER QUALITY

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-18F1	06-05-0545-1	05/08/06	Aqueous	05/09/06	05/11/06	060508L13

Parameter	Result	RL	DF	Qual	Units
N-Nitrosodimethylamine	ND	2.0	1		ng/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Dichlorobenzene-d4	55	50-130	

Method Blank	099-07-027-238	N/A	Aqueous	05/09/06	05/11/06	060508L13

Parameter	Result	RL	DF	Qual	Units
N-Nitrosodimethylamine	ND	2.0	1		ng/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Dichlorobenzene-d4	60	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received: 04/07/06
Work Order No: 06-04-0319
Preparation: EPA 3520B
Method: EPA 1625CM

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/10E-13F1	06-04-0319-1	04/06/06	Aqueous	04/08/06	04/10/06	060408L03

Parameter	Result	RL	DF	Qual	Units
N-Nitrosodimethylamine	ND	2.0	1		ng/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Dichlorobenzene-d4	101	50-130	

30S/11E-17E9	06-04-0319-2	04/06/06	Aqueous	04/08/06	04/10/06	060408L03

Parameter	Result	RL	DF	Qual	Units
N-Nitrosodimethylamine	ND	2.0	1		ng/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Dichlorobenzene-d4	102	50-130	

30S/10E-13Q1	06-04-0319-3	04/06/06	Aqueous	04/08/06	04/10/06	060408L03

Parameter	Result	RL	DF	Qual	Units
N-Nitrosodimethylamine	12	2	1		ng/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Dichlorobenzene-d4	97	50-130	

30S/11E-7Q1	06-04-0319-5	04/06/06	Aqueous	04/08/06	04/11/06	060408L03

Parameter	Result	RL	DF	Qual	Units
N-Nitrosodimethylamine	17	2	1		ng/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Dichlorobenzene-d4	91	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received:	05/09/06
Work Order No:	06-05-0545
Preparation:	EPA 5030B
Method:	SRL 524M-TCP
Units:	ug/L

Project: TASK 3 WATER QUALITY

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/11E-18F1	**06-05-0545-1**	**05/08/06**	**Aqueous**	**05/09/06**	**05/09/06**	**060509L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2,3-Trichloropropane	ND	0.0050	1		1,4-Dioxane	ND	2.0	1	

Method Blank	**099-12-036-34**	**N/A**	**Aqueous**	**05/09/06**	**05/09/06**	**060509L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2,3-Trichloropropane	ND	0.0050	1		1,4-Dioxane	ND	2.0	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405-4920

Date Received: 04/07/06
Work Order No: 06-04-0319
Preparation: EPA 5030B
Method: SRL 524M-TCP
Units: ug/L

Project: WMP TASK 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
30S/10E-13F1	06-04-0319-1	04/06/06	Aqueous	04/07/06	04/07/06	060407L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2,3-Trichloropropane	ND	0.0050	1		1,4-Dioxane	ND	2.0	1	

30S/11E-17E9	06-04-0319-2	04/06/06	Aqueous	04/07/06	04/07/06	060407L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2,3-Trichloropropane	ND	0.0050	1		1,4-Dioxane	ND	2.0	1	

30S/10E-13Q1	06-04-0319-3	04/06/06	Aqueous	04/07/06	04/07/06	060407L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2,3-Trichloropropane	ND	0.0050	1		1,4-Dioxane	ND	2.0	1	

30S/11E-7Q1	06-04-0319-5	04/06/06	Aqueous	04/07/06	04/07/06	060407L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2,3-Trichloropropane	ND	0.0050	1		1,4-Dioxane	ND	2.0	1	

Method Blank	099-12-036-19	N/A	Aqueous	04/07/06	04/07/06	060407L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1,2,3-Trichloropropane	ND	0.0050	1		1,4-Dioxane	ND	2.0	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Hygienic Laboratory

The University of Iowa

Date of report: 05-10-2006

SPENCER HARRIS
CLEATH & ASSOCIATES
1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number	**200603709**
Date Received	04-07-2006
Project	
Date Collected	04-06-2006 08:27
Collection Site	equipment blank #1
Collection Town	Los Osos
Description	water
Reference	WMP TASK 3 WATER QUA
Collector	HARRIS SPENCER
Phone	(805) 543-1413
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

Analyte	Concentration ng/L	Quantitation Limit ng/L
Acetominophen	<5.0	5.0
Caffeine	<16	16
Carbamazepine	<1.0	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	<1.0	1.0
Sulfathiazole	<1.0	1.0
Triclosan	2.1	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0

Comments: *Trace level of triclosan (antibacterial in hand soaps) found in equipment blank 1. It was not observed in any other sample.*

Date Analyzed: 04-13-2006
Method: PHARMA LC MISC
Date Prepared: 04-13-2006
Preparation Method: PHARMA LC-1

Analyst: JDV
Verified: DLZ
Analyst: KB
Verified: GJ

Page 1 - Continued on next page

Mary J. R. Gilchrist, Ph.D.
Director

102 Oakdale Campus, #101 OH
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515/725-1600 Fax: 515/725-1642

Hygienic Laboratory

The University of Iowa

Sample Number 200603709

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Testosterone	<1000	1000
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	430	50
Dihydrocholesterol	<100	100
Stigmasterol	<100	100
Sitosterol	100	100
Stigmastanol	<100	100

Comments	*Please note the hormones are qualitatively determined in this test.*

Date Analyzed: 05-04-2006
Method: UHL 8270
Date Prepared: 04-19-2006
Preparation Method: NEIC/EPA/AOAC

Analyst: ES
Verified: TC
Analyst: SE,GJ
Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

Mary J. R. Gilchrist, Ph.D.
Director

102 Oakdale Campus, #101 OH
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Hygienic Laboratory

The University of Iowa

Date of report: 05-10-2006

SPENCER HARRIS
CLEATH & ASSOCIATES
1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number	**200603712**
Date Received	04-07-2006
Project	
Date Collected	04-06-2006 14:30
Collection Site	equipment blank #2
Collection Town	Los Osos
Description	water
Reference	WMP TASK 3 WATER QUA
Collector	HARRIS SPENCER
Phone	(805) 543-1413
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

Analyte	Concentration ng/L	Quantitation Limit ng/L
Acetominophen	<5.0	5.0
Caffeine	<16	16
Carbamazepine	<1.0	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	<1.0	1.0
Sulfathiazole	<1.0	1.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0

Date Analyzed: 04-13-2006
Method: PHARMA LC MISC
Date Prepared: 04-13-2006
Preparation Method: PHARMA LC-1

Analyst: JDV
Verified: DLZ
Analyst: KB
Verified: GJ

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Testosterone	<1000	1000

Page 1 - Continued on next page

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Hygienic Laboratory

The University of Iowa

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	420	50
Dihydrocholesterol	<100	100
Stigmasterol	<100	100
Sitosterol	<100	100
Stigmastanol	<100	100
Comments	*Please note the hormones are qualitatively determined in this test.*	

Date Analyzed: 05-04-2006
Method: UHL 8270
Date Prepared: 04-19-2006
Preparation Method: NEIC/EPA/AOAC

Analyst: ES
Verified: TC
Analyst: SE,GJ
Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

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Director

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Hygienic Laboratory

The University of Iowa

Date of report: 05-10-2006

SPENCER HARRIS
CLEATH & ASSOCIATES
1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number	200603708
Date Received	04-07-2006
Project	
Date Collected	04-06-2006 08:35
Collection Site	clean water blank
Collection Town	Los Osos
Description	water
Reference	WMP TASK 3 WATER QUA
Collector	HARRIS SPENCER
Phone	(805) 543-1413
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

Analyte	Concentration ng/L	Quantitation Limit ng/L
Acetominophen	<5.0	5.0
[illegible]ffeine	<16	16
[illegible]rbamazepine	<1.0	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	<1.0	1.0
Sulfathiazole	<1.0	1.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0

Date Analyzed: 04-13-2006
Method: PHARMA LC MISC
Date Prepared: 04-13-2006
Preparation Method: PHARMA LC-1

Analyst: JDV
Verified: DLZ
Analyst: KB
Verified: GJ

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Testosterone	<1000	1000

Page 1 - Continued on next page

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Hygienic Laboratory

The University of Iowa

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	600	50
Dihydrocholesterol	<100	100
Stigmasterol	230	100
Sitosterol	1600	100
Stigmastanol	<100	100
Comments	*Please note the hormones are qualitatively determined in this test.*	

Date Analyzed: 05-04-2006
Method: UHL 8270
Date Prepared: 04-19-2006
Preparation Method: NEIC/EPA/AOAC

Analyst: ES
Verified: TC
Analyst: SE,GJ
Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

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Director

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Hygienic Laboratory

The University of Iowa

Date of report: 05-10-2006

SPENCER HARRIS
CLEATH & ASSOCIATES
1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number	**200603707**
Date Received	04-07-2006
Project	
Date Collected	04-06-2006 10:25
Collection Site	305/10e-13f1
Collection Town	Los Osos
Description	water
Reference	WMP TASK 3 WATER QUA
Collector	HARRIS SPENCER
Phone	(805) 543-1413
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

Analyte	Concentration ng/L	Quantitation Limit ng/L
Acetominophen	<5.0	5.0
Caffeine	<16	16
Carbamazepine	<1.0	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	115	10
Sulfathiazole	<1.0	1.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0

Date Analyzed: 04-13-2006
Method: PHARMA LC MISC
Date Prepared: 04-13-2006
Preparation Method: PHARMA LC-1

Analyst: JDV
Verified: DLZ
Analyst: KB
Verified: GJ

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Testosterone	<1000	1000

Page 1 - Continued on next page

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Director

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Hygienic Laboratory

The University of Iowa

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	350	50
Dihydrocholesterol	<100	100
Stigmasterol	270	100
Sitosterol	1900	100
Stigmastanol	<100	100

Comments	*Please note the hormones are qualitatively determined in this test.*

Date Analyzed: 05-04-2006
Method: UHL 8270
Date Prepared: 04-19-2006
Preparation Method: NEIC/EPA/AOAC

Analyst: ES
Verified: TC
Analyst: SE,GJ
Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

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The University of Iowa

Date of report: 05-10-2006

SPENCER HARRIS
CLEATH & ASSOCIATES
1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number	200603710
Date Received	04-07-2006
Project	
Date Collected	04-06-2006 13:30
Collection Site	305/10e-13q1
Collection Town	Los Osos
Description	water
Reference	WMP TASK 3 WATER QUA
Collector	HARRIS SPENCER
Phone	(805) 543-1413
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

Analyte	Concentration ng/L	Quantitation Limit ng/L
Acetominophen	<5.0	5.0
Caffeine	<16	16
Carbamazepine	26	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	300	10
Sulfathiazole	<1.0	1.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0

Date Analyzed: 04-13-2006
Method: PHARMA LC MISC
Date Prepared: 04-13-2006
Preparation Method: PHARMA LC-1

Analyst: JDV
Verified: DLZ
Analyst: KB
Verified: GJ

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Testosterone	<1000	1000

Page 1 - Continued on next page

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The University of Iowa

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	310	50
Dihydrocholesterol	<100	100
Stigmasterol	<100	100
Sitosterol	120	100
Stigmastanol	<100	100

Comments	*Please note the hormones are qualitatively determined in this test.*

Date Analyzed: 05-04-2006
Method: UHL 8270
Date Prepared: 04-19-2006
Preparation Method: NEIC/EPA/AOAC

Analyst: ES
Verified: TC
Analyst: SE,GJ
Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.

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Date of report: 05-10-2006

SPENCER HARRIS
CLEATH & ASSOCIATES
1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number	200603711
Date Received	04-07-2006
Project	
Date Collected	04-06-2006 16:00
Collection Site	305/11e-7q1
Collection Town	Los Osos
Description	water
Reference	WMP TASK 3 WATER QUA
Collector	HARRIS SPENCER
Phone	(805) 543-1413
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

Analyte	Concentration ng/L	Quantitation Limit ng/L
Acetominophen	<5.0	5.0
Caffeine	<16	16
Carbamazepine	31	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	92	10
Sulfathiazole	<1.0	1.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0

Date Analyzed: 04-13-2006
Method: PHARMA LC MISC
Date Prepared: 04-13-2006
Preparation Method: PHARMA LC-1

Analyst: JDV
Verified: DLZ
Analyst: KB
Verified: GJ

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Testosterone	<1000	1000

Page 1 - Continued on next page

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The University of Iowa

Sample Number 200603711

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	570	50
Dihydrocholesterol	<100	100
Stigmasterol	<100	100
Sitosterol	180	100
Stigmastanol	<100	100

Comments	*Please note the hormones are qualitatively determined in this test.*

Date Analyzed: 05-04-2006
Method: UHL 8270
Date Prepared: 04-19-2006
Preparation Method: NEIC/EPA/AOAC

Analyst: ES
Verified: TC
Analyst: SE,GJ
Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

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The University of Iowa

Date of report: 05-10-2006

SPENCER HARRIS
CLEATH & ASSOCIATES
1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number	**200603706**
Date Received	04-07-2006
Project	
Date Collected	04-06-2006 11:30
Collection Site	305/11e-17e9
Collection Town	Los Osos
Description	water
Reference	WMP TASK 3 WATER QUA
Collector	HARRIS SPENCER
Phone	(805) 543-1413
Purchase Order	

Comments

Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.
Collection date on labels 4-4-06 was incorrect; per David Williams it should be 4-6-06 as listed on paperwork.

Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

Analyte	Concentration ng/L	Quantitation Limit ng/L
Acetominophen	<5.0	5.0
Caffeine	<16	16
Carbamazepine	98	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<10	10
DEET	<7.0	7.0
Ibuprofen	<2.0	2.0
Lincomycin	<2.0	2.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	250	10
Sulfathiazole	<1.0	1.0
Triclosan	<2.0	2.0
Trimethoprim	<2.0	2.0
Tylosin	<2.0	2.0

Date Analyzed: 04-13-2006
Method: PHARMA LC MISC
Date Prepared: 04-13-2006
Preparation Method: PHARMA LC-1

Analyst: JDV
Verified: DLZ
Analyst: KB
Verified: GJ

Page 1 - Continued on next page

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The University of Iowa

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Testosterone	<1000	1000
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	420	50
Dihydrocholesterol	<100	100
Stigmasterol	310	100
Sitosterol	2200	100
Stigmastanol	<100	100

Comments	*Please note the hormones are qualitatively determined in this test.*

Date Analyzed: 05-04-2006
Method: UHL 8270
Date Prepared: 04-19-2006
aration Method: NEIC/EPA/AOAC

Analyst: ES
Verified: TC
Analyst: SE,GJ
Verified: GJ

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

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Hygienic Laboratory

The University of Iowa

Date of report: 05-18-2006

SPENCER HARRIS
CLEATH & ASSOCIATES
1390 OCEANAIRE DR

SAN LUIS OBISPO CA 93405

Sample Number	200605624
Date Received	05-09-2006
Project	
Date Collected	05-08-2006 15:00
Collection Site	30s/11e-18f1
Collection Town	Los Osos
Description	water
Reference	TASK 3 WATER QUALITY
Collector	HARRIS SPENCER
Phone	(805) 543-1413
Purchase Order	

Comments: *Upon arrival; sample met container and preservation requirements for the analysis requested;*
EXCEPT: sample temperature exceeds 6 degrees celsius.
Please review carefully your sample results for additional analyte comments or method exceptions.

Results of Analyses

misc pharma/antibiotic/pcp by LC/MS/MS

Analyte	Concentration ng/L	Quantitation Limit ng/L
Acetominophen	<1.0	1.0
Caffeine	<14	14
Carbamazepine	<1.0	1.0
Cotinine	<1.0	1.0
1,7-Dimethylxanthine	<2.0	2.0
DEET	<6.9	6.9
Ibuprofen	<1.0	1.0
Lincomycin	<1.0	1.0
Sulfadimethoxine	<1.0	1.0
Sulfamethazine	<1.0	1.0
Sulfamethoxazole	1.5	1.5
Sulfathiazole	<1.0	1.0
Triclosan	1.4	1.0
Trimethoprim	<1.0	1.0
Tylosin	<1.0	1.0

Date Analyzed: 05-11-2006 — Analyst: JDV
Method: PHARMA LC MISC — Verified: DLZ
Date Prepared: 05-11-2006 — Analyst: KB
Preparation Method: PHARMA LC-1 — Verified: GJ

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Testosterone	<1000	1000

Page 1 - Continued on next page

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Hygienic Laboratory

The University of Iowa

GC/MS Extractables - Hormones & Sterols

Analyte	Concentration ng/L	Quantitation Limit ng/L
Equilenin	<50	50
Estriol	<200	200
Progesterone	<1000	1000
Coprostan-3-ol	<100	100
Cholesterol	700	50
Dihydrocholesterol	<100	100
Stigmasterol	<100	100
Sitosterol	150	100
Stigmastanol	<100	100

Comments	*Please note the hormones are qualitatively determined in this test.*

Date Analyzed: 05-11-2006
Method: UHL 8270

Analyst: MP
Verified: TC

Description of units used within this report

ng/L - Nanograms per Liter

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, NELAP, USEPA, NVLAP #101288-0 and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

Mary J. R. Gilchrist, Ph.D.
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APPENDIX D

Communication dated May 16, 2006 from Dr. John Vargo

THE UNIVERSITY OF IOWA

HYGIENIC LABORATORY
Iowa's Environmental and Public Health Laboratory
102 Oakdale Campus, H101 OH
Iowa City, Iowa 52242-5002
319-335-4500 *Fax* 319-335-4555
www.uhl.uiowa.edu

May 16, 2006

Mr. Spencer Harris
Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405

Dear Mr. Harris:

This letter is being sent to you to offer my interpretations and opinions regarding two sets of groundwater samples that your company submitted to our laboratory for analysis for pharmaceuticals, personal care products, antibiotics, hormones, and sterols. It is my understanding that the intent of this testing was to assess whether septic systems are impacting water quality for an aquifer that is being proposed for use as drinking water.

Cholesterol (a steroid that can come from plant or animal origin) was detected in all submitted samples. This is normal. The amounts observed are not considered elevated. Sitosterol (a plant steroid) was observed in all samples. Amounts less than 500 ng/mL are not uncommon for clean water sources and laboratory blanks. Two samples showed levels of approximately 2000 ng/mL which is considered higher than normal. Stigmasterol (a plant steroid) was detected in two samples, but at levels that were low and not of concern. Coprostan-3-ol (a steroid formed in the digestive systems of humans and other mammals) is a good indicator of fecal contamination. It was not observed in any sample. The presence of plant steroids at low concentrations should not be unexpected as water that is moving through the soil to underground aquifers will come in contact with vegetation from which the steroids can be leached.

Carbamazepine (an anti-seizure drug) was detected in three of five Los Osos water samples. Sulfamethoxazole (a human antibiotic) was detected in all five Los Osos samples. Trace amounts of triclosan (an antibacterial used in liquid hand soaps) was detected in the last Los Osos sample that was submitted, but it is possible it could be due to handling contamination.

I am not a toxicologist so it is difficult to give a perspective regarding whether the presence of carbamazepine and sulfamethoxazole at sub part-per-billion (ppb) levels creates any health risk for a consumer who is using this water for drinking and cooking on a daily basis. These chemicals are present at a very low level. The USEPA has set maximum contaminant levels (maximum allowable concentration for a given chemical in drinking water) for select contaminants of concern in drinking water. The maximum contaminant levels are presented for a few select environmental contaminants so that you can compare the concentration of carbamazepine and sulfamethoxazole to these chemicals which are known to be harmful if injested in large enough amounts: atrazine (3 ppb), carbon tetrachloride (5 ppb), 2,4-D (70 ppb), polychlorinated biphenyls (0.5 ppb), PAHs (0.2 ppb). Considering that these two chemicals are registered for use as human pharmaceuticals, it is

unlikely they would present an adverse health risk at the levels they were detected. Neither the USEPA or USFDA have any guidelines regarding safe levels for these emerging contaminants in drinking water.

The presence of these two pharmaceuticals is an indication that there is a source(s) of contaminants that has leached, or is presently leaching, into the groundwater source. These chemicals will only be found in human wastewater sources. They do not occur naturally nor are they used in agriculture. The two detected pharmaceuticals are highly soluble in water and do not have a tendency to bind in soil, as many organic chemicals do. Considering that these pharmaceuticals have been found at low levels in most of the groundwater samples that you submitted, it is likely there are other chemical contaminants present in the water as we only tested for a select group.

It is very difficult for me to make an assessment regarding overall water quality and safety based on the testing data that we have. In my opinion, what has been found so far is not alarming but at the same time clearly indicates that some contamination of the water has occurred. Additional testing for other potential chemical contaminants should be considered if you have not already done so.

Please contact me if you would like to discuss the results or the need for any future testing. The University Hygienic Laboratory is certified for most EPA drinking water methods for inorganic and organic chemicals, microbiological organisms, as well as customized tests such as the pharmaceuticals and sterols/hormones.

Sincerely,

John D. Vargo, Ph.D.
Program Manager
Environmental Health
319-335-4478
john-vargo@uiowa.edu