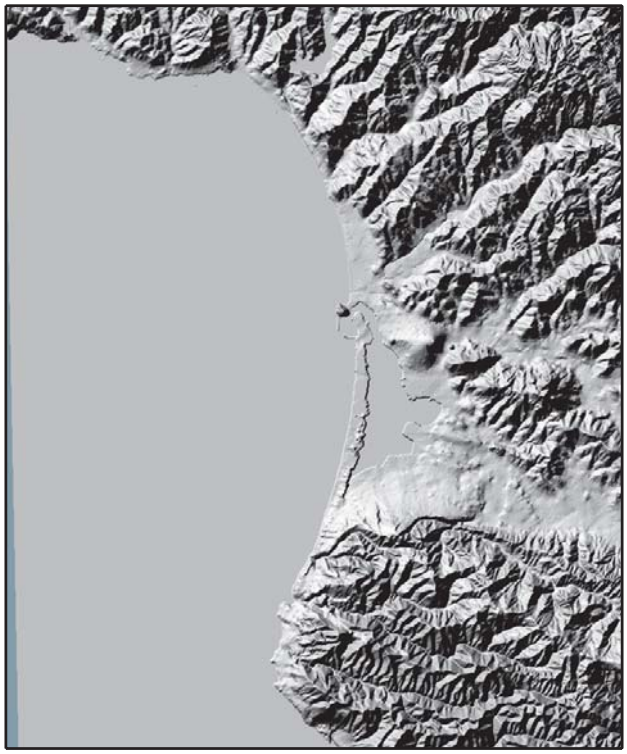
City of Morro Bay and
Cayucos Sanitary District

OFFSHORE MONITORING AND REPORTING PROGRAM

SEMIANNUAL EFFLUENT SAMPLING

CHEMICAL AND BIOASSAY ANALYSIS RESULTS

JULY 2006



Marine Research Specialists

3140 Telegraph Rd., Suite A
Ventura, California 93003

Report to

City of Morro Bay and
Cayucos Sanitary District

955 Shasta Avenue
Morro Bay, California 93442
(805) 772-6272

MONITORING AND REPORTING PROGRAM

SEMI-ANNUAL EFFLUENT REPORT

CHEMICAL AND BIOASSAY ANALYSIS RESULTS

JULY 2006

Prepared by

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August 2006

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Mr. Bruce Ambo
City of Morro Bay

Date _____

marine research specialists
3140 Telegraph Road, Suite A · Ventura, CA 93003 · (805) 644-1180

Mr. Bruce Keogh
Wastewater Division Manager
City of Morro Bay
955 Shasta Avenue
Morro Bay, CA 93442

25 August 2006

Reference: Chemical and Bioassay Analysis Results for Effluent Samples Collected in July 2006

Dear Mr. Keogh:

Enclosed are the results of:

- A chronic bioassay conducted on a composite effluent sample collected on 17 July 2006;
- An acute bioassay conducted on four effluent grab samples collected daily from 17 July through 20 July 2006;
- Chemical analyses conducted on grab and composite effluent samples collected on 12 July 2006; and
- Radioactivity measured on a composite effluent sample collected on 12 July 2006.

All analyses were conducted in accordance with the requirements of Monitoring and Reporting Program Number 98-15[1] to assess compliance with effluent limitations specified in the Waste Discharge Requirements of the NPDES Discharge Permit[2].

Bioassay protocols conformed to the revised requirements specified by RWQCB[3] staff that eliminated techniques previously used to mitigate interference from ammonia toxicity[4]. Nevertheless, all of the measured chemical concentrations and toxicity endpoints complied with the limitations promulgated by the current discharge permit. This includes outdated acute-toxicity limitations that are no longer promulgated by the current version of the California Ocean Plan[5] because they were determined to be unnecessarily stringent. This cover letter summarizes the bioassay results and discusses the chemical compounds that were detected in the effluent samples. The full laboratory results as well as the pertinent QA/QC data and chains of custody are included as attachments.

Chronic Bioassay

As summarized in Table 1, the chronic bioassay tests demonstrated that effluent toxicity to marine organisms was an order of magnitude lower than the limitations specified in the NPDES permit. Results were comparable to the low toxicities determined in tests conducted over the last decade. Chronic bioassays

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[1] Monitoring and Reporting Program No. 98-15 for City of Morro Bay and Cayucos Sanitary District Wastewater Treatment Plant, San Luis Obispo County promulgated by the State of California Regional Water Quality Control Board Central Coast Region and the United States Environmental Protection Agency Region IX, San Francisco California. 11 December 1998

[2] State of California Regional Water Quality Control Board Central Coast Region Waste Discharge Requirements Order No. 98-15 and United States Environmental Protection Agency Region IX, San Francisco California National Pollutant Discharge Elimination System Permit No. CA0047881 for City of Morro Bay and Cayucos Sanitary District Wastewater Treatment Plant, San Luis Obispo County

[3] California Regional Water Quality Control Board, Central Coast Division

[4] Letter from Roger W. Briggs, Executive Officer of the RWQCB to Mr. Bruce Keogh, City of Morro Bay WWTP, dated 14 March 2003: 2002 Annual Offshore monitoring Report, City of Morro Bay and Cayucos Sanitary District Wastewater Treatment Plant, San Luis Obispo County

[5] State Water Resources Control Board (SWRCB). 2001. Water quality control plan, ocean waters of California, California Ocean Plan. California Environmental Protection Agency. Effective December 3, 2001

Table 1. Comparison of Measured Toxicity Levels with Permit Limitations

Bioassay Test	End Point (%)	Toxicity Concentration (TU)	Permit Limitations (TU) 30-day Average	7-day Average	Instantaneous Maximum
Chronic: Giant Kelp (*Macrocystis pyrifera*)					
Chronic Germination	32[8]	3.12			134
Chronic Growth	32[9]	3.12			134
Acute: Fathead Minnow (*Pimephales promelas*)	>70.7[9]	1.41	1.5	2.0	2.5

provide a far more sensitive and accurate measure of toxic effects to marine organisms than do acute toxicity tests, which are plagued with interference from ammonia, as is described below. As with past bioassays, the chronic toxicity tests conducted in July 2006 measured spore germination and growth response in giant kelp (*Macrocystis pyrifera*) after exposure to a range of effluent dilutions. Toxic screening studies conducted in 1993[6] established that giant kelp (*M. pyrifera*) is substantially more sensitive to MBCSD[7] effluent than other species, such as the larvae of the inland silverside (*Menidia beryllina*) and bay mussel (*Mytilus edulis*).

The chronic bioassay results presented in Table 1 demonstrate the effluent's continuing low toxicity to this most-sensitive marine species. Both chronic-toxicity concentrations (3.12 TUc) were more than 40-times lower than the applicable permit limitation (134 TUc). The reported chronic toxic units (TUc) were based on a 'No Observable Effects Concentration' (NOEC), which is the highest effluent concentration that does not cause an adverse effect statistically different from a control sample. Chronic bioassays did not reveal adverse effects in marine organisms with effluent concentrations at or below 32%, while the permit allows adverse effects in concentrations as low as 0.75%.

As part of quality control, chronic bioassays were also conducted using a reference toxic chemical (copper chloride) to determine the sensitivity of this particular set of giant kelp spores (*M. pyrifera*) to toxins. Results demonstrated that the kelp specimens were susceptible to toxic exposure because they experienced a significant reduction in germination in concentrations as low as 56 µg/L, and a significant reduction in growth in concentrations as low as 32 µg/L of the reference toxicant. The concomitant NOECs for the reference toxicant of 32 µg/L for germination and 18 µg/L for growth were comparable to toxic concentrations found in reference tests conducted over the last several years.[10] This suggests that this particular batch of kelp spores was highly susceptible to toxic materials. Nevertheless, they were only minimally affected by exposure to treatment-plant effluent.

[6] Table 2-4, Page 2-7 of the MBCSD 1993 Annual Monitoring. Report to the City of Morro Bay and Cayucos Sanitary District. Prepared by Marine Research Specialists, February 1994.

[7] City of Morro Bay and the Cayucos Sanitary District, joint owners of the wastewater treatment and disposal facility

[8] NOEC or the No Observed Effects Concentration, which is the highest concentration of effluent that did not produce an adverse effect statistically different from the control experiment

[9] LC_{50} or the effluent concentration that produces death of 50% of the test organisms exposed to the toxicants for 96 hours

[10] *cf.* The Giant Kelp Germ Tube Growth Laboratory Control Chart attached to this report

Acute Bioassay

In contrast to the chronic toxicity tests, the acute bioassay was confounded by toxic interference caused by the presence of ammonia in the test sample. Current bioassay protocols[11] limit the use of techniques that, in the past, have been widely used to reduce the confounding influence of ammonia during acute bioassay tests. The acute bioassay test examined the mortality of the Fathead Minnow (*Pimephales promelas*) exposed to various concentrations of effluent. Historically, these tests have reliably evaluated a broad range of freshwater, marine, and effluent samples. However, they are problematic when test samples contain ammonia, a constituent that is naturally elevated in sewage-derived wastewater. Under ambient ocean conditions, ammonia is not particularly toxic to marine organisms. This is reflected by the strikingly high limit for ammonia concentrations that is specified in the NPDES discharge permit (804 mg/L)[12] as compared to typical effluent ammonia concentrations (≤ 36 mg/L)[13]. This is because ammonia remains in a relatively benign, ionic ammonium[14] form in seawater and wastewater. However, in an acute bioassay, effluent remains static in the test chambers for an extended period during which complex interactions among the organic constituents cause pH to increase. As pH increases, ammonium is converted into a deionized ammonia form[15] that is highly toxic to the test organisms. In contrast, the pH of the marine receiving waters is stabilized by the highly buffered oceanic carbonate system. Thus, the acute bioassay tests are not representative of the alkalinity conditions in the ocean environment and, as a result, report artificially elevated toxic concentrations.

Various methods have been developed over the years to reduce the artifactual toxicity that results from changes in wastewater ammonia during bioassay tests.[16] Ammonia interference in the acute bioassays conducted on MBCSD effluent samples has previously been successfully reduced through the use of zeolite pretreatment. As a result, in the 21 acute tests conducted since 1997, and prior to April 2003, the highest measured acute toxicity was 0.59 TUa. This practice was discontinued in April 2003 when the RWQCB staff specified the use of new EPA protocols in their comments on the 2002 Annual Monitoring Report for the MBSCD Wastewater Discharge.[17] Among other changes, the new protocols use much younger, smaller test specimens, and encourage the use of sample-renewal techniques to reduce moderate levels of ammonia interference, rather than chemical techniques. Based on this, the RWQCB staff further required that the acute toxicity tests no longer implement any form of chemical sample manipulation to reduce toxic ammonia interference.

However, renewal methods, in which test chambers are periodically refreshed with new sample solutions, are significantly more complex and costly to implement than previous bioassay procedures, and fall far short of eliminating significant artifactual toxicity arising from ammonia deionization. As a result, the acute toxicity reported here is somewhat elevated compared to past tests, although it remained below the permitted limit. The apparent increase is not attributable to an actual change in the characteristic toxicity of the effluent itself.

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[11] Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, Fifth Edition. October 2002. U.S. Environmental Protection Agency, Office of Water (4303T), 1200 Pennsylvania Avenue, NW Washington, DC 20460. EPA-821-R-02-012

[12] Instantaneous maximum ammonia concentration specified in the NPDES waste-discharge requirements for the MBCSD effluent

[13] Marine Research Specialists (MRS). 2006. City of Morro Bay and Cayucos Sanitary District, Offshore Monitoring and Reporting Program, 2004 Annual Report. Submitted February 2005 to the City of Morro Bay and Cayucos Sanitary District, Morro Bay, CA

[14] NH_4^+

[15] NH_3

[16] Mercer, B.W., Ames, L.L., Touhill, C.J., Slyke, W.J., Dean, R.B., 1970. Ammonia removal from secondary effuents by selective ion exchange. Journal of the Water Pollution Control Federation 42 (2,Part 2), R95–R107.

[17] RWQCB, 2003 (Footnote 4) *op. cit.*

Instead, it is an artifact of changes in the protocols used to assess acute toxicity. This is obvious because there was no commensurate increase in the accompanying chronic-toxicity measurements.

Because static renewal is only marginally effective in accommodating the artifactual toxicity resulting from pH-induced ammonia interference in MBCSD effluent samples, extraordinary measures were instituted in an attempt to reduce impacts from ammonia toxicity to the maximum extent possible. The current bioassay protocols were implemented using daily grab effluent samples that were hand delivered to the testing facility in Ventura, California shortly after collection at the MBCSD treatment plant. Extra care was also taken to remove all headspace in sample containers and to maintain a uniform sample temperature during transit to the bioassay laboratory. Finally, care was also taken during renewal in the laboratory to avoid physical impact to the extremely small larval-fish specimens.

Despite these extraordinary measures, the presence of ammonia toxicity was unmistakable during the tests. The artificially elevated acute toxicity that is reported in Table 1 is a direct result of this artifactual toxicity. The test results incorrectly imply that the effluent acute toxicity was only 0.09 TUa below the permitted limit, or 94% of the permitted toxicity. In reality, the effluent discharge does not result in pH-induced ammonia toxicity, DO depletion, or physical stress on marine organisms upon discharge into receiving waters. Consequently, the reported results do not accurately reflect the toxicity that is experienced by marine organisms exposed to MBCSD effluent. Instead, ancillary measurements collected during the tests demonstrate that all of these confounding influences were present, and that they caused elevated measured toxicities that were close to the NPDES discharge permit limit.

The impact of unmitigated ammonia interference on the acute bioassay is evident in the water quality measurements reported in the attached raw test data. The increase in the toxic deionized form of ammonia can be computed from the changes in pH measured in the test chambers. Prior to renewal on the first day of the test (July 19), pH increased from 7.5 to 8.0 in the test chamber containing 100% effluent. This caused toxic deionized ammonia concentrations to nearly triple, from 0.6 mg/l to 1.6 mg/l, and resulted in the mortality of 16 of the 20 test specimens in the two test chambers containing 100% effluent on the first day of the test. In test chambers with lower effluent concentrations, daily static renewal was also only partially successful at ameliorating pH fluctuations. However, because the effluent was diluted, the concentrations of deionized ammonia were proportionally smaller, and despite the observed increases in pH that occurred, the test organisms survived in the other test chambers. Nevertheless, the impacts apparent in the test chambers containing 100% effluent demonstrate that artifactual ammonia toxicity was not sufficiently accommodated by static renewal methods.

As part of the quality control procedures, acute bioassay tests were also conducted using a reference toxic chemical[18] in order to determine the relative sensitivity of the test organisms. Results demonstrated that the batch of Fathead Minnows (*P. promelas*) used in the July 2006 bioassay were particularly susceptible to toxic exposure. They experienced 100% mortality in concentrations as low as 4 mg/L of the reference toxicant[19]. The concomitant LC_{50} for the reference toxicant was 2.8 mg/L, which is 2 standard deviations below the average toxicant concentrations found in reference tests conducted in previous years.

Quantifiable Chemical Constituents

The nontoxic character of the MBCSD effluent was confirmed by the general absence of chemical contaminants within the grab and composite samples collected on 12 July 2006. The samples were tested for the presence of 164 chemical compounds. Table 2 shows that only seven compounds were detected in quantifiable amounts in the July-2006 effluent samples. These compounds were ammonia, copper, lead, zinc, cyanide, and two chlorination by-products. Table 2 also shows that the concentrations measured for these seven compounds were all well below the discharge limitations promulgated by the NPDES permit. The

[18] Sodium dodecyl sulfate
[19] *cf.* The Larval Fathead Minnow Juvenile Acute Laboratory Control Chart attached to this report

Table 2. Comparison of Effluent Chemical Concentrations with NPDES Permit Limitations

		Concentration	
Constituent	**Units**	**Measured**	**Limitation**[23]
Cyanide	mg/L	0.03	0.13
Copper	µg/L	20.	140.
Lead	µg/L	2.1	270.
Zinc	µg/L	60.	1620.
Radioactivity (gross α)	pCi/L	0.26±0.55	15.[24]
Radioactivity (gross β)	pCi/L	17.4±4.02	50.[24]
Chloroform	µg/L	0.83	17400.[25]
Chloromethane	µg/L	0.85	17400.[25,26]
Ammonia (as N)	mg/L	32.	80.4

permit limits were derived from the receiving-water objectives stated in Table B of the California Ocean Plan,[20] and a critical initial dilution ratio of 133:1 computed from a conservative oceanic dispersion model applied to the MBCSD outfall.[21] Because the PQL's[22] for nearly all undetected compounds were well below their respective permit limits, the chemical analyses were sensitive enough to detect potentially toxic levels of compounds in the effluent. All analyses were conducted in accordance with EPA protocols.

Six of the seven compounds found in the July-2006 effluent samples have been routinely detected at similarly low concentrations within effluent[27] and biosolid[28] samples collected over the past decade. The detection of low levels of chloromethane, although new, is not unexpected. Like chloroform, it is a common byproduct of chlorination. Ammonia as nitrogen[29] is measured in grab effluent samples that are collected on a monthly basis. It has always been present in detectable concentrations that average approximately 23 mg/L, well below the most-stringent permit limit of 80.4 mg/L, which applies to a 6-month median.

Metals

The presence of copper, lead, and zinc at low concentrations within the July effluent sample is not indicative of any significant new contaminant sources within the influent stream. Unlike synthetic organic compounds, these metals occur naturally within the mineralogy of sediments along the central California coast. They enter the wastewater collection system through erosion of natural mineral deposits. Copper, lead, and zinc also frequently enter the wastewater collection system through internal corrosion of household plumbing systems. Lead can also be introduced to the system from the illegal dumping of lead-based paints, gasoline, or fuel-contaminated dusts. Given the history of consistently low but detectable lead concentrations, the

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[20] State Water Resources Control Board (SWRCB). 1997. California Ocean Plan, Water Quality Control Plan Ocean Waters of California. State Water Resources Control Board, California Environmental Protection Agency. Effective July 23, 1997.

[21] See the discussion beginning on Page III-1 in: Supplement to the 2003 Renewal Application for Ocean Discharge under NPDES Permit No. CA0047881. Prepared for the City of Morro Bay, Morro Bay, CA, July 2003.

[22] The Practical Quantification Limit is the smallest quantifiable concentration based on the sample size and analytical technique.

[23] 6-month median limitation unless otherwise indicated.

[24] Drinking Water Limit.

[25] 30-Day Average.

[26] Limit on the sum of halomethanes.

[27] Table 14 (Page III-20) in: Supplement to the 2003 Renewal Application for Ocean Discharge under NPDES Permit No. CA0047881. Prepared for the City of Morro Bay, Morro Bay, CA. July 2003.

[28] Table 22 (Page III-78) *op. cit.*

[29] NH_3-N

latter are not a common occurrence, and did not measurably contribute to the concentrations measured in the July-2006 effluent samples.

In addition, the measured concentrations of lead (2.1 µg/L) and zinc (60 µg/L) were only slightly above their respective PQLs (1 µg/L and 50 µg/L). Measured lead concentrations were more than 100 times lower than the limits specified in the NPDES discharge permit. Similarly, copper and zinc concentrations measured in the July effluent sample were more than seven-times lower than their respective permit limits.

Halomethanes (Chloroform and Chloromethane)

Chloroform and chloromethane are part of a group of compounds known as halomethanes. These compounds are common by-products of wastewater and drinking water chlorination which form during the chlorine disinfection process when organic substances are present. Chloroform has been occasionally detected in quantifiable concentrations in effluent samples collected in prior years. At the low concentrations detected, it is not clear whether their presence is the result of wastewater disinfection within the treatment plant, or is the result of drinking-water chlorination. Although these compounds can negatively affect human health, the concentrations detected in July 2006 are more than four orders of magnitude below the permitted limit.

Cyanide

Only one additional compound was detected at quantifiable amounts in the July-2006 effluent sample. Cyanide was detected at a concentration (0.03 mg/L) only slightly above its PQL of 0.02 mg/L. The measured concentration was more than 4-times lower than the permit limitation and therefore, not of ecological concern. Although cyanide has not been frequently detected in effluent samples in the past, it was encountered in both the January and July-2005 effluent samples, and is commonly found in low concentrations in biosolids[30]. There are many natural sources of cyanide; it is frequently used in pigments and can be introduced into the collection system during photo processing, newspaper printing, jewelry making, chemicals used to develop photographs, electroplating, and metal cleaning. Cyanide is also a component in many insecticides.

Additionally, however, cyanide derivatives may form in effluent as byproducts of the chlorination process used for disinfection of the effluent.[31,32] Until recently, much of the chemistry surrounding the formation and/or degradation of cyanide in treatment plant processes was largely unknown. However, in 2003, the Water Environment Research Foundation (WERF) confirmed that most (if not all) treatment plants produce cyanide in their treatment process[33]. Although cyanide formation patterns varied significantly among treatment plants, the chlorination of thiocyanate seemed to be the most important mechanism for the formation of cyanide in wastewater treatment processes. Regardless, at flow rates comparable to 2005, the mass emission of cyanide will remain well below the stringent mass-loading goal of 57 kg/yr identified in the NPDES permit.

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[30] Table 22 (Page III-77) *op. cit.*

[31] Zheng A, Dzombak DA, Luthy RG, Kavanaugh MC, Deeb RA. 2004. The occurrence of cyanide formation in six full-scale publicly owned treatment works. Water Environ Res. 2004 Mar-Apr;76(2):101-12

[32] Zheng, Anping; Dzombak, David A.; Zheng, Richard G. 2004. Effects of Nitrosation on the Formation of Cyanide in Publicly Owned Treatment Works Secondary Effluent. Water Environment Research, Volume 76, Number 3, May/June 2004, pp. 197-204(8)

[33] WERF. 2003. Cyanide formation and fate in complex effluents and its relation to water quality criteria. publication No. 98-HHE-5. Water Environment Research Foundation, Alexandria, Va.

Table 3. Non-Quantifiable Effluent Constituents Detected

		Concentration			
Constituent	**Units**	**MDL**	**Estimated[34]**	**PQL**	**Limitation[23]**
Antimony	µg/L	7.1	**11**	100.	160800.[25]
Arsenic	µg/L	0.89	**1.9**	2.	670.
Bis (2-ethylhexyl) phthalate	µg/L	9.8	**22.**	50.	470.[25]
Nickel	µg/L	3.5	**4.4**	10.	670.
Selenium	µg/L	0.31	**1.9**	2.	2010.
Dibromochloromethane	µg/L	0.12	**0.23**	0.5	17400.[25,26]
Toluene	µg/L	0.098	**0.15**	0.5	11400000.[25]

Radioactivity

As in the past, radioactivity was also measured in effluent samples at low levels well below drinking water standards. Alpha particle activity arises from natural mineral deposits that enter the collection system through erosion. Beta particle activity arises from radioactive decay in both natural and man-made materials.

Detected Chemical Constituents

In addition to the seven compounds measured in the effluent at quantifiable concentrations, seven other constituents were detected at levels too minute to be accurately quantified by standard laboratory procedures. These compounds are listed in Table 3 along with their estimated concentrations. They include four naturally occurring metals, a gasoline-related compound, a chlorination by-product, and a commonly occurring phthalate compound (bis 2-ethylhexyl phthalate).

The gasoline-related compound, toluene, comprises one of the four aromatic hydrocarbon compounds collectively known as BTEX (benzene, toluene, ethyl benzene, and xylene). BTEX compounds are primarily associated with gasoline contamination.

Dibromochloromethane is a halomethane which can form during the chlorine disinfection process when organic substances are present. Laboratory contamination may have played a part in the detection of this compound, because the concentration detected in the sample travel blank was more than six times greater than the estimated detected sample concentration within the sample itself.

The phthalate compound, bis (2-ethylhexyl) phthalate (BEHP), is a ubiquitous compound that has been consistently detected at low levels in effluent and biosolid samples collected over the past decade. Phthalate esters, such as BEHP, are components of synthetic dyes, resins, plasticizers, insecticides, and, pharmaceuticals. Nearly 2.7 million metric tons (6 billion pounds) of phthalate esters are produced each year, of which more than half is BEHP. BEHP is a physical plasticizer that is added to plastic resins to soften them, providing increased flexibility. It is not, however, covalently bound to the resin, which allows it to slowly leach out of the plastic and into the environment over time through evaporation or dissolution. Because of their mobility, high vapor pressure, and the massive scale at which they are produced, phthalate esters, and BEHP in particular, have become pervasive in the environment. Although this phthalate compound can negatively affect human health, concentrations would have to be more than 20-times higher than those measured in July 2006 to be of a human-health concern.

[34] Not detected at levels above the indicated practical quantification (detection) limit

Conclusions

The comprehensive chemical and bioassay analyses conducted on effluent samples collected in July 2006 augment data collected over the last two decades. Together, these measurements demonstrate the consistently benign nature of the discharge from the MBSCD treatment plant. The absence of heavy industry within the collection area and the high performance of the treatment process are reflected in the general lack of toxicity and chemical contaminants within the effluent samples. The concentrations of the few chemical compounds that were detected in the July-2006 samples were typical of wastewater derived from domestic sources, and all were far below limits specified in the NPDES discharge permit. All measurements fully complied with the requirements and limitations specified in the current NPDES discharge permit.

Please contact the undersigned if you have questions regarding these results.

Sincerely,

Douglas A. Coats
Vice President
MARINE RESEARCH SPECIALISTS

Dr. Douglas A. Coats
2006.08.25 13:33:07 -07'00'

Douglas A. Coats, Ph.D.
Program Manager

Enclosure (Four Report Copies)

CHEMICAL ANALYSIS RESULTS

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Water Analysis (General Chemistry)

BCL Sample ID: 0606979-02 | **Client Sample Name:** GRAB, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Ammonia as N (Distilled)	32	mg/L	2.5	1.0	EPA-350.1	07/28/06	07/28/06 10:00	VC1	AAII-5	50	BPG1068	ND	A01

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Water Analysis (General Chemistry)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Total Cyanide	0.030	mg/L	0.020	0.0063	EPA-335.3	07/13/06	07/14/06 02:15	MRM	AAII-1	1	BPG0574	ND	

Marine Research Specialists
3140 Telegraph Road, Suite A
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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Water Analysis (Metals)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Total Antimony	11	ug/L	100	7.1	EPA-200.7	07/14/06	07/17/06 16:36	EMC	PE-OP2	1	BPG0648	ND	J
Total Beryllium	ND	ug/L	10	0.77	EPA-200.7	07/14/06	07/17/06 16:36	EMC	PE-OP2	1	BPG0648	0.077	
Total Cadmium	ND	ug/L	10	3.2	EPA-200.7	07/14/06	07/17/06 16:36	EMC	PE-OP2	1	BPG0648	ND	
Total Chromium	ND	ug/L	10	1.7	EPA-200.7	07/14/06	07/17/06 16:36	EMC	PE-OP2	1	BPG0648	0.77	
Total Copper	20	ug/L	10	1.3	EPA-200.7	07/14/06	07/17/06 16:36	EMC	PE-OP2	1	BPG0648	1.9	
Total Mercury	ND	ug/L	0.20	0.020	EPA-245.1	07/17/06	07/18/06 10:15	PRA	CETAC1	1	BPG0732	ND	
Total Nickel	4.4	ug/L	10	3.5	EPA-200.7	07/14/06	07/17/06 16:36	EMC	PE-OP2	1	BPG0648	1.1	J
Total Silver	ND	ug/L	10	1.4	EPA-200.7	07/14/06	07/17/06 16:36	EMC	PE-OP2	1	BPG0648	ND	
Total Zinc	60	ug/L	50	7.3	EPA-200.7	07/14/06	07/17/06 16:36	EMC	PE-OP2	1	BPG0648	8.6	
Total Recoverable Arsenic	1.9	ug/L	2.0	0.89	EPA-200.8	07/17/06	07/18/06 20:17	PPS	PE-EL1	1	BPG0735	ND	J
Total Recoverable Lead	2.1	ug/L	1.0	0.019	EPA-200.8	07/17/06	07/18/06 20:17	PPS	PE-EL1	1	BPG0735	ND	
Total Recoverable Selenium	1.9	ug/L	2.0	0.31	EPA-200.8	07/17/06	07/18/06 20:17	PPS	PE-EL1	1	BPG0735	ND	J
Total Recoverable Thallium	ND	ug/L	1.0	0.024	EPA-200.8	07/17/06	07/18/06 20:17	PPS	PE-EL1	1	BPG0735	0.003	

Marine Research Specialists
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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Organochlorine Pesticides and PCB's (EPA Method 608)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Aldrin	ND	ug/L	0.0050	0.00092	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
alpha-BHC	ND	ug/L	0.0050	0.00094	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
beta-BHC	ND	ug/L	0.0050	0.00063	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
delta-BHC	ND	ug/L	0.0050	0.00054	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00081	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Chlordane (Technical)	ND	ug/L	0.50	0.38	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
4,4'-DDD	ND	ug/L	0.0050	0.00057	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
4,4'-DDE	ND	ug/L	0.0050	0.00063	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
4,4'-DDT	ND	ug/L	0.0050	0.00047	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Dieldrin	ND	ug/L	0.0050	0.00068	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Endosulfan I	ND	ug/L	0.0050	0.00085	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Endosulfan II	ND	ug/L	0.0050	0.00082	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Endosulfan sulfate	ND	ug/L	0.0050	0.0010	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Endrin	ND	ug/L	0.0050	0.00067	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Endrin aldehyde	ND	ug/L	0.010	0.00087	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Heptachlor	ND	ug/L	0.0050	0.00079	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Heptachlor epoxide	ND	ug/L	0.0050	0.00020	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Methoxychlor	ND	ug/L	0.0050	0.0024	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Toxaphene	ND	ug/L	2.0	0.42	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
PCB-1016	ND	ug/L	0.20	0.034	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
PCB-1221	ND	ug/L	0.20	0.089	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
PCB-1232	ND	ug/L	0.20	0.090	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
PCB-1242	ND	ug/L	0.20	0.095	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

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Organochlorine Pesticides and PCB's (EPA Method 608)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
PCB-1248	ND	ug/L	0.20	0.025	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
PCB-1254	ND	ug/L	0.20	0.042	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
PCB-1260	ND	ug/L	0.20	0.043	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099	ND	
TCMX (Surrogate)	143	%	55 - 123	(LCL - UCL)	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099		S09
Dibutyl chlorendate (Surrogate)	52.5	%	48 - 149	(LCL - UCL)	EPA-608	07/18/06	08/04/06 18:02	OAA	GC-1	1.01	BPG1099		

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	ug/L	0.50	0.23	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Bromodichloromethane	ND	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Bromoform	ND	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Bromomethane	ND	ug/L	1.0	0.57	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Carbon tetrachloride	ND	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Chlorobenzene	ND	ug/L	0.50	0.050	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Chloroethane	ND	ug/L	0.50	0.24	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Chloroform	0.83	ug/L	0.50	0.050	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Chloromethane	0.85	ug/L	0.50	0.25	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Dibromochloromethane	0.23	ug/L	0.50	0.12	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	J
1,2-Dichlorobenzene	ND	ug/L	0.50	0.072	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.12	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
1,4-Dichlorobenzene	ND	ug/L	0.50	0.094	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
1,1-Dichloroethane	ND	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
1,2-Dichloroethane	ND	ug/L	0.50	0.20	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
1,1-Dichloroethene	ND	ug/L	0.50	0.24	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.13	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
1,2-Dichloropropane	ND	ug/L	0.50	0.16	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.16	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.15	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Ethylbenzene	ND	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Methylene chloride	ND	ug/L	1.0	0.14	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Methyl t-butyl ether	ND	ug/L	0.50	0.086	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.10	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Tetrachloroethene	ND	ug/L	0.50	0.13	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Toluene	0.15	ug/L	0.50	0.098	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	J
1,1,1-Trichloroethane	ND	ug/L	0.50	0.076	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.18	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Trichloroethene	ND	ug/L	0.50	0.21	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.14	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Vinyl chloride	ND	ug/L	0.50	0.21	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Total Xylenes	ND	ug/L	1.0	0.19	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
Acrolein	ND	ug/L	50	3.2	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	V11
Acrylonitrile	ND	ug/L	20	0.81	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
p- & m-Xylenes	ND	ug/L	0.50	0.10	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
o-Xylene	ND	ug/L	0.50	0.083	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104	ND	
1,2-Dichloroethane-d4 (Surrogate)	99.4	%	76 - 114	(LCL - UCL)	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104		
Toluene-d8 (Surrogate)	100	%	88 - 110	(LCL - UCL)	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104		
4-Bromofluorobenzene (Surrogate)	98.3	%	86 - 115	(LCL - UCL)	EPA-624	07/24/06	07/24/06 23:33	MGC	MS-V7	1	BPG1104		

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

BCL Sample ID: 0606979-02 | **Client Sample Name:** GRAB, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
4-Chloro-3-methylphenol	ND	ug/L	50	3.9	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Chlorophenol	ND	ug/L	20	3.9	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4-Dichlorophenol	ND	ug/L	20	3.7	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4-Dimethylphenol	ND	ug/L	20	15	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
4,6-Dinitro-2-methylphenol	ND	ug/L	100	25	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4-Dinitrophenol	ND	ug/L	100	3.5	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Methylphenol	ND	ug/L	20	13	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
3- & 4-Methylphenol	ND	ug/L	20	14	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Nitrophenol	ND	ug/L	20	3.3	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
4-Nitrophenol	ND	ug/L	20	3.5	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
Pentachlorophenol	ND	ug/L	100	5.5	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
Phenol	ND	ug/L	20	3.0	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4,5-Trichlorophenol	ND	ug/L	50	3.7	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4,6-Trichlorophenol	ND	ug/L	50	4.7	EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Fluorophenol (Surrogate)	44.3	%	19 - 86 (LCL - UCL)		EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785		A10
Phenol-d5 (Surrogate)	55.0	%	23 - 64 (LCL - UCL)		EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785		A10
Nitrobenzene-d5 (Surrogate)	82.2	%	49 - 113 (LCL - UCL)		EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785		A10
2-Fluorobiphenyl (Surrogate)	78.1	%	37 - 110 (LCL - UCL)		EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785		A10
2,4,6-Tribromophenol (Surrogate)	78.8	%	41 - 127 (LCL - UCL)		EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785		A10
p-Terphenyl-d14 (Surrogate)	71.0	%	18 - 183 (LCL - UCL)		EPA-625	07/14/06	07/18/06 03:09	SKC	MS-B1	10.00	BPG0785		A10

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Acenaphthene	ND	ug/L	20	3.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Acenaphthylene	ND	ug/L	20	3.2	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Aldrin	ND	ug/L	20	4.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Aniline	ND	ug/L	50	18	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Anthracene	ND	ug/L	20	2.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Benzidine	ND	ug/L	200	47	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Benzo[a]anthracene	ND	ug/L	20	3.4	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Benzo[b]fluoranthene	ND	ug/L	20	3.8	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Benzo[k]fluoranthene	ND	ug/L	20	4.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Benzo[a]pyrene	ND	ug/L	20	4.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Benzo[g,h,i]perylene	ND	ug/L	20	5.6	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10, V11
Benzoic acid	ND	ug/L	100	6.1	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Benzyl alcohol	ND	ug/L	20	4.4	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Benzyl butyl phthalate	ND	ug/L	20	3.2	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
alpha-BHC	ND	ug/L	20	4.2	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
beta-BHC	ND	ug/L	20	4.6	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
delta-BHC	ND	ug/L	20	2.8	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
gamma-BHC (Lindane)	ND	ug/L	20	3.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
bis(2-Chloroethoxy)methane	ND	ug/L	20	16	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
bis(2-Chloroethyl) ether	ND	ug/L	20	4.9	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
bis(2-Chloroisopropyl)ether	ND	ug/L	20	5.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
bis(2-Ethylhexyl)phthalate	22	ug/L	50	9.8	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	J, A10
4-Bromophenyl phenyl ether	ND	ug/L	20	4.0	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
4-Chloroaniline	ND	ug/L	20	9.9	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Chloronaphthalene	ND	ug/L	20	4.1	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
4-Chlorophenyl phenyl ether	ND	ug/L	20	3.3	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Chrysene	ND	ug/L	20	3.0	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
4,4'-DDD	ND	ug/L	20	3.8	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
4,4'-DDE	ND	ug/L	30	5.2	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
4,4'-DDT	ND	ug/L	20	3.6	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Dibenzo[a,h]anthracene	ND	ug/L	30	4.8	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10, V11
Dibenzofuran	ND	ug/L	20	3.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
1,2-Dichlorobenzene	ND	ug/L	20	3.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
1,3-Dichlorobenzene	ND	ug/L	20	3.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
1,4-Dichlorobenzene	ND	ug/L	20	2.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
3,3-Dichlorobenzidine	ND	ug/L	100	15	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Dieldrin	ND	ug/L	30	5.2	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Diethyl phthalate	ND	ug/L	20	3.4	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Dimethyl phthalate	ND	ug/L	20	3.2	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Di-n-butyl phthalate	ND	ug/L	20	4.0	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4-Dinitrotoluene	ND	ug/L	20	3.9	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2,6-Dinitrotoluene	ND	ug/L	20	4.8	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Di-n-octyl phthalate	ND	ug/L	20	4.1	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
1,2-Diphenylhydrazine	ND	ug/L	20	3.8	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Endosulfan I	ND	ug/L	100	23	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Endosulfan II	ND	ug/L	100	16	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Endosulfan sulfate	ND	ug/L	30	6.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Endrin	ND	ug/L	20	6.8	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Endrin aldehyde	ND	ug/L	100	36	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Fluoranthene	ND	ug/L	20	3.0	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Fluorene	ND	ug/L	20	3.6	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Heptachlor	ND	ug/L	20	5.3	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Heptachlor epoxide	ND	ug/L	20	2.4	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10, V11
Hexachlorobenzene	ND	ug/L	20	3.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Hexachlorobutadiene	ND	ug/L	20	4.0	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Hexachlorocyclopentadiene	ND	ug/L	20	3.6	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Hexachloroethane	ND	ug/L	20	2.9	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Indeno[1,2,3-cd]pyrene	ND	ug/L	20	4.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Isophorone	ND	ug/L	20	3.1	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Methylnaphthalene	ND	ug/L	20	2.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Naphthalene	ND	ug/L	20	3.0	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Naphthylamine	ND	ug/L	200	53	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Nitroaniline	ND	ug/L	20	8.2	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
3-Nitroaniline	ND	ug/L	20	16	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
4-Nitroaniline	ND	ug/L	50	4.4	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Nitrobenzene	ND	ug/L	20	3.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
N-Nitrosodimethylamine	ND	ug/L	20	5.3	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
N-Nitrosodi-N-propylamine	ND	ug/L	20	8.8	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
N-Nitrosodiphenylamine	ND	ug/L	20	4.2	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Phenanthrene	ND	ug/L	20	2.9	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Pyrene	ND	ug/L	20	2.9	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
1,2,4-Trichlorobenzene	ND	ug/L	20	2.6	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
4-Chloro-3-methylphenol	ND	ug/L	50	3.9	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Chlorophenol	ND	ug/L	20	3.9	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4-Dichlorophenol	ND	ug/L	20	3.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4-Dimethylphenol	ND	ug/L	20	15	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
4,6-Dinitro-2-methylphenol	ND	ug/L	100	25	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4-Dinitrophenol	ND	ug/L	100	3.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Methylphenol	ND	ug/L	20	13	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
3- & 4-Methylphenol	ND	ug/L	20	14	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Nitrophenol	ND	ug/L	20	3.3	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
4-Nitrophenol	ND	ug/L	20	3.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Pentachlorophenol	ND	ug/L	100	5.5	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
Phenol	ND	ug/L	20	3.0	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4,5-Trichlorophenol	ND	ug/L	50	3.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2,4,6-Trichlorophenol	ND	ug/L	50	4.7	EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785	ND	A10
2-Fluorophenol (Surrogate)	43.1	%	19 - 86 (LCL - UCL)		EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785		A10
Phenol-d5 (Surrogate)	52.4	%	23 - 64 (LCL - UCL)		EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785		A10
Nitrobenzene-d5 (Surrogate)	78.3	%	49 - 113 (LCL - UCL)		EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785		A10
2-Fluorobiphenyl (Surrogate)	75.1	%	37 - 110 (LCL - UCL)		EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785		A10
2,4,6-Tribromophenol (Surrogate)	76.1	%	41 - 127 (LCL - UCL)		EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785		A10
p-Terphenyl-d14 (Surrogate)	72.8	%	18 - 183 (LCL - UCL)		EPA-625	07/14/06	07/18/06 02:40	SKC	MS-B1	10.00	BPG0785		A10

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Organo-Phosphorus Pesticide Analysis (EPA Method 8140)

BCL Sample ID: 0606979-01 | **Client Sample Name:** Composite, 7/12/2006 8:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Azinphos methyl	ND	ug/L	0.20	0.055	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Bolstar	ND	ug/L	0.20	0.055	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Chlorpyrifos	ND	ug/L	0.20	0.024	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Coumaphos	ND	ug/L	0.20	0.054	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Demeton O/S	ND	ug/L	0.20	0.026	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Diazinon	ND	ug/L	0.20	0.044	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Dichlorvos	ND	ug/L	0.20	0.070	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Disulfoton	ND	ug/L	0.50	0.039	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Ethoprop	ND	ug/L	0.20	0.025	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Fensulfothion	ND	ug/L	0.20	0.088	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Fenthion	ND	ug/L	0.20	0.033	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Merphos	ND	ug/L	0.20	0.058	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Methyl parathion	ND	ug/L	0.20	0.074	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Mevinphos	ND	ug/L	0.20	0.053	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Naled	ND	ug/L	0.20	0.072	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Phorate	ND	ug/L	0.20	0.041	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Ronnel (Fenchlorphos)	ND	ug/L	0.20	0.067	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Stirophos (Tetrachlorvinphos)	ND	ug/L	0.20	0.046	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Tokuthion (Prothiofos)	ND	ug/L	0.20	0.032	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Trichloronate	ND	ug/L	0.20	0.038	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729	ND	
Triphenylphosphate (Surrogate)	102	%	55 - 132	(LCL - UCL)	EPA-8140	07/14/06	08/04/06 19:41	JAC	GC-7	1	BPG0729		

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TUSTIN, CALIFORNIA 92780-7008
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www.truesdail.com

REPORT

Client: **BC Laboratories**
4100 Atlas Court
Bakersfield, CA 93308
Attention: Tina Green

Report date: July 31, 2006
Date Received: July 14, 2006
Laboratory No: **956749**

Sample Matrix: Water

Investigation: **Gross Alpha Activity**
Gross Beta Activity

Analytical results

Sample ID	Analysis	Method	pCi/L	Two Sigma Error	MDA	Date Analyzed
0606879-01	Alpha	SM7110C	0.26	+/- 0.55	1.84	07/25/06
	Beta	EPA 900.0	17.4	+/- 4.02	3.22	07/28/06

Gross Alpha results are based on a Uranium calibration curve.
Gross Beta results are based on a Cesium calibration curve.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC

Rossina Tomova, Project Manager
Radiochemistry Group

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact:	Tina Green		
Address:	BC Laboratories, Inc. 4100 Atlas Ct. Bakersfield, CA 93308	Report No.:	056794
		Date:	Jul-24-06
Job Site / No.	0606979	Total Samples Analyzed:	1
		Sample Collector:	SRA

CLIENT SAMPLE #	0606979-01	SAMPLE LOCATION/DESCRIPTION	
Laboratory Sample #	303-00270-001		

WATER SAMPLE DATA

Date/Time Collected	Jul-12-06 / 8:00 am	Volume Submitted (ml)	1000
Date/Time Lab Received	Jul-14-06 / 10:00 am	Volume Filtered (ml)	5
Date/Time Filtered	Jul-14-06 / 11:00 am	Filter & Pore Size	MCE0.22um
Date/Time Analyzed	Jul-24-06 / 2:30 pm	UV/Ozone Treated:	NO

IDENTIFIED STRUCTURES (>10um)			
ASBESTOS		OTHER	
CHRYS	AMPH	AMBIG	NON-ASB
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS STRUCTURE CONCENTRATION (>10um)		
CHRYS	AMPH	TOTAL
< 0.2 MFL	< 0.2 MFL	< 0.2 MFL

COMMENTS		
No Asbestos Detected	Filter Loading: HEAVY SAED Photo ID Nos.	

TEM / ANALYTICAL PARAMETERS

Grid Openings Scanned at 10,000X	24	Analytical Sensitivity	0.2 MFL
Grid Opening Area (mm2)	0.0094	95% UCL	0.64 MFL
Scan Area (mm2)	0.2256	95% LCL	0.0 MFL

WATER SAMPLE LAB BLANK RESULTS

Lab ID#	TLB-5039		
Grid Openings Scanned at 10,000X	8	Analytical Sensitivity	0.01 MFL
Volume Filtered (ml)	300	Asbestos Structure Concentration	<0.01 MFL

NOTATION KEY

Chrys. - Chrysotile Asbestos
Amph. - Amphibole Asbestos
NSD - No Structures Detected
1 mm = 1 millimeter
1 um = 1 micron = 0.001 mm
MFL = Millions of Fibers per Liter
UCL = Upper Confidence Level
LCL = Lower Confidence Level

ANALYST SIGNATURE

LAB QC REVIEWER SIGNATURE

ASBESTOS TEM LABORATORIES, INC.
www.asbestostemlabs.com
1409 FIFTH STREET, BERKELEY, CA 94710 (510) 528-0108
With Offices in Reno, NV (775) 359-3377

BC Laboratories, Inc

Marine Research
3140 Telegraph Road
Suite A
Ventura, CA 93003
Attn: Doug Coats

BC Lab #	Asbestos TEM #	Client Description	Date/Time Sampled
06-6979-1	056794	Composite	7-12-06 0800

Attached is the Asbestos report analyzed by Asbestos TEM Laboratories.

SUBCONTRACT ORDER

BC Laboratories

0606979

SENDING LABORATORY:

BC Laboratories
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Tina Green

RECEIVING LABORATORY:

Asbestos TEM Laboratories $ASBSM
630 Bancroft Way
Berkeley, CA 94710
Phone :(510) 704-8930
Fax: (510) 528-0109

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 0606979-01	**Water**	**Sampled:07/12/06 08:00**	[redacted]	
01100.2w Asbestos EMSLA	07/26/06 17:00	07/14/06 08:00		
Containers Supplied: (1)				

Released By — Date: 7/13/06 — Received By: Shyp-ATEM — Date: 7/14/06 - 10am

Released By — Date — Received By — Date

BC Laboratories, Inc

Marine Research
3140 Telegraph Road
Suite A
Ventura, CA 93003
Attn: Doug Coats

BC Lab #	Truesdail #	Client Description	Date/Time Sampled
06-6979-1	956749	Composite	7-12-06 0800

Attached is the Gross Alpha/Beta report analyzed by Truesdail Laboratories.

ASBESTOS TEM LABORATORIES, INC.
FACSIMILE TRANSMISSION

Date: Jul/24/2006 **Total Pages (including Cover Sheet):** 3

Attention: Tina Green **FAX #:** 661-327-1918

Company: BC Laboratories, Inc.

CONCERNING ANALYTICAL RESULTS FOR:

Job Name:

Job #: 0606979

Comments: PRELIMINARY Transmission Electron Microscopy Drinking Water Analytical Results

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ALTA

July 28, 2006

Alta Project I.D.: 27859

Dr. Douglas A. Coats
Marine Research Specialists
3140 Telegraph Rd., Ste A
Ventura, CA 93003-3238

Dear Dr. Coats,

Enclosed are the results for the one effluent sample received at Alta Analytical Laboratory on July 13, 2006 under your Project Name "Morro Bay WWTP". This sample was extracted and analyzed using EPA Method 8280 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

for

Martha M. Maier
HRMS Services Director

ACCREDITED IN ACCORDANCE WITH nelac

Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.

nelap

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ALTA

Sample ID: Comp EFF #1 — **EPA Method 8280**

Client Data		Sample Data		Laboratory Data			
Name:	Marine Research Specialists	Matrix:	Aqueous	Lab Sample:	27859-001	Date Received:	13-Jul-06
Project:	Morro Bay WWTP	Sample Size:	1.00 L	QC Batch No.:	8207	Date Extracted:	22-Jul-06
Date Collected:	12-Jul-06			Date Analyzed DB-5:	24-Jul-06	Date Analyzed DB-225:	NA
Time Collected:	0800						

Analyte	Conc. (ng/L)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.00600		
1,2,3,7,8-PeCDD	ND	0.00484		
1,2,3,4,7,8-HxCDD	ND	0.00981		
1,2,3,6,7,8-HxCDD	ND	0.0101		
1,2,3,7,8,9-HxCDD	ND	0.0101		
1,2,3,4,6,7,8-HpCDD	ND	0.00778		
OCDD	ND		0.0522	
2,3,7,8-TCDF	ND	0.00586		
1,2,3,7,8-PeCDF	ND	0.00843		
2,3,4,7,8-PeCDF	ND	0.00692		
1,2,3,4,7,8-HxCDF	ND	0.00233		
1,2,3,6,7,8-HxCDF	ND	0.00191		
2,3,4,6,7,8-HxCDF	ND	0.00241		
1,2,3,7,8,9-HxCDF	ND	0.00327		
1,2,3,4,6,7,8-HpCDF	ND	0.00498		
1,2,3,4,7,8,9-HpCDF	ND	0.00488		
OCDF	ND	0.0159		

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	87.7	25 - 150	
	13C-1,2,3,7,8-PeCDD	91.4	25 - 150	
	13C-1,2,3,4,7,8-HxCDD	74.0	25 - 150	
	13C-1,2,3,6,7,8-HxCDD	75.2	25 - 150	
	13C-1,2,3,4,6,7,8-HpCDD	74.3	25 - 150	
	13C-OCDD	64.9	25 - 150	
	13C-2,3,7,8-TCDF	82.1	25 - 150	
	13C-1,2,3,7,8-PeCDF	82.6	25 - 150	
	13C-2,3,4,7,8-PeCDF	85.0	25 - 150	
	13C-1,2,3,4,7,8-HxCDF	70.4	25 - 150	
	13C-1,2,3,6,7,8-HxCDF	74.4	25 - 150	
	13C-2,3,4,6,7,8-HxCDF	73.1	25 - 150	
	13C-1,2,3,7,8,9-HxCDF	77.8	25 - 150	
	13C-1,2,3,4,6,7,8-HpCDF	72.7	25 - 150	
	13C-1,2,3,4,7,8,9-HpCDF	84.6	25 - 150	
	13C-OCDF	67.3	25 - 150	
CRS	37Cl-2,3,7,8-TCDD	87.5	25 - 150	

Totals			
Total TCDD	0.0108		
Total PeCDD	ND	0.00484	
Total HxCDD	ND	0.0100	
Total HpCDD	ND	0.00778	
Total TCDF	ND	0.00586	
Total PeCDF	ND	0.00764	
Total HxCDF	ND	0.00242	
Total HpCDF	ND	0.00491	

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 0

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (1989) International Toxic Equivalent Factors (ITEF).

Analyst: DMS

Approved By: William J. Luksemburg 28-Jul-2006 08:58

ACUTE AND CHRONIC BIOASSAY RESULTS

FATHEAD MINNOW ACUTE NPDES TEST

Aquatic Testing Laboratories

Lab No.: A-06071701
Client/ID: MRS - Morro Bay

Start Date: 07/18/06

TEST SUMMARY

Species: *Pimephales promelas.*
Age: 13 (1-14) days.
Regulations: NPDES.
Test solution volume: 250 ml.
Feeding: prior to renewal at 48 hrs.
Aeration: None, unless DO drops below 4.0 mg/l.
Number of replicates: 2.
Dilution water: Moderately hard reconstituted water.
QA/QC Batch No.: RT-060711.

Source: In-laboratory Culture.
Test type: Static-Renewal.
Test Protocol: EPA-821-R-02-012.
Endpoints: Percent Survival at 96 hrs.
Test chamber: 500 ml beakers.
Temperature: 20 +/- 1°C.
Number of fish per chamber: 10.
Photoperiod: 16/8 hrs light/dark.

INITIAL WATER QUALITY PARAMETERS

Additional Parameters	Control	100% Sample			
		Day 1	Day 2	Day 3	Day 4
Temperature (°C)	20.4°	4°	2°	8°	2°
DO (mg/l)	8.6	8.1	8.2	5.2	7.9
pH	7.8	7.5	7.3	8.1	7.5
Total Res. Chlorine (mg/l)	0	0	0	0	0
Ammonia (mg/l NH_3-N)**	0.2	44	48	50	44
Alkalinity (mg/l $CaCO_3$)	57	~~25~~ 312	322	368	324
Hardness (mg/l $CaCO_3$)	97	254	368	378	360
Conductivity (umhos)	335	1360	1810	1875	1820

Comments:

*** Chlorine neutralized with sodium thiosulfate (one drop per liter of 10% solution).**

**** Ammonia reading by Hach Kit - only approximate indication.**

FATHEAD MINNOW ACUTE NPDES TEST

Aquatic Testing Laboratories

Lab No.: A-06071701
Client/ID: MRS - Morro Bay

Start Date: 07/17/06

RAW TEST DATA

			DAY 1		DAY 2		DAY 3		DAY 4	
			0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr
Analyst Initials:			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Time of Readings:			1030	1130	1130	1100	1100	1130	1130	1130
Control	DO		8.6	7.5	8.5	7.2	8.8	7.2	8.7	7.1
	pH		7.8	7.5	7.9	7.5	7.8	7.4	7.8	7.4
	Temp		21.0	19.6	20.4	19.8	20.6	20.6	20.6	20.0
	# Alive	Rep A	----	0	----	0	----	0	----	0
		Rep B	----	0	----	0	----	0	----	0
6.25%	DO		8.6	7.3	8.5	7.0	8.7	6.3	8.7	7.1
	pH		7.7	7.4	7.8	7.4	7.7	7.3	7.7	7.4
	Temp		21.0	19.6	20.4	19.9	20.6	20.0	20.6	20.0
	# Alive	Rep A	----	0	----	0	----	0	----	0
		Rep B	----	0	----	0	----	0	----	0
12.5%	DO		8.5	7.2	8.4	6.7	8.6	6.2	8.6	6.2
	pH		7.7	7.5	7.7	7.5	7.7	7.4	7.7	7.4
	Temp		20.9	19.6	20.4	19.9	20.6	20.0	20.5	20.0
	# Alive	Rep A	----	0	----	0	----	0	----	0
		Rep B	----	0	----	0	----	0	----	0
25%	DO		8.4	6.1	5.4	6.2	8.6	5.4	8.5	5.8
	pH		7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
	Temp		20.9	19.6	20.4	19.9	20.6	20.1	20.4	19.9
	# Alive	Rep A	----	0	----	0	----	0	----	0
		Rep B	----	0	----	0	----	0	----	0
50%	DO		8.3	5.2	8.3	5.9	8.5	4.9	8.3	5.0
	pH		7.5	7.8	7.5	7.8	7.5	7.7	7.5	7.7
	Temp		20.8	19.6	20.4	19.9	20.5	20.1	20.2	19.9
	# Alive	Rep A	----	0	----	0	----	0	----	0
		Rep B	----	0	----	0	----	0	----	0
100%	DO		8.1	7.4	8.0	7.7	8.3	—	—	—
	pH		7.5	8.0	7.5	8.2	7.5	—	—	—
	Temp		20.5	19.6	20.3	20.0	20.5	—	—	—
	# Alive	Rep A	----	10	----	—	----	—	----	—
		Rep B	----	6	----	4	----	—	----	—

Acute Fish Test-96 Hr Survival

Start Date:	18 Jul-06 10:30	Test ID:	6071701f	Sample ID:	CA0047881-Morro Bay SD
End Date:	22 Jul-06 11:30	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	EFF1-POTW
Sample Date:	17 Jul-06 00:00	Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2
D-Control	1.0000	1.0000
6.25	1.0000	1.0000
12.5	1.0000	1.0000
25	1.0000	1.0000
50	1.0000	1.0000
100	0.0000	0.0000

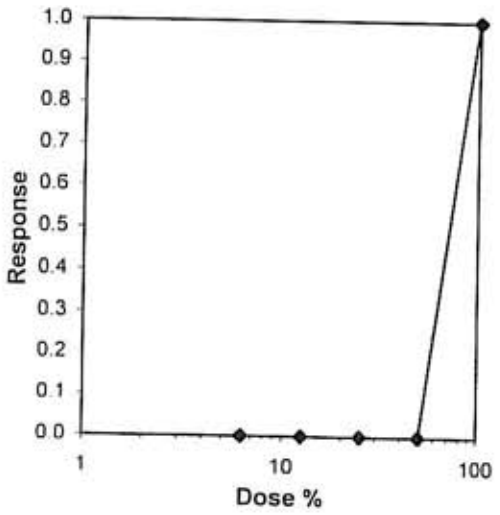
			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
D-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
6.25	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
12.5	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
25	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
50	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
100	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Graphical Method

Trim Level	EC50
0.0%	70.711

$TU_a = 1.414$



Reviewed by:

Aquatic
Testing
Laboratories

Giant Kelp Germination and Germ Tube Growth Short-Term Toxicity Test

- *Test and Result Summary*
- *Data Summary and Statistical Analysis*
- *Raw Test Data: Water Quality & Test Organism Measurements*

GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST

Aquatic Testing Laboratories

Lab No.: A-06071701
Client/ID: MRS - Morro Bay Comp. Effluent

Date Tested: 07/18/06 - 07/20/06

TEST SUMMARY

Species: *Macrocystis pyrifera*.
Protocol: EPA Method 1009.0.
Test type: Static.
Test chamber: 100 ml plastic petri dishes.
Temperature: 15 +/- 1°C.
Number of spores per ml: 7,500 (approx.).
QA/QC Batch No.: RT-060718 (ran concurrently).

Source: Field collected.
Dilution water: Lab seawater.
Endpoints: NOEC, IC25 at 48 hrs.
Test volume: 50 ml.
Aeration: None.
Number of replicates: 5.

RESULTS SUMMARY

Sample Concentration	Percent Germination		Mean Germ Tube Length (μm)	
Control (Brine)	84.4%		17.05	
5.6%	86.5%		16.45	
10%	84.6%		17.15	
18%	84.3%		17.20	
32%	84.9%		17.20	
56%	68.7%	*	8.10	*
* Statistically significantly less than control at P = 0.05 level				

CHRONIC TOXICITY

END POINT	GERMINATION	GERM TUBE LENGTH
NOEC	32%	32%
TUc (100/NOEC)	3.125	3.125

QA/QC TEST ACCEPTABILITY

Parameter	Result
Mean control germination ≥70%	Yes (84.4%)
Mean control germination tube length >10 μm	Yes (17.05 μm)
Please see RT-060718 report for additional test acceptability criteria.	

Macrocystis Germination and Growth Test-Proportion Germinated

Start Date:	18 Jul-06 14:30	Test ID:	6071701k	Sample ID:	CA0047881-Morro Bay SD
End Date:	20 Jul-06 14:00	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	EFF1-POTW
Sample Date:	17 Jul-06 00:00	Protocol:	MBP 90	Test Species:	MP-Macrocystis pyrifera
Comments:					

Conc-%	1	2	3	4	5
B-Control	0.8155	0.9010	0.8400	0.8462	0.8155
D-Control	0.7981	0.8447	0.8667	0.8932	0.8762
5.6	0.9020	0.8447	0.8641	0.8235	0.8922
10	0.8654	0.8137	0.8476	0.8529	0.8515
18	0.8447	0.8431	0.8039	0.8812	0.8431
32	0.8627	0.9126	0.8137	0.8515	0.8039
56	0.6216	0.7264	0.7196	0.8155	0.5536

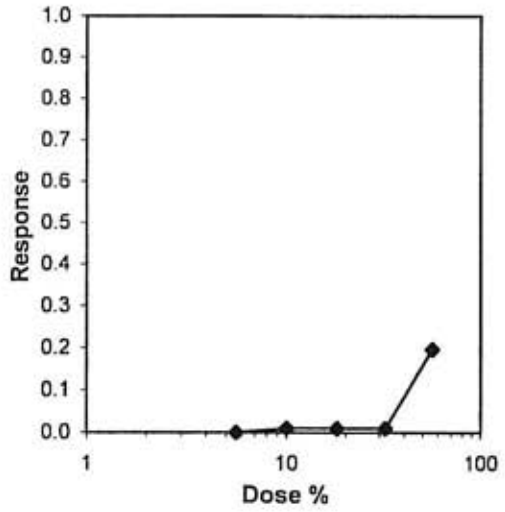
			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
B-Control	0.8436	0.9858	1.1663	1.1269	1.2507	4.348	5				0.8545	1.0000
D-Control	0.8558	1.0000	1.1833	1.1047	1.2379	4.315	5					
5.6	0.8653	1.0111	1.1969	1.1373	1.2523	3.998	5	-0.778	2.360	0.0930	0.8545	1.0000
10	0.8462	0.9889	1.1684	1.1245	1.1951	2.250	5	-0.053	2.360	0.0930	0.8462	0.9904
18	0.8432	0.9853	1.1648	1.1121	1.2189	3.244	5	0.039	2.360	0.0930	0.8461	0.9902
32	0.8489	0.9920	1.1748	1.1121	1.2707	5.372	5	-0.215	2.360	0.0930	0.8461	0.9902
*56	0.6874	0.8032	0.9815	0.8391	1.1269	11.308	5	4.691	2.360	0.0930	0.6874	0.8044

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.97439	0.9	0.16505	1.18044
Bartlett's Test indicates equal variances (p = 0.11)	9.05089	15.0863		
The control means are not significantly different (p = 0.61)	0.52887	2.30601		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSB	MSE	F-Stat	F-Prob	df
Dunnett's Test	32	56	42.332	3.125	0.07284	0.03166	0.00388	8.16057	1.3E-04	5, 24

Linear Interpolation (80 Resamples)

Point	%	SE	95% CL(Exp)		Skew
IC05	37.190	4.328	16.185	40.310	-4.2345
IC10	43.651	2.537	37.319	48.969	0.6412
IC15	50.112				
IC20	>56				
IC25	>56				
IC40	>56				
IC50	>56				



Macrocystis Germination and Growth Test-Growth-Length

Start Date:	18 Jul-06 14:30	Test ID:	6071701k	Sample ID:	CA0047881-Morro Bay SD
End Date:	20 Jul-06 14:00	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	EFF1-POTW
Sample Date:	17 Jul-06 00:00	Protocol:	MBP 90	Test Species:	MP-Macrocystis pyrifera
Comments:					

Conc-%	1	2	3	4	5
B-Control	16.000	17.750	17.500	17.000	17.000
D-Control	15.250	16.000	17.250	17.250	16.500
5.6	17.500	17.500	16.500	17.500	17.000
10	16.750	17.000	17.000	17.250	17.750
18	18.000	16.750	16.500	18.250	16.500
32	16.750	19.000	17.000	16.750	16.500
56	7.250	6.750	10.750	7.250	8.500

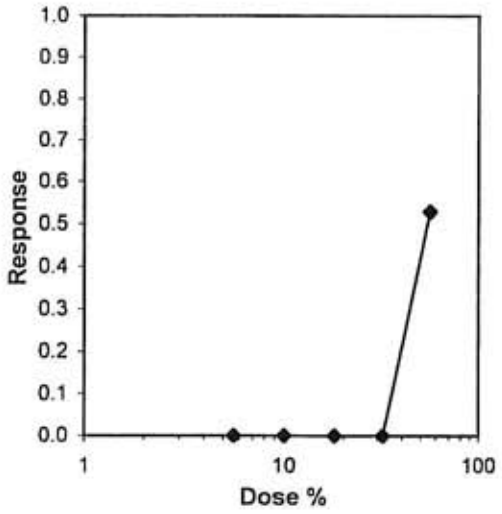
			Transform: Untransformed					1-Tailed			Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
B-Control	17.050	1.0365	17.050	16.000	17.750	3.934	5				17.160	1.0000
D-Control	16.450	1.0000	16.450	15.250	17.250	5.198	5					
5.6	17.200	1.0456	17.200	16.500	17.500	2.600	5	-0.255	2.360	1.387	17.160	1.0000
10	17.150	1.0426	17.150	16.750	17.750	2.211	5	-0.170	2.360	1.387	17.160	1.0000
18	17.200	1.0456	17.200	16.500	18.250	4.972	5	-0.255	2.360	1.387	17.160	1.0000
32	17.200	1.0456	17.200	16.500	19.000	5.940	5	-0.255	2.360	1.387	17.160	1.0000
*56	8.100	0.4924	8.100	6.750	10.750	19.955	5	15.228	2.360	1.387	8.100	0.4720

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.92089	0.9	1.24317	2.35976
Bartlett's Test indicates equal variances (p = 0.07)	10.1245	15.0863		
The control means are not significantly different (p = 0.25)	1.23443	2.30601		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSB	MSE	F-Stat	F-Prob	df
Dunnett's Test	32	56	42.332	3.125	1.38702	68.42	0.86354	79.2318	4.0E-14	5, 24

Linear Interpolation (80 Resamples)

Point	%	SE	95% CL(Exp)		Skew
IC05	34.273	0.621	31.851	34.500	-0.9494
IC10	36.546	0.626	34.081	37.000	-0.6778
IC15	38.819	0.676	36.326	39.534	-0.3343
IC20	41.091	0.763	38.766	42.202	-0.0530
IC25	43.364	0.874	41.207	44.842	0.1320
IC40	50.183	1.291	47.497	53.006	0.3545
IC50	54.728				



GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST

Aquatic Testing Laboratories

Lab No.: A-06071701

Start Date: 07/18/2006

Dish No.	Sample Conc.	Total Number Counted	Number Germin.	Number Non-Germin.	Germ Tube Lengths (micrometer units)									
					A	B	C	D	E	F	G	H	I	J
1	B	103	84	19	7	5	7	8	4	7	6	7	7	6
2	18	103	87	16	7	8	7	6	8	8	5	9	7	7
3	32	102	88	14	8	7	6	7	7	4	7	6	7	8
4	10	104	90	14	7	8	6	7	7	5	7	7	8	5
5	18	102	86	16	7	8	7	7	7	6	5	6	7	7
6	32	103	94	9	8	9	7	8	7	8	8	9	5	7
7	10	102	83	19	6	7	7	8	7	7	5	7	5	9
8	5.6	102	92	10	8	8	7	6	7	7	5	8	7	7
9	18	102	82	20	7	6	7	8	4	7	7	7	5	8
10	10	105	89	16	7	6	8	7	5	7	7	6	7	8
11	56	111	69	42	3	4	2	2	3	2	4	2	3	4
12	5.6	103	87	16	7	7	8	8	5	6	7	7	7	8
13	32	102	83	19	6	7	5	7	7	8	7	7	6	8
14	5.6	103	89	14	7	7	6	5	7	8	4	8	7	7
15	56	106	77	29	2	3	2	4	2	3	3	4	2	2
16	32	101	86	15	6	7	6	8	8	7	6	6	7	6
17	5.6	102	84	18	7	7	7	9	5	7	8	7	7	6
18	32	102	82	20	8	7	7	6	5	5	7	6	8	7
19	B	101	91	10	7	8	7	8	6	7	7	9	7	5
20	B	100	84	16	7	7	6	7	7	8	7	8	7	6

Comments:

Micrometer conversion factor: 1 unit = 2.5 um at 400X power

GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST

Aquatic Testing Laboratories

Lab No.: A-06071701

Start Date: 07/18/2006

Dish No.	Sample Conc.	Total Number Counted	Number Germin.	Number Non-Germin.	Germ Tube Lengths (micrometer units)									
					A	B	C	D	E	F	G	H	I	J
21	10	102	87	15	7	7	6	8	7	7	9	7	5	6
22	18	101	89	12	8	7	6	7	8	8	7	8	7	7
23	56	107	77	30	6	4	5	3	3	5	6	4	3	4
24	5-6	102	91	11	7	7	8	7	6	4	7	9	6	7
25	10	101	86	15	8	8	6	7	7	7	5	7	8	8
26	56	103	84	19	4	2	2	3	5	2	2	2	4	3
27	B	104	88	16	6	7	5	7	8	7	6	7	7	8
28	18	102	86	16	7	6	7	5	7	7	8	7	6	6
29	56	112	62	50	5	2	3	5	4	4	3	2	2	4
30	B	103	84	19	7	8	6	7	6	5	7	8	7	7
31														
32														
33														
34														
35														
36														
37														
38														
39														
40														

Comments:

Micrometer conversion factor: 1 unit = 2.5 um at 400X power

GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST

Aquatic Testing Laboratories

Lab No.: A-06071701
Client ID: MRS - Morro Bay Effluent

Start Date: 07/18/2006

WATER QUALITY READINGS

	Initial Readings				Final Readings			
Sample	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)
Control	15.3	7.7	8.1	34	14.2	7.5	8.1	34
Brine Control	15.0	7.4	8.2	34	14.1	7.4	8.1	34
5.6%	15.6	7.3	8.2	34	14.4	7.2	8.2	34
10%	15.4	7.2	8.2	34	14.2	7.3	8.2	34
18%	15.7	7.2	8.2	34	14.2	7.2	8.2	34
32%	15.2	7.2	8.2	34	14.3	7.0	8.2	34
56%	15.0	7.0	8.2	34	14.4	7.0	8.2	34

Sample as received: Chlorine: 0.0 mg/l; pH: 7.5; Salinity: 1 ppt; Temp: 4°C; DO: 8.1 mg/l; NH_3-N: 44 mg/l..

Brine Control contains equivalent amount of artificial sea salts as highest effluent concentration.

Initial readings: Analyst: JR Date: 7-18-06 Time: 14:30

Final readings: Analyst: JR Date: 7-20-06 Time: 14:00

Aquatic Testing Laboratories

GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST

Lab No.: A-06071701
Client ID: MRS - Morro Bay Effluent

Start Date: 07/18/2006

RANDOMIZATION WORKSHEET

Beaker No.	Sample Conc.	Beaker No.	Sample Conc.	Beaker No.	Sample Conc.	Notes
1	B	11	56	21	10	Need 7500/ml x 50 ml = 375,000 spores. Add 0.25 ml spore stock of 6 spores per 5x5 hemacytometer grid
2	18	12	5.6	22	18	
3	32	13	32	23	56	
4	10	14	5.6	24	5.6	
5	18	15	56	25	10	
6	32	16	32	26	56	
7	10	17	5.6	27	B	
8	56	18	32	28	18	
9	18	19	B	29	56	
10	10	20	B	30	B	

Analyst: _____ Date: 7-18-6 Time: 1200

QA/QC REPORTS & CHAINS OF CUSTODY

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Total Cyanide	BPG0574	BPG0574-BLK1	ND	mg/L	0.020	0.0063	
Ammonia as N (Distilled)	BPG1068	BPG1068-BLK1	ND	mg/L	0.050	0.020	

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Project Manager: Doug Coats

Reported: 08/09/06 14:34

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Total Cyanide	BPG0574	Duplicate	0606935-02	ND	ND		mg/L			10		
		Matrix Spike	0606935-02	ND	0.25925	0.25000	mg/L		104		90 - 110	
		Matrix Spike Duplicate	0606935-02	ND	0.26250	0.25000	mg/L	0.957	105	20	90 - 110	
Ammonia as N (Distilled)	BPG1068	Duplicate	0607088-02	0.058990	0.052010		mg/L	11.2		20		
		Matrix Spike	0607088-02	0.058990	0.45882	0.40000	mg/L		100		80 - 120	
		Matrix Spike Duplicate	0607088-02	0.058990	0.46584	0.40000	mg/L	1.98	102	20	80 - 120	

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Project: Semi-annual eff
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Project Manager: Doug Coats

Reported: 08/09/06 14:34

Water Analysis (Metals)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Total Antimony	BPG0648	BPG0648-BLK1	ND	ug/L	100	7.1	
Total Beryllium	BPG0648	BPG0648-BLK1	ND	ug/L	10	0.77	
Total Cadmium	BPG0648	BPG0648-BLK1	ND	ug/L	10	3.2	
Total Chromium	BPG0648	BPG0648-BLK1	ND	ug/L	10	1.7	
Total Copper	BPG0648	BPG0648-BLK1	1.8686	ug/L	10	1.3	J
Total Nickel	BPG0648	BPG0648-BLK1	ND	ug/L	10	3.5	
Total Silver	BPG0648	BPG0648-BLK1	ND	ug/L	10	1.4	
Total Zinc	BPG0648	BPG0648-BLK1	8.5897	ug/L	50	7.3	J
Total Mercury	BPG0732	BPG0732-BLK1	ND	ug/L	0.20	0.020	
Total Recoverable Arsenic	BPG0735	BPG0735-BLK1	ND	ug/L	2.0	0.89	
Total Recoverable Lead	BPG0735	BPG0735-BLK1	ND	ug/L	1.0	0.019	
Total Recoverable Selenium	BPG0735	BPG0735-BLK1	ND	ug/L	2.0	0.31	
Total Recoverable Thallium	BPG0735	BPG0735-BLK1	ND	ug/L	1.0	0.024	

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Reported: 08/09/06 14:34

Water Analysis (Metals)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Total Antimony	BPG0648	Duplicate	0606871-01	ND	ND		ug/L			20		
		Matrix Spike	0606871-01	ND	396.65	400.00	ug/L		99.2		75 - 125	
		Matrix Spike Duplicate	0606871-01	ND	411.31	400.00	ug/L	3.76	103	20	75 - 125	
Total Beryllium	BPG0648	Duplicate	0606871-01	ND	ND		ug/L			20		
		Matrix Spike	0606871-01	ND	199.98	200.00	ug/L		100		75 - 125	
		Matrix Spike Duplicate	0606871-01	ND	204.68	200.00	ug/L	1.98	102	20	75 - 125	
Total Cadmium	BPG0648	Duplicate	0606871-01	ND	ND		ug/L			20		
		Matrix Spike	0606871-01	ND	201.41	200.00	ug/L		101		75 - 125	
		Matrix Spike Duplicate	0606871-01	ND	201.49	200.00	ug/L	0.00	101	20	75 - 125	
Total Chromium	BPG0648	Duplicate	0606871-01	ND	ND		ug/L			20		
		Matrix Spike	0606871-01	ND	186.77	200.00	ug/L		93.4		75 - 125	
		Matrix Spike Duplicate	0606871-01	ND	191.86	200.00	ug/L	2.64	95.9	20	75 - 125	
Total Copper	BPG0648	Duplicate	0606871-01	5.7591	8.1237		ug/L	59.3		20		J, A02
		Matrix Spike	0606871-01	5.7591	199.69	200.00	ug/L		97.0		75 - 125	
		Matrix Spike Duplicate	0606871-01	5.7591	204.99	200.00	ug/L	2.64	99.6	20	75 - 125	
Total Nickel	BPG0648	Duplicate	0606871-01	ND	ND		ug/L			20		
		Matrix Spike	0606871-01	ND	404.41	400.00	ug/L		101		75 - 125	
		Matrix Spike Duplicate	0606871-01	ND	415.45	400.00	ug/L	2.93	104	20	75 - 125	
Total Silver	BPG0648	Duplicate	0606871-01	ND	ND		ug/L			20		
		Matrix Spike	0606871-01	ND	89.514	100.00	ug/L		89.5		75 - 125	
		Matrix Spike Duplicate	0606871-01	ND	92.773	100.00	ug/L	3.62	92.8	20	75 - 125	
Total Zinc	BPG0648	Duplicate	0606871-01	15.518	23.729		ug/L	49.5		20		J, A02
		Matrix Spike	0606871-01	15.518	212.35	200.00	ug/L		98.4		75 - 125	
		Matrix Spike Duplicate	0606871-01	15.518	214.59	200.00	ug/L	1.11	99.5	20	75 - 125	
Total Mercury	BPG0732	Duplicate	0606810-01	0.14000	0.15250		ug/L	8.55		20		J
		Matrix Spike	0606810-01	0.14000	1.1650	1.0000	ug/L		102		70 - 130	
		Matrix Spike Duplicate	0606810-01	0.14000	1.1725	1.0000	ug/L	0.976	103	20	70 - 130	

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Project: Semi-annual eff
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Project Manager: Doug Coats

Reported: 08/09/06 14:34

Water Analysis (Metals)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Total Recoverable Arsenic	BPG0735	Duplicate	0606978-03	1.2120	1.5780		ug/L	26.2		20		J, A02
		Matrix Spike	0606978-03	1.2120	49.405	50.000	ug/L		96.4		70 - 130	
		Matrix Spike Duplicate	0606978-03	1.2120	48.239	50.000	ug/L	2.41	94.1	20	70 - 130	
Total Recoverable Lead	BPG0735	Duplicate	0606978-03	0.71800	0.70800		ug/L	1.40		20		J
		Matrix Spike	0606978-03	0.71800	43.680	50.000	ug/L		85.9		70 - 130	
		Matrix Spike Duplicate	0606978-03	0.71800	43.275	50.000	ug/L	0.936	85.1	20	70 - 130	
Total Recoverable Selenium	BPG0735	Duplicate	0606978-03	2.4340	2.5620		ug/L	5.12		20		
		Matrix Spike	0606978-03	2.4340	49.543	50.000	ug/L		94.2		70 - 130	
		Matrix Spike Duplicate	0606978-03	2.4340	48.849	50.000	ug/L	1.50	92.8	20	70 - 130	
Total Recoverable Thallium	BPG0735	Duplicate	0606978-03	0.037000	ND		ug/L			20		
		Matrix Spike	0606978-03	0.037000	17.800	20.000	ug/L		88.8		70 - 130	
		Matrix Spike Duplicate	0606978-03	0.037000	17.551	20.000	ug/L	1.36	87.6	20	70 - 130	

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Organochlorine Pesticides and PCB's (EPA Method 608)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Aldrin	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00092	
alpha-BHC	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00094	
beta-BHC	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00063	
delta-BHC	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00054	
gamma-BHC (Lindane)	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00081	
Chlordane (Technical)	BPG1099	BPG1099-BLK1	ND	ug/L	0.50	0.38	
4,4'-DDD	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00057	
4,4'-DDE	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00063	
4,4'-DDT	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00047	
Dieldrin	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00068	
Endosulfan I	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00085	
Endosulfan II	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00082	
Endosulfan sulfate	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.0010	
Endrin	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00067	
Endrin aldehyde	BPG1099	BPG1099-BLK1	ND	ug/L	0.010	0.00087	
Heptachlor	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00079	
Heptachlor epoxide	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.00020	
Methoxychlor	BPG1099	BPG1099-BLK1	ND	ug/L	0.0050	0.0024	
Toxaphene	BPG1099	BPG1099-BLK1	ND	ug/L	2.0	0.42	
PCB-1016	BPG1099	BPG1099-BLK1	ND	ug/L	0.20	0.034	
PCB-1221	BPG1099	BPG1099-BLK1	ND	ug/L	0.20	0.089	
PCB-1232	BPG1099	BPG1099-BLK1	ND	ug/L	0.20	0.090	
PCB-1242	BPG1099	BPG1099-BLK1	ND	ug/L	0.20	0.095	
PCB-1248	BPG1099	BPG1099-BLK1	ND	ug/L	0.20	0.025	
PCB-1254	BPG1099	BPG1099-BLK1	ND	ug/L	0.20	0.042	

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Organochlorine Pesticides and PCB's (EPA Method 608)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
PCB-1260	BPG1099	BPG1099-BLK1	ND	ug/L	0.20	0.043	
Total PCB's (Summation)	BPG1099	BPG1099-BLK1	ND	ug/L	0.20	0.10	
TCMX (Surrogate)	BPG1099	BPG1099-BLK1	92.0	%	55 - 123 (LCL - UCL)		
Dibutyl chlorendate (Surrogate)	BPG1099	BPG1099-BLK1	97.1	%	48 - 149 (LCL - UCL)		

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Project: Semi-annual eff
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Reported: 08/09/06 14:34

Organochlorine Pesticides and PCB's (EPA Method 608)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Aldrin	BPG1099	Matrix Spike	0605234-60	ND	0.21921	0.25000	ug/L		87.7		50 - 143	
		Matrix Spike Duplicate	0605234-60	ND	0.20284	0.25000	ug/L	7.82	81.1	22	50 - 143	
gamma-BHC (Lindane)	BPG1099	Matrix Spike	0605234-60	ND	0.16953	0.25000	ug/L		67.8		38 - 134	
		Matrix Spike Duplicate	0605234-60	ND	0.15884	0.25000	ug/L	6.55	63.5	20	38 - 134	
4,4'-DDT	BPG1099	Matrix Spike	0605234-60	ND	0.19196	0.25000	ug/L		76.8		30 - 154	
		Matrix Spike Duplicate	0605234-60	ND	0.17600	0.25000	ug/L	8.70	70.4	30	30 - 154	
Dieldrin	BPG1099	Matrix Spike	0605234-60	ND	0.21765	0.25000	ug/L		87.1		60 - 150	
		Matrix Spike Duplicate	0605234-60	ND	0.20210	0.25000	ug/L	7.50	80.8	22	60 - 150	
Endrin	BPG1099	Matrix Spike	0605234-60	ND	0.21330	0.25000	ug/L		85.3		57 - 163	
		Matrix Spike Duplicate	0605234-60	ND	0.19091	0.25000	ug/L	11.0	76.4	24	57 - 163	
Heptachlor	BPG1099	Matrix Spike	0605234-60	ND	0.22090	0.25000	ug/L		88.4		51 - 148	
		Matrix Spike Duplicate	0605234-60	ND	0.20446	0.25000	ug/L	7.76	81.8	22	51 - 148	
PCB-1260	BPG1099	Matrix Spike	0605234-60	ND	ND		ug/L				0 - 200	
		Matrix Spike Duplicate	0605234-60	ND	ND		ug/L			200	0 - 200	
TCMX (Surrogate)	BPG1099	Matrix Spike	0605234-60	ND	0.28741	0.30000	ug/L		95.8		55 - 123	
		Matrix Spike Duplicate	0605234-60	ND	0.26894	0.30000	ug/L		89.6		55 - 123	
Dibutyl chlorendate (Surrogate)	BPG1099	Matrix Spike	0605234-60	ND	0.68801	0.75000	ug/L		91.7		48 - 149	
		Matrix Spike Duplicate	0605234-60	ND	0.70658	0.75000	ug/L		94.2		48 - 149	

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Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Benzene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.23	
Bromodichloromethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.11	
Bromoform	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.11	
Bromomethane	BPG1104	BPG1104-BLK1	ND	ug/L	1.0	0.57	
Carbon tetrachloride	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.11	
Chlorobenzene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.050	
Chloroethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.24	
Chloroform	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.050	
Chloromethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.25	
Dibromochloromethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.12	
1,2-Dichlorobenzene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.072	
1,3-Dichlorobenzene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.12	
1,4-Dichlorobenzene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.094	
1,1-Dichloroethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.11	
1,2-Dichloroethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.20	
1,1-Dichloroethene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.24	
trans-1,2-Dichloroethene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.13	
1,2-Dichloropropane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.16	
cis-1,3-Dichloropropene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.16	
trans-1,3-Dichloropropene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.15	
Ethylbenzene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.11	
Methylene chloride	BPG1104	BPG1104-BLK1	ND	ug/L	1.0	0.14	
Methyl t-butyl ether	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.086	
1,1,2,2-Tetrachloroethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.10	
Tetrachloroethene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.13	

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Toluene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.098	
1,1,1-Trichloroethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.076	
1,1,2-Trichloroethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.18	
Trichloroethene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.21	
Trichlorofluoromethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.14	
1,1,2-Trichloro-1,2,2-trifluoroethane	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.14	
Vinyl chloride	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.21	
Total Xylenes	BPG1104	BPG1104-BLK1	ND	ug/L	1.0	0.19	
Acrolein	BPG1104	BPG1104-BLK1	ND	ug/L	50	3.2	
Acrylonitrile	BPG1104	BPG1104-BLK1	ND	ug/L	20	0.81	
p- & m-Xylenes	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.10	
o-Xylene	BPG1104	BPG1104-BLK1	ND	ug/L	0.50	0.083	
1,2-Dichloroethane-d4 (Surrogate)	BPG1104	BPG1104-BLK1	95.1	%	76 - 114 (LCL - UCL)		
Toluene-d8 (Surrogate)	BPG1104	BPG1104-BLK1	101	%	88 - 110 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BPG1104	BPG1104-BLK1	96.0	%	86 - 115 (LCL - UCL)		

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Project: Semi-annual eff
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Project Manager: Doug Coats

Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Benzene	BPG1104	Matrix Spike	0607200-01	ND	26.200	25.000	ug/L		105		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	26.010	25.000	ug/L	0.957	104	20	70 - 130	
Bromodichloromethane	BPG1104	Matrix Spike	0607200-01	ND	27.470	25.000	ug/L		110		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	27.370	25.000	ug/L	0.913	109	20	70 - 130	
Bromoform	BPG1104	Matrix Spike	0607200-01	ND	28.520	25.000	ug/L		114		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	27.500	25.000	ug/L	3.57	110	20	70 - 130	
Bromomethane	BPG1104	Matrix Spike	0607200-01	ND	20.570	25.000	ug/L		82.3		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	21.800	25.000	ug/L	5.78	87.2	20	70 - 130	
Carbon tetrachloride	BPG1104	Matrix Spike	0607200-01	ND	29.230	25.000	ug/L		117		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	28.650	25.000	ug/L	1.72	115	20	70 - 130	
Chlorobenzene	BPG1104	Matrix Spike	0607200-01	ND	27.040	25.000	ug/L		108		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	26.560	25.000	ug/L	1.87	106	20	70 - 130	
Chloroethane	BPG1104	Matrix Spike	0607200-01	ND	24.820	25.000	ug/L		99.3		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	24.360	25.000	ug/L	1.93	97.4	20	70 - 130	
Chloroform	BPG1104	Matrix Spike	0607200-01	0.30000	27.430	25.000	ug/L		109		70 - 130	
		Matrix Spike Duplicate	0607200-01	0.30000	27.080	25.000	ug/L	1.85	107	20	70 - 130	
Chloromethane	BPG1104	Matrix Spike	0607200-01	ND	22.710	25.000	ug/L		90.8		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	22.790	25.000	ug/L	0.440	91.2	20	70 - 130	
Dibromochloromethane	BPG1104	Matrix Spike	0607200-01	ND	27.440	25.000	ug/L		110		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	28.050	25.000	ug/L	1.80	112	20	70 - 130	
1,2-Dichlorobenzene	BPG1104	Matrix Spike	0607200-01	ND	28.350	25.000	ug/L		113		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	28.050	25.000	ug/L	0.889	112	20	70 - 130	
1,3-Dichlorobenzene	BPG1104	Matrix Spike	0607200-01	ND	27.500	25.000	ug/L		110		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	26.500	25.000	ug/L	3.70	106	20	70 - 130	
1,4-Dichlorobenzene	BPG1104	Matrix Spike	0607200-01	ND	27.020	25.000	ug/L		108		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	27.100	25.000	ug/L	0.00	108	20	70 - 130	

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
1,1-Dichloroethane	BPG1104	Matrix Spike	0607200-01	0.29000	26.490	25.000	ug/L		105		70 - 130	
		Matrix Spike Duplicate	0607200-01	0.29000	25.970	25.000	ug/L	1.92	103	20	70 - 130	
1,2-Dichloroethane	BPG1104	Matrix Spike	0607200-01	ND	26.580	25.000	ug/L		106		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	26.360	25.000	ug/L	0.948	105	20	70 - 130	
1,1-Dichloroethene	BPG1104	Matrix Spike	0607200-01	ND	25.900	25.000	ug/L		104		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	25.910	25.000	ug/L	0.00	104	20	70 - 130	
trans-1,2-Dichloroethene	BPG1104	Matrix Spike	0607200-01	ND	25.900	25.000	ug/L		104		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	25.740	25.000	ug/L	0.966	103	20	70 - 130	
1,2-Dichloropropane	BPG1104	Matrix Spike	0607200-01	ND	26.240	25.000	ug/L		105		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	26.660	25.000	ug/L	1.89	107	20	70 - 130	
cis-1,3-Dichloropropene	BPG1104	Matrix Spike	0607200-01	ND	26.920	25.000	ug/L		108		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	27.160	25.000	ug/L	0.922	109	20	70 - 130	
trans-1,3-Dichloropropene	BPG1104	Matrix Spike	0607200-01	ND	27.160	25.000	ug/L		109		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	26.660	25.000	ug/L	1.85	107	20	70 - 130	
Ethylbenzene	BPG1104	Matrix Spike	0607200-01	ND	27.260	25.000	ug/L		109		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	26.350	25.000	ug/L	3.74	105	20	70 - 130	
Methylene chloride	BPG1104	Matrix Spike	0607200-01	ND	26.840	25.000	ug/L		107		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	25.840	25.000	ug/L	3.81	103	20	70 - 130	
Methyl t-butyl ether	BPG1104	Matrix Spike	0607200-01	ND	25.000	25.000	ug/L		100		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	24.930	25.000	ug/L	0.300	99.7	20	70 - 130	
1,1,2,2-Tetrachloroethane	BPG1104	Matrix Spike	0607200-01	ND	28.780	25.000	ug/L		115		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	27.420	25.000	ug/L	4.44	110	20	70 - 130	
Tetrachloroethene	BPG1104	Matrix Spike	0607200-01	0.98000	28.710	25.000	ug/L		111		70 - 130	
		Matrix Spike Duplicate	0607200-01	0.98000	29.300	25.000	ug/L	1.79	113	20	70 - 130	
Toluene	BPG1104	Matrix Spike	0607200-01	ND	26.920	25.000	ug/L		108		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	27.260	25.000	ug/L	0.922	109	20	70 - 130	

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Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
1,1,1-Trichloroethane	BPG1104	Matrix Spike	0607200-01	ND	28.800	25.000	ug/L		115		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	28.550	25.000	ug/L	0.873	114	20	70 - 130	
1,1,2-Trichloroethane	BPG1104	Matrix Spike	0607200-01	ND	28.020	25.000	ug/L		112		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	27.430	25.000	ug/L	1.80	110	20	70 - 130	
Trichloroethene	BPG1104	Matrix Spike	0607200-01	0.42000	28.140	25.000	ug/L		111		70 - 130	
		Matrix Spike Duplicate	0607200-01	0.42000	27.570	25.000	ug/L	1.82	109	20	70 - 130	
Trichlorofluoromethane	BPG1104	Matrix Spike	0607200-01	ND	26.130	25.000	ug/L		105		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	26.340	25.000	ug/L	0.00	105	20	70 - 130	
1,1,2-Trichloro-1,2,2-trifluoroethane	BPG1104	Matrix Spike	0607200-01	0.20000	25.700	25.000	ug/L		102		70 - 130	
		Matrix Spike Duplicate	0607200-01	0.20000	26.060	25.000	ug/L	1.94	104	20	70 - 130	
Vinyl chloride	BPG1104	Matrix Spike	0607200-01	ND	22.720	25.000	ug/L		90.9		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	22.340	25.000	ug/L	1.66	89.4	20	70 - 130	
Total Xylenes	BPG1104	Matrix Spike	0607200-01	ND	79.500	75.000	ug/L		107		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	79.050	75.000	ug/L	1.89	105	20	70 - 130	
p- & m-Xylenes	BPG1104	Matrix Spike	0607200-01	ND	53.210	50.000	ug/L		106		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	53.230	50.000	ug/L	0.00	106	20	70 - 130	
o-Xylene	BPG1104	Matrix Spike	0607200-01	ND	26.690	25.000	ug/L		107		70 - 130	
		Matrix Spike Duplicate	0607200-01	ND	25.850	25.000	ug/L	3.81	103	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	BPG1104	Matrix Spike	0607200-01	ND	10.610	10.000	ug/L		106		76 - 114	
		Matrix Spike Duplicate	0607200-01	ND	10.560	10.000	ug/L		106		76 - 114	
Toluene-d8 (Surrogate)	BPG1104	Matrix Spike	0607200-01	ND	9.9200	10.000	ug/L		99.2		88 - 110	
		Matrix Spike Duplicate	0607200-01	ND	10.020	10.000	ug/L		100		88 - 110	
4-Bromofluorobenzene (Surrogate)	BPG1104	Matrix Spike	0607200-01	ND	9.9900	10.000	ug/L		99.9		86 - 115	
		Matrix Spike Duplicate	0607200-01	ND	9.6600	10.000	ug/L		96.6		86 - 115	

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Project: Semi-annual eff
Project Number: [none]
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Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Acenaphthene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.35	
Acenaphthylene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.32	
Aldrin	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.47	
Aniline	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	1.8	
Anthracene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.27	
Benzidine	BPG0785	BPG0785-BLK1	ND	ug/L	20	4.7	
Benzo[a]anthracene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.34	
Benzo[b]fluoranthene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.38	
Benzo[k]fluoranthene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.47	
Benzo[a]pyrene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.45	
Benzo[g,h,i]perylene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.56	
Benzoic acid	BPG0785	BPG0785-BLK1	ND	ug/L	10	0.61	
Benzyl alcohol	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.44	
Benzyl butyl phthalate	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.32	
alpha-BHC	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.42	
beta-BHC	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.46	
delta-BHC	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.28	
gamma-BHC (Lindane)	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.35	
bis(2-Chloroethoxy)methane	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	1.6	
bis(2-Chloroethyl) ether	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.49	
bis(2-Chloroisopropyl)ether	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.57	
bis(2-Ethylhexyl)phthalate	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	0.98	
4-Bromophenyl phenyl ether	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.40	
4-Chloroaniline	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.99	
2-Chloronaphthalene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.41	

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Project: Semi-annual eff
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Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
4-Chlorophenyl phenyl ether	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.33	
Chrysene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.30	
4,4'-DDD	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.38	
4,4'-DDE	BPG0785	BPG0785-BLK1	ND	ug/L	3.0	0.52	
4,4'-DDT	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.36	
Dibenzo[a,h]anthracene	BPG0785	BPG0785-BLK1	ND	ug/L	3.0	0.48	
Dibenzofuran	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.37	
1,2-Dichlorobenzene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.35	
1,3-Dichlorobenzene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.35	
1,4-Dichlorobenzene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.25	
3,3-Dichlorobenzidine	BPG0785	BPG0785-BLK1	ND	ug/L	10	1.5	
Dieldrin	BPG0785	BPG0785-BLK1	ND	ug/L	3.0	0.52	
Diethyl phthalate	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.34	
Dimethyl phthalate	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.32	
Di-n-butyl phthalate	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.40	
2,4-Dinitrotoluene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.39	
2,6-Dinitrotoluene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.48	
Di-n-octyl phthalate	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.41	
1,2-Diphenylhydrazine	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.38	
Endosulfan I	BPG0785	BPG0785-BLK1	ND	ug/L	10	2.3	
Endosulfan II	BPG0785	BPG0785-BLK1	ND	ug/L	10	1.6	
Endosulfan sulfate	BPG0785	BPG0785-BLK1	ND	ug/L	3.0	0.67	
Endrin	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.68	
Endrin aldehyde	BPG0785	BPG0785-BLK1	ND	ug/L	10	3.6	
Fluoranthene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.30	

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Project: Semi-annual eff
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Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Fluorene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.36	
Heptachlor	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.53	
Heptachlor epoxide	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.24	
Hexachlorobenzene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.35	
Hexachlorobutadiene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.40	
Hexachlorocyclopentadiene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.36	
Hexachloroethane	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.29	
Indeno[1,2,3-cd]pyrene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.47	
Isophorone	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.31	
2-Methylnaphthalene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.27	
Naphthalene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.30	
2-Naphthylamine	BPG0785	BPG0785-BLK1	ND	ug/L	20	5.3	
2-Nitroaniline	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.82	
3-Nitroaniline	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	1.6	
4-Nitroaniline	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	0.44	
Nitrobenzene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.37	
N-Nitrosodimethylamine	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.53	
N-Nitrosodi-N-propylamine	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.88	
N-Nitrosodiphenylamine	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.42	
Phenanthrene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.29	
Pyrene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.29	
1,2,4-Trichlorobenzene	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.26	
4-Chloro-3-methylphenol	BPG0785	BPG0785-BLK1	ND	ug/L	10	0.39	
2-Chlorophenol	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	0.39	
2,4-Dichlorophenol	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	0.37	

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Project: Semi-annual eff
Project Number: [none]
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Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
2,4-Dimethylphenol	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	1.5	
4,6-Dinitro-2-methylphenol	BPG0785	BPG0785-BLK1	ND	ug/L	25	2.5	
2,4-Dinitrophenol	BPG0785	BPG0785-BLK1	ND	ug/L	25	0.35	
2-Methylphenol	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	1.3	
3- & 4-Methylphenol	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	1.4	
2-Nitrophenol	BPG0785	BPG0785-BLK1	ND	ug/L	2.0	0.33	
4-Nitrophenol	BPG0785	BPG0785-BLK1	ND	ug/L	25	0.35	
Pentachlorophenol	BPG0785	BPG0785-BLK1	ND	ug/L	10	0.55	
Phenol	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	0.30	
2,4,5-Trichlorophenol	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	0.37	
2,4,6-Trichlorophenol	BPG0785	BPG0785-BLK1	ND	ug/L	5.0	0.47	
2-Fluorophenol (Surrogate)	BPG0785	BPG0785-BLK1	56.3	%	19 - 86 (LCL - UCL)		
Phenol-d5 (Surrogate)	BPG0785	BPG0785-BLK1	29.9	%	23 - 64 (LCL - UCL)		
Nitrobenzene-d5 (Surrogate)	BPG0785	BPG0785-BLK1	80.8	%	49 - 113 (LCL - UCL)		
2-Fluorobiphenyl (Surrogate)	BPG0785	BPG0785-BLK1	77.5	%	37 - 110 (LCL - UCL)		
2,4,6-Tribromophenol (Surrogate)	BPG0785	BPG0785-BLK1	70.1	%	41 - 127 (LCL - UCL)		
p-Terphenyl-d14 (Surrogate)	BPG0785	BPG0785-BLK1	103	%	18 - 183 (LCL - UCL)		

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Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Acenaphthene	BPG0785	Matrix Spike	0605234-34	ND	54.974	80.000	ug/L		68.7		28 - 117	
		Matrix Spike Duplicate	0605234-34	ND	53.880	80.000	ug/L	1.91	67.4	24	28 - 117	
1,4-Dichlorobenzene	BPG0785	Matrix Spike	0605234-34	ND	49.705	80.000	ug/L		62.1		19 - 119	
		Matrix Spike Duplicate	0605234-34	ND	50.655	80.000	ug/L	1.91	63.3	28	19 - 119	
2,4-Dinitrotoluene	BPG0785	Matrix Spike	0605234-34	ND	54.713	80.000	ug/L		68.4		36 - 124	
		Matrix Spike Duplicate	0605234-34	ND	54.090	80.000	ug/L	1.18	67.6	25	36 - 124	
Hexachlorobenzene	BPG0785	Matrix Spike	0605234-34	ND	54.111	80.000	ug/L		67.6		36 - 131	
		Matrix Spike Duplicate	0605234-34	ND	51.117	80.000	ug/L	5.63	63.9	24	36 - 131	
Hexachlorobutadiene	BPG0785	Matrix Spike	0605234-34	ND	40.495	80.000	ug/L		50.6		32 - 102	
		Matrix Spike Duplicate	0605234-34	ND	37.785	80.000	ug/L	6.95	47.2	24	32 - 102	
Hexachloroethane	BPG0785	Matrix Spike	0605234-34	ND	35.646	80.000	ug/L		44.6		23 - 112	
		Matrix Spike Duplicate	0605234-34	ND	35.856	80.000	ug/L	0.447	44.8	29	23 - 112	
Nitrobenzene	BPG0785	Matrix Spike	0605234-34	ND	57.574	80.000	ug/L		72.0		45 - 115	
		Matrix Spike Duplicate	0605234-34	ND	52.491	80.000	ug/L	9.30	65.6	28	45 - 115	
N-Nitrosodi-N-propylamine	BPG0785	Matrix Spike	0605234-34	ND	66.885	80.000	ug/L		83.6		39 - 104	
		Matrix Spike Duplicate	0605234-34	ND	61.823	80.000	ug/L	7.83	77.3	30	39 - 104	
Pyrene	BPG0785	Matrix Spike	0605234-34	ND	73.456	80.000	ug/L		91.8		30 - 125	
		Matrix Spike Duplicate	0605234-34	ND	71.649	80.000	ug/L	2.43	89.6	25	30 - 125	
1,2,4-Trichlorobenzene	BPG0785	Matrix Spike	0605234-34	ND	49.386	80.000	ug/L		61.7		36 - 111	
		Matrix Spike Duplicate	0605234-34	ND	47.345	80.000	ug/L	4.14	59.2	23	36 - 111	
4-Chloro-3-methylphenol	BPG0785	Matrix Spike	0605234-34	ND	57.303	80.000	ug/L		71.6		52 - 122	
		Matrix Spike Duplicate	0605234-34	ND	57.092	80.000	ug/L	0.280	71.4	22	52 - 122	
2-Chlorophenol	BPG0785	Matrix Spike	0605234-34	ND	55.496	80.000	ug/L		69.4		37 - 104	
		Matrix Spike Duplicate	0605234-34	ND	56.457	80.000	ug/L	1.71	70.6	21	37 - 104	
2-Methylphenol	BPG0785	Matrix Spike	0605234-34	ND	38.515	80.000	ug/L		48.1		41 - 111	
		Matrix Spike Duplicate	0605234-34	ND	38.703	80.000	ug/L	0.622	48.4	20	41 - 111	

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
3- & 4-Methylphenol	BPG0785	Matrix Spike	0605234-34	ND	70.508	160.00	ug/L		44.1		58 - 176	Q03
		Matrix Spike Duplicate	0605234-34	ND	71.922	160.00	ug/L	2.02	45.0	21	58 - 176	Q03
4-Nitrophenol	BPG0785	Matrix Spike	0605234-34	ND	23.087	80.000	ug/L		28.9		11 - 79	
		Matrix Spike Duplicate	0605234-34	ND	23.371	80.000	ug/L	1.03	29.2	21	11 - 79	
Pentachlorophenol	BPG0785	Matrix Spike	0605234-34	ND	44.694	80.000	ug/L		55.9		36 - 135	
		Matrix Spike Duplicate	0605234-34	ND	47.290	80.000	ug/L	5.57	59.1	19	36 - 135	
Phenol	BPG0785	Matrix Spike	0605234-34	ND	22.848	80.000	ug/L		28.6		18 - 57	
		Matrix Spike Duplicate	0605234-34	ND	22.106	80.000	ug/L	3.56	27.6	22	18 - 57	
2,4,6-Trichlorophenol	BPG0785	Matrix Spike	0605234-34	ND	61.733	80.000	ug/L		77.2		36 - 129	
		Matrix Spike Duplicate	0605234-34	ND	61.613	80.000	ug/L	0.259	77.0	26	36 - 129	
2-Fluorophenol (Surrogate)	BPG0785	Matrix Spike	0605234-34	ND	43.246	80.000	ug/L		54.1		19 - 86	
		Matrix Spike Duplicate	0605234-34	ND	41.299	80.000	ug/L		51.6		19 - 86	
Phenol-d5 (Surrogate)	BPG0785	Matrix Spike	0605234-34	ND	23.961	80.000	ug/L		30.0		23 - 64	
		Matrix Spike Duplicate	0605234-34	ND	22.878	80.000	ug/L		28.6		23 - 64	
Nitrobenzene-d5 (Surrogate)	BPG0785	Matrix Spike	0605234-34	ND	60.907	80.000	ug/L		76.1		49 - 113	
		Matrix Spike Duplicate	0605234-34	ND	56.127	80.000	ug/L		70.2		49 - 113	
2-Fluorobiphenyl (Surrogate)	BPG0785	Matrix Spike	0605234-34	ND	64.661	80.000	ug/L		80.8		37 - 110	
		Matrix Spike Duplicate	0605234-34	ND	62.616	80.000	ug/L		78.3		37 - 110	
2,4,6-Tribromophenol (Surrogate)	BPG0785	Matrix Spike	0605234-34	ND	56.881	80.000	ug/L		71.1		41 - 127	
		Matrix Spike Duplicate	0605234-34	ND	54.844	80.000	ug/L		68.6		41 - 127	
p-Terphenyl-d14 (Surrogate)	BPG0785	Matrix Spike	0605234-34	ND	39.497	40.000	ug/L		98.7		18 - 183	
		Matrix Spike Duplicate	0605234-34	ND	38.277	40.000	ug/L		95.7		18 - 183	

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Organo-Phosphorus Pesticide Analysis (EPA Method 8140)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Azinphos methyl	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.055	
Bolstar	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.055	
Chlorpyrifos	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.024	
Coumaphos	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.054	
Demeton O/S	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.026	
Diazinon	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.044	
Dichlorvos	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.070	
Disulfoton	BPG0729	BPG0729-BLK1	ND	ug/L	0.50	0.039	
Ethoprop	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.025	
Fensulfothion	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.088	
Fenthion	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.033	
Merphos	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.058	
Methyl parathion	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.074	
Mevinphos	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.053	
Naled	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.072	
Phorate	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.041	
Ronnel (Fenchlorphos)	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.067	
Stirophos (Tetrachlorvinphos)	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.046	
Tokuthion (Prothiofos)	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.032	
Trichloronate	BPG0729	BPG0729-BLK1	ND	ug/L	0.20	0.038	
Triphenylphosphate (Surrogate)	BPG0729	BPG0729-BLK1	97.6	%	55 - 132 (LCL - UCL)		

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Organo-Phosphorus Pesticide Analysis (EPA Method 8140)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Bolstar	BPG0729	Matrix Spike	0603806-71	ND	0.81800	1.0000	ug/L		81.8		47 - 131	Q02
		Matrix Spike Duplicate	0603806-71	ND	1.2130	1.0000	ug/L	38.7	121	30	47 - 131	Q02
Chlorpyrifos	BPG0729	Matrix Spike	0603806-71	ND	0.78200	1.0000	ug/L		78.2		57 - 125	
		Matrix Spike Duplicate	0603806-71	ND	1.0255	1.0000	ug/L	27.4	103	29	57 - 125	
Diazinon	BPG0729	Matrix Spike	0603806-71	ND	0.89850	1.0000	ug/L		89.8		58 - 128	
		Matrix Spike Duplicate	0603806-71	ND	1.1655	1.0000	ug/L	26.3	117	30	58 - 128	
Methyl parathion	BPG0729	Matrix Spike	0603806-71	ND	0.84450	1.0000	ug/L		84.4		53 - 126	Q02
		Matrix Spike Duplicate	0603806-71	ND	1.1505	1.0000	ug/L	30.7	115	30	53 - 126	Q02
Mevinphos	BPG0729	Matrix Spike	0603806-71	ND	0.84050	1.0000	ug/L		84.0		44 - 169	Q02
		Matrix Spike Duplicate	0603806-71	ND	1.1370	1.0000	ug/L	30.3	114	30	44 - 169	Q02
Ronnel (Fenchlorphos)	BPG0729	Matrix Spike	0603806-71	ND	0.77250	1.0000	ug/L		77.2		42 - 122	
		Matrix Spike Duplicate	0603806-71	ND	1.0045	1.0000	ug/L	25.7	100	26	42 - 122	
Stirophos (Tetrachlorvinphos)	BPG0729	Matrix Spike	0603806-71	ND	0.96550	1.0000	ug/L		96.6		55 - 140	Q02
		Matrix Spike Duplicate	0603806-71	ND	1.3215	1.0000	ug/L	31.0	132	29	55 - 140	Q02
Triphenylphosphate (Surrogate)	BPG0729	Matrix Spike	0603806-71	ND	2.2735	2.5000	ug/L		90.9		55 - 132	
		Matrix Spike Duplicate	0603806-71	ND	3.0965	2.5000	ug/L		124		55 - 132	

BC Laboratories, Inc

Date of Report: 08/09/2006

Doug Coats

Marine Research Specialists
3140 Telegraph Road, Suite A
Suite A
Ventura, CA 93003-3238
RE: Semi-annual eff
BC Lab Number: 0606979

Enclosed are the results of analyses for samples received by the laboratory on 07/12/06 18:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Tina Green

Contact Person: Tina Green
Client Services Manager

Authorized Signature

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
Total Cyanide	BPG0574	BPG0574-BS1	LCS	0.37175	0.37500	0.020	mg/L	99.1		90 - 110		
Ammonia as N (Distilled)	BPG1068	BPG1068-BS1	LCS	0.79552	0.80000	0.050	mg/L	99.4		85 - 115		

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Water Analysis (Metals)

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
Total Antimony	BPG0648	BPG0648-BS1	LCS	404.47	400.00	100	ug/L	101		85 - 115		
Total Beryllium	BPG0648	BPG0648-BS1	LCS	203.72	200.00	10	ug/L	102		85 - 115		
Total Cadmium	BPG0648	BPG0648-BS1	LCS	205.96	200.00	10	ug/L	103		85 - 115		
Total Chromium	BPG0648	BPG0648-BS1	LCS	196.25	200.00	10	ug/L	98.1		85 - 115		
Total Copper	BPG0648	BPG0648-BS1	LCS	201.38	200.00	10	ug/L	101		85 - 115		
Total Nickel	BPG0648	BPG0648-BS1	LCS	423.22	400.00	10	ug/L	106		85 - 115		
Total Silver	BPG0648	BPG0648-BS1	LCS	92.798	100.00	10	ug/L	92.8		85 - 115		
Total Zinc	BPG0648	BPG0648-BS1	LCS	226.18	200.00	50	ug/L	113		85 - 115		
Total Mercury	BPG0732	BPG0732-BS1	LCS	0.98750	1.0000	0.20	ug/L	98.8		85 - 115		
Total Recoverable Arsenic	BPG0735	BPG0735-BS1	LCS	49.429	50.000	2.0	ug/L	98.9		85 - 115		
Total Recoverable Lead	BPG0735	BPG0735-BS1	LCS	49.468	50.000	1.0	ug/L	98.9		85 - 115		
Total Recoverable Selenium	BPG0735	BPG0735-BS1	LCS	47.653	50.000	2.0	ug/L	95.3		85 - 115		
Total Recoverable Thallium	BPG0735	BPG0735-BS1	LCS	20.762	20.000	1.0	ug/L	104		85 - 115		

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Project: Semi-[illegible]al eff
Project Number: [none]
Project Manager: Doug [illegible]ots

Reported: 08/09/06 14:34

Organochlorine Pesticides and PCB's (EPA Method 608)

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
Aldrin	BPG1099	BPG1099-BS1	LCS	0.22601	0.2500	0.0050	ug/L	90.4		48 - 138		
gamma-BHC (Lindane)	BPG1099	BPG1099-BS1	LCS	0.17430	0.2500	0.0050	ug/L	69.7		49 - 124		
4,4'-DDT	BPG1099	BPG1099-BS1	LCS	0.19402	0.2500	0.0050	ug/L	77.6		46 - 134		
Dieldrin	BPG1099	BPG1099-BS1	LCS	0.22297	0.2500	0.0050	ug/L	89.2		57 - 146		
Endrin	BPG1099	BPG1099-BS1	LCS	0.21932	0.2500	0.0050	ug/L	87.7		52 - 169		
Heptachlor	BPG1099	BPG1099-BS1	LCS	0.22425	0.2500	0.0050	ug/L	89.7		59 - 140		
PCB-1260	BPG1099	BPG1099-BS1	LCS	ND		0.20	ug/L			0 - 200		
TCMX (Surrogate)	BPG1099	BPG1099-BS1	LCS	0.29413	0.3000		ug/L	98.0		55 - 123		
Dibutyl chlorendate (Surrogate)	BPG1099	BPG1099-BS1	LCS	0.68029	0.7500		ug/L	90.7		48 - 149		

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
Benzene	BPG1104	BPG1104-BS1	LCS	29.280	25.000	0.50	ug/L	117		70 - 130		
Bromodichloromethane	BPG1104	BPG1104-BS1	LCS	29.680	25.000	0.50	ug/L	119		70 - 130		
Bromoform	BPG1104	BPG1104-BS1	LCS	31.280	25.000	0.50	ug/L	125		70 - 130		
Bromomethane	BPG1104	BPG1104-BS1	LCS	24.800	25.000	1.0	ug/L	99.2		70 - 130		
Carbon tetrachloride	BPG1104	BPG1104-BS1	LCS	32.450	25.000	0.50	ug/L	130		70 - 130		
Chlorobenzene	BPG1104	BPG1104-BS1	LCS	29.120	25.000	0.50	ug/L	116		70 - 130		
Chloroethane	BPG1104	BPG1104-BS1	LCS	27.560	25.000	0.50	ug/L	110		70 - 130		
Chloroform	BPG1104	BPG1104-BS1	LCS	29.960	25.000	0.50	ug/L	120		70 - 130		
Chloromethane	BPG1104	BPG1104-BS1	LCS	25.510	25.000	0.50	ug/L	102		70 - 130		
Dibromochloromethane	BPG1104	BPG1104-BS1	LCS	30.650	25.000	0.50	ug/L	123		70 - 130		
1,2-Dichlorobenzene	BPG1104	BPG1104-BS1	LCS	30.560	25.000	0.50	ug/L	122		70 - 130		
1,3-Dichlorobenzene	BPG1104	BPG1104-BS1	LCS	29.850	25.000	0.50	ug/L	119		70 - 130		
1,4-Dichlorobenzene	BPG1104	BPG1104-BS1	LCS	29.870	25.000	0.50	ug/L	119		70 - 130		
1,1-Dichloroethane	BPG1104	BPG1104-BS1	LCS	28.890	25.000	0.50	ug/L	116		70 - 130		
1,2-Dichloroethane	BPG1104	BPG1104-BS1	LCS	28.970	25.000	0.50	ug/L	116		70 - 130		
1,1-Dichloroethene	BPG1104	BPG1104-BS1	LCS	28.850	25.000	0.50	ug/L	115		70 - 130		
trans-1,2-Dichloroethene	BPG1104	BPG1104-BS1	LCS	28.640	25.000	0.50	ug/L	115		70 - 130		
1,2-Dichloropropane	BPG1104	BPG1104-BS1	LCS	29.670	25.000	0.50	ug/L	119		70 - 130		
cis-1,3-Dichloropropene	BPG1104	BPG1104-BS1	LCS	29.650	25.000	0.50	ug/L	119		70 - 130		
trans-1,3-Dichloropropene	BPG1104	BPG1104-BS1	LCS	28.830	25.000	0.50	ug/L	115		70 - 130		
Ethylbenzene	BPG1104	BPG1104-BS1	LCS	29.230	25.000	0.50	ug/L	117		70 - 130		
Methylene chloride	BPG1104	BPG1104-BS1	LCS	28.760	25.000	1.0	ug/L	115		70 - 130		
Methyl t-butyl ether	BPG1104	BPG1104-BS1	LCS	27.330	25.000	0.50	ug/L	109		70 - 130		
1,1,2,2-Tetrachloroethane	BPG1104	BPG1104-BS1	LCS	30.220	25.000	0.50	ug/L	121		70 - 130		
Tetrachloroethene	BPG1104	BPG1104-BS1	LCS	31.160	25.000	0.50	ug/L	125		70 - 130		
Toluene	BPG1104	BPG1104-BS1	LCS	29.600	25.000	0.50	ug/L	118		70 - 130		
1,1,1-Trichloroethane	BPG1104	BPG1104-BS1	LCS	32.240	25.000	0.50	ug/L	129		70 - 130		

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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
1,1,2-Trichloroethane	BPG1104	BPG1104-BS1	LCS	30.610	25.000	0.50	ug/L	123		70 - 130		
Trichloroethene	BPG1104	BPG1104-BS1	LCS	30.160	25.000	0.50	ug/L	121		70 - 130		
Trichlorofluoromethane	BPG1104	BPG1104-BS1	LCS	30.230	25.000	0.50	ug/L	121		70 - 130		
1,1,2-Trichloro-1,2,2-trifluoroethane	BPG1104	BPG1104-BS1	LCS	29.520	25.000	0.50	ug/L	118		70 - 130		
Vinyl chloride	BPG1104	BPG1104-BS1	LCS	25.540	25.000	0.50	ug/L	102		70 - 130		
Total Xylenes	BPG1104	BPG1104-BS1	LCS	87.850	75.000	1.0	ug/L	117		70 - 130		
p- & m-Xylenes	BPG1104	BPG1104-BS1	LCS	59.150	50.000	0.50	ug/L	118		70 - 130		
o-Xylene	BPG1104	BPG1104-BS1	LCS	28.700	25.000	0.50	ug/L	115		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BPG1104	BPG1104-BS1	LCS	10.430	10.000	0.50	ug/L	105		76 - 114		
Toluene-d8 (Surrogate)	BPG1104	BPG1104-BS1	LCS	10.050	10.000	0.50	ug/L	100		88 - 110		
4-Bromofluorobenzene (Surrogate)	BPG1104	BPG1104-BS1	LCS	10.030	10.000	0.50	ug/L	100		86 - 115		

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3140 Telegraph Road, Suite A
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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625)

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
Acenaphthene	BPG0785	BPG0785-BS1	LCS	60.526	80.000	25	ug/L	75.7		43 - 106		
1,4-Dichlorobenzene	BPG0785	BPG0785-BS1	LCS	57.293	80.000	5.0	ug/L	71.6		35 - 116		
2,4-Dinitrotoluene	BPG0785	BPG0785-BS1	LCS	59.235	80.000	5.0	ug/L	74.0		50 - 112		
Hexachlorobenzene	BPG0785	BPG0785-BS1	LCS	56.332	80.000	5.0	ug/L	70.4		38 - 130		
Hexachlorobutadiene	BPG0785	BPG0785-BS1	LCS	46.279	80.000	5.0	ug/L	57.8		44 - 96		
Hexachloroethane	BPG0785	BPG0785-BS1	LCS	41.402	80.000	5.0	ug/L	51.8		30 - 115		
Nitrobenzene	BPG0785	BPG0785-BS1	LCS	62.651	80.000	5.0	ug/L	78.3		53 - 114		
N-Nitrosodi-N-propylamine	BPG0785	BPG0785-BS1	LCS	73.470	80.000	5.0	ug/L	91.8		42 - 109		
Pyrene	BPG0785	BPG0785-BS1	LCS	75.452	80.000	5.0	ug/L	94.3		47 - 119		
1,2,4-Trichlorobenzene	BPG0785	BPG0785-BS1	LCS	56.113	80.000	5.0	ug/L	70.1		51 - 108		
4-Chloro-3-methylphenol	BPG0785	BPG0785-BS1	LCS	62.629	80.000	10	ug/L	78.3		55 - 116		
2-Chlorophenol	BPG0785	BPG0785-BS1	LCS	61.432	80.000	5.0	ug/L	76.8		37 - 112		
2-Methylphenol	BPG0785	BPG0785-BS1	LCS	41.012	80.000	5.0	ug/L	51.3		45 - 110		
3- & 4-Methylphenol	BPG0785	BPG0785-BS1	LCS	76.912	160.00	5.0	ug/L	48.1		69 - 111		L01
4-Nitrophenol	BPG0785	BPG0785-BS1	LCS	24.615	80.000	25	ug/L	30.8		17 - 67		
Pentachlorophenol	BPG0785	BPG0785-BS1	LCS	46.409	80.000	10	ug/L	58.0		42 - 116		
Phenol	BPG0785	BPG0785-BS1	LCS	24.593	80.000	5.0	ug/L	30.7		21 - 61		
2,4,6-Trichlorophenol	BPG0785	BPG0785-BS1	LCS	63.697	80.000	5.0	ug/L	79.6		42 - 111		
2-Fluorophenol (Surrogate)	BPG0785	BPG0785-BS1	LCS	47.812	80.000		ug/L	59.8		19 - 86		
Phenol-d5 (Surrogate)	BPG0785	BPG0785-BS1	LCS	25.858	80.000		ug/L	32.3		23 - 64		
Nitrobenzene-d5 (Surrogate)	BPG0785	BPG0785-BS1	LCS	65.022	80.000		ug/L	81.3		49 - 113		
2-Fluorobiphenyl (Surrogate)	BPG0785	BPG0785-BS1	LCS	67.563	80.000		ug/L	84.8		37 - 110		
2,4,6-Tribromophenol (Surrogate)	BPG0785	BPG0785-BS1	LCS	58.067	80.000		ug/L	72.6		41 - 127		
p-Terphenyl-d14 (Surrogate)	BPG0785	BPG0785-BS1	LCS	38.427	40.000		ug/L	96.1		18 - 183		

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Organo-Phosphorus Pesticide Analysis (EPA Method 8140)

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
Bolstar	BPG0729	BPG0729-BS1	LCS	0.88750	1.0000	0.20	ug/L	88.8		49 - 134		
Chlorpyrifos	BPG0729	BPG0729-BS1	LCS	0.86100	1.0000	0.20	ug/L	86.1		61 - 125		
Diazinon	BPG0729	BPG0729-BS1	LCS	1.0250	1.0000	0.20	ug/L	102		63 - 128		
Methyl parathion	BPG0729	BPG0729-BS1	LCS	0.96150	1.0000	0.20	ug/L	96.2		57 - 122		
Mevinphos	BPG0729	BPG0729-BS1	LCS	0.97100	1.0000	0.20	ug/L	97.1		48 - 164		
Ronnel (Fenchlorphos)	BPG0729	BPG0729-BS1	LCS	0.84300	1.0000	0.20	ug/L	84.3		45 - 122		
Stirophos (Tetrachlorvinphos)	BPG0729	BPG0729-BS1	LCS	1.0055	1.0000	0.20	ug/L	101		50 - 145		
Triphenylphosphate (Surrogate)	BPG0729	BPG0729-BS1	LCS	2.4220	2.5000	0.20	ug/L	96.9		55 - 132		

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 0606979-03 | **Client Sample Name:** Travel Blank, 7/11/2006 12:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	ug/L	0.50	0.23	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Bromodichloromethane	ND	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Bromoform	3.0	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Bromomethane	ND	ug/L	1.0	0.57	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Carbon tetrachloride	ND	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Chlorobenzene	ND	ug/L	0.50	0.050	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Chloroethane	ND	ug/L	0.50	0.24	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Chloroform	ND	ug/L	0.50	0.050	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Chloromethane	ND	ug/L	0.50	0.25	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Dibromochloromethane	1.5	ug/L	0.50	0.12	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,2-Dichlorobenzene	ND	ug/L	0.50	0.072	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.12	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,4-Dichlorobenzene	ND	ug/L	0.50	0.094	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,1-Dichloroethane	ND	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,2-Dichloroethane	ND	ug/L	0.50	0.20	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,1-Dichloroethene	ND	ug/L	0.50	0.24	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.13	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,2-Dichloropropane	ND	ug/L	0.50	0.16	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.16	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.15	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Ethylbenzene	ND	ug/L	0.50	0.11	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Methylene chloride	0.17	ug/L	1.0	0.14	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	J
Methyl t-butyl ether	0.17	ug/L	0.50	0.086	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	J

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 0606979-03 | **Client Sample Name:** Travel Blank, 7/11/2006 12:00:00AM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.10	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Tetrachloroethene	ND	ug/L	0.50	0.13	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Toluene	ND	ug/L	0.50	0.098	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.076	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.18	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Trichloroethene	ND	ug/L	0.50	0.21	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.14	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Vinyl chloride	ND	ug/L	0.50	0.21	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Total Xylenes	ND	ug/L	1.0	0.19	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
Acrolein	ND	ug/L	50	3.2	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	V11
Acrylonitrile	ND	ug/L	20	0.81	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
p- & m-Xylenes	ND	ug/L	0.50	0.10	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
o-Xylene	ND	ug/L	0.50	0.083	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104	ND	
1,2-Dichloroethane-d4 (Surrogate)	107	%	76 - 114	(LCL - UCL)	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104		
Toluene-d8 (Surrogate)	102	%	88 - 110	(LCL - UCL)	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104		
4-Bromofluorobenzene (Surrogate)	97.8	%	86 - 115	(LCL - UCL)	EPA-624	07/24/06	07/24/06 23:06	MGC	MS-V7	1	BPG1104		

LABORATORY REPORT

Aquatic Testing Laboratories
"dedicated to providing quality aquatic toxicity testing"
4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650- 0546 FAX (805) 650-0756
CA DOHS ELAP Cert. No.: 1775

Date: July 22, 2006

Client: Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura, CA 93003
Attn: Doug Coats

Laboratory No.: A-06071701
Sample I.D.: Morro Bay Effluent

Sample Control: The samples were received by ATL within the recommended hold time, in a chilled state, and with the chain of custody records attached.

Date Sampled:	07/17, 07/18, 07/19, 07/20/06
Date Received:	07/17, 07/19, 07/19, 07/21/06
Temp. Received:	4°C, 2°C, 8°C, 2°C
Chlorine (TRC):	0.0 mg/l, 0.0 mg/l, 0.0 mg/l, 0.0 mg/l
Dates Tested:	07/18/06 to 07/22/06

Sample Analysis: The following analyses were performed on your sample:

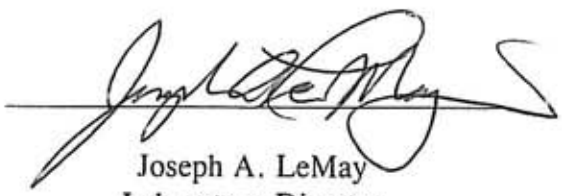
Fathead Minnow 96hr Acute Static-Renewal Toxicity Test (EPA Method 2000.0),
Giant Kelp Germination and Growth Short-Term Toxicity Test (EPA Method 1009.0).

Attached are the test data generated from the analysis of your sample.

Result Summary:

Sample ID.	Test	LC50	TUa
Grab Effluent	Fathead Minnow	70.7%	1.41
		NOEC	**TUc**
Comp Effluent	Kelp Germination:	32%	3.12
	Kelp Growth:	32%	3.12

Quality Control: Reviewed and approved by:



Joseph A. LeMay
Laboratory Director

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Notes and Definitions

V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.
V01	The Initial Calibration Verification (ICV) recovery is not within established control limits.
S09	The surrogate recovery on the sample for this compound was not within the control limits.
Q03	Matrix spike recovery(s) is(are) not within the control limits.
Q02	Matrix spike precision is not within the control limits.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
J	Estimated value
A10	PQL's and MDL's were raised due to matrix interference.
A02	The difference between duplicate readings is less than the PQL.
A01	PQL's and MDL's are raised due to sample dilution.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura CA, 93003-3238

Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/09/06 14:34

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
0606979-01	COC Number:	24251	Receive Date:	07/12/06 18:45
	Project Number:	---	Sampling Date:	07/12/06 08:00
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	Composite	Sample Matrix:	Water
	Sampled By:	---		
0606979-02	COC Number:	24251	Receive Date:	07/12/06 18:45
	Project Number:	---	Sampling Date:	07/12/06 08:00
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	GRAB	Sample Matrix:	Water
	Sampled By:	---		
0606979-03	COC Number:	24251	Receive Date:	07/12/06 18:45
	Project Number:	---	Sampling Date:	07/11/06 00:00
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	Travel Blank	Sample Matrix:	Water
	Sampled By:	---		

BC Laboratories, Inc.

Chain of Custody Form

24251

PLEASE COMPLETE: BCL QUOTE ID:

Page ____ of ____

Report To: Client: Marine Research Specialist	Project #:
Attn: Dr. Doug Coats	Project Name:
Street Address: 3140 Telegraph rd Suite A	Project Code:
City, State, Zip: Ventura Ca. 93003	Sampler(s):
Phone: 805-644-1180 Fax: 805-289-3935	
Email Address: Doug.coats@mrsenv.com	
Submittal #: 06-06979	

Analysis Requested: AG, AS, CD, SB, BE, CU, CR, PB, HG; NI, SE, TL, ZN; CYANIDE; EPA 608 & EPA 625; 624 Acrolein/Acrylonitrile/MTBE; EPA 8140 & 614; Gross Alpha & Beta; ASBESTOS; Pesticides & PCB's 608/8080

Comments: See Chain of Custody form Cont. Next Sheet

Are there any tests with holding times less than or equal to 48 hours? ☐ Yes ☐ No

* Standard Turnaround = 15 work days

Sample #	Description	Date Sampled	Time Sampled	AG, AS, CD, SB, BE, CU, CR, PB, HG	NI, SE, TL, ZN	CYANIDE	EPA 608 & EPA 625	624 Acrolein/Acrylonitrile/MTBE	EPA 8140 & 614	Gross Alpha & Beta	ASBESTOS	Pesticides & PCB's 608/8080	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Turnaround # of work days*	Notes
-1	Composite	7/12/06	0800	X	X	X	X	X	X	X	X	X								

CHK BY: [signature] DISTRIBUTION SUB-OUT ☑

Billing ☐ Same as above

Client: Marine Research Specialist
Address: 3140 Telegraph rd Suite A
City: Ventura State Ca Zip 93003
Attn: Dr. Doug Coats
PO#:

Report Drinking Waters on State Form? ☐ Yes ☐ No

Send Copy to State of CA? ☐ Yes ☐ No

Sample Disposal: ☐ Return to Client ☐ Disposal by lab ☐ Archive: Months ____

Special Reporting: ☐ QC ☐ WIP ☐ Raw Data

	Relinquished By	Date	Time	Received By	Date	Time
1.	[signature]	12 July 06	1230	[signature]	7-12-06	1230
2.	[signature]	7-12-06	1840	Femi Obaferi	7/12/06	1845
3.						

BC Laboratories, Inc.

Chain of Custody Form

24251

PLEASE COMPLETE: BCL QUOTE ID:

Report To:
Client: Marine Research Specialist
Attn: Dr. Doug Coats
Street Address: 3140 Telegraph rd Suite A
City, State, Zip: Ventura Ca. 93003
Phone: 805-644-1180 Fax: 805-289-3935
Email Address: Doug.Coats@mrsenv.com
Submittal #: 06-06979

Project #:
Project Name:
Project Code:
Sampler(s):

Analysis Requested

Comments:

Sample #	Description	Date Sampled	Time Sampled	Ammonia as N Dist.	Total NoN chlorinated (625)	Total Chlorinated (625)	Sample Matrix: Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Turnaround # of work days*	Notes
-2	Grab	7/12/06	0800	X	X	X								

Are there any tests with holding times less than or equal to 48 hours? ☐ Yes ☐ No

* Standard Turnaround = 15 work days

Billing ☐ Same as above
Client: Marine Research Specialist
Address: 3140 Telegraph rd suite A
City: Ventura State CA Zip 93003
Attn: Doug Coats
PO#:

Report Drinking Waters on State Form? ☐ Yes ☐ No

Send Copy to State of CA? ☐ Yes ☐ No

Sample Disposal: ☐ Return to Client ☐ Disposal by lab ☐ Archive: Months ____

Special Reporting: ☐ QC ☐ WIP ☐ Raw Data

	Relinquished By	Date	Time	Received By	Date	Time
1.	Steven R. Aschenbrener	12/06/06	1230	[illegible]	7/12/06	1230
2.	[illegible]	7/12/06	1841	Teri Ohsemi	7/12/06	1845
3.						

BC LABORATORIES INC. SAMPLE RECEIPT FORM Rev. No. 10 01/21/04 Page __ Of __

Submission #: 06-06979 | Project Code: | TB Batch #

SHIPPING INFORMATION

Federal Express ☐ UPS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)_____

SHIPPING CONTAINER

Ice Chest ☑ None ☐
Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Ice Chest ID: BLW Temperature: 3.4 °C Thermometer ID: #48
Emissivity: 1.00 Container: QTP
Date/Time: 7/12/06 Analyst Init: OTO

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL	D, E									
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS	B									
PT CYANIDE	C									
PT NITROGEN FORMS			/							
PT TOTAL SULFIDE			/							
2oz. NITRATE / NITRITE										
100ml TOTAL ORGANIC CARBON										
QT TOX										
PT CHEMICAL OXYGEN DEMAND										
P1A PHENOLICS										
40ml VOA VIAL TRAVEL BLANK		AC								
40ml VOA VIAL	A, 3	"	"	"	"	"	"	"	"	"
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504				/						
QT EPA 508/608/8080				/						
QT EPA 515.1/8150				/						
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT QA/QC										
QT AMBER	f, g, h									
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										

Comments:_____
Sample Numbering Completed By: OTO Date/Time: 7/12/06 2300

BC LABORATORIES INC. SAMPLE RECEIPT FORM Rev. No. 10 01/21/04 Page __ Of __

Submission #: 06-06979 Project Code: TB Batch #

SHIPPING INFORMATION

Federal Express ☐ UPS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)_____

SHIPPING CONTAINER

Ice Chest ☑ None ☐
Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Ice Chest ID RW Temperature: 3.4 °C Thermometer ID: #48 Emissivity 1.00 Container 24P

Date/Time 7/12/06 Analyst Init OTO

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS	A		/							
PT TOTAL SULFIDE			/							
2oz. NITRATE / NITRITE										
100ml TOTAL ORGANIC CARBON										
QT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	" "	" "	" "	"	" "	" "	" "	" "	"	" "
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504				/						
QT EPA 508/608/8080				/						
QT EPA 515.1/8150				/						
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT QA/QC										
QT AMBER	B									
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										

Comments:_____

Sample Numbering Completed By: OTO Date/Time: 7/12/06 2300

06-06979

Analysis Effluent Samples to be collected from the Morro Bay Wastewater Treatment Plant on Wednesday, July 12, 2006

Analysis	Sample	Method
Level IIA QC Report concentrations that are detected above the MDL, but are below the PQL		
Ammonia as N w/ distillation	Grab	EPA-350.1
Total Chlorinated and Total Non-Chlorinated Phenolic Compounds (Report only the phenolic compounds)	Grab	EPA-625
13 Metals:		
Ag Silver	Composite	EPA 200.7
As Arsenic	Composite	EPA 200.8
Be Beryllium	Composite	EPA 200.7
Cd Cadmium	Composite	EPA 200.7
Cr Chromium	Composite	EPA 200.7
Cu Copper	Composite	EPA 200.7
Hg Mercury	Composite	EPA 245.1
Ni Nickel	Composite	EPA 200.7
Pb Lead	Composite	EPA 200.8
Sb Antimony	Composite	EPA 200.7
Se Selenium	Composite	EPA 200.8
Tl Thallium	Composite	EPA 200.8
Zn Zinc	Composite	EPA 200.7
Volatile Organics - Low Level Including Acrolein, Acrylonitrile, and MTBE	Composite	EPA 624/8240
Organochlorine Pesticides and PCBs	Composite	EPA 608/8080
Phenolic Compounds: Full list of base-neutral and acid-extractable congeners	Composite	EPA 625/8270
Cyanide	Composite	EPA 335.3
Organophosphorus Pesticides	Composite	EPA 614/8140
Radioactivity: Gross Alpha and Beta	Composite	SM 7110C & EPA 900.0
Asbestos	Composite	EPA 600/R-94/134-(100.2)

Invoice and Report to be sent to: Dr. Douglas A. Coats (Doug.Coats@mrsenv.com)
Marine Research Specialists
3140 Telegraph Rd., Suite A
Ventura, CA 93003
Telephone: (805) 644-1180

Samples to be collected from: Morro Bay Wastewater Treatment Plant
160 Atascadero Rd.
Morro Bay, CA 93442
Telephone: (805) 772-6272

Aquatic
Testing
Laboratories

CHAIN OF CUSTODY

CHAIN OF CUSTODY

Client: City of Morro Bay

Address: Wastewater Treatment Plant
160 Atascadero Road
Morro Bay, CA 93442

Project Manager: Doug Coats - MRS

Phone: (805) 644-1180

Fax: (805) 289-3935

Purchase Order No:

Aquatic Testing Laboratories

4350 Transport St., Unit 107
Ventura, CA 93003
(805) 650-0546 Fax (805) 650-0756

Sample ID	Sample Date	Sample Time	Sample Type *	Chlorine (TRC)**	Number of Containers	Testing Requested
Grab Eff. ARS	7/17/06	8:20	E	-0-	1 (one gallon)	FHM Acute daily renewal
Comp. Eff.	7JUL06	0800	E	-0-	1 (one gallon)	Giant Kelp Chronic

Special Instructions:

**** Note: Total residual chlorine must be taken immediately after sample collection if sample is a chlorinated effluent.**

* L - Liquid, S - Solid, SS - Semi-Solid/sludge, RW - Receiving Water, GW - Ground Water, E - Effluent

CUSTODY TRANSFERS

Relinquished by (signature)	Received by (signature)	Date (mm/dd/yy)	Time (hh:mm)	Seals Intact? (Yes, No, NA)	Temperature Received (°C)
JAMES HAYES	Billie Keogh	7/17/06	8:25	—	—
Billie Keogh		7/17/06	12:00	Y	—
Bonnie Luke		7/17/06	16:25	Y	4°

CHAIN OF CUSTODY

Client: City of Morro Bay

Address: Wastewater Treatment Plant
160 Atascadero Road
Morro Bay, CA 93442

Project Manager: Doug Coats - MRS

Phone: (805) 644-1180

Fax: (805) 289-3935

Purchase Order No:

Aquatic Testing Laboratories

4350 Transport St., Unit 107
Ventura, CA 93003
(805) 650-0546 Fax (805) 650-0756

Sample ID	Sample Date	Sample Time	Sample Type *	Chlorine (TRC)**	Number of Containers	Testing Requested
Grab Eff. ARS	7/12/06	8:15	E	0	1 (one gallon)	FHM Acute daily renewal

Special Instructions:

**** Note: Total residual chlorine must be taken immediately after sample collection if sample is a chlorinated effluent.**

* L - Liquid, S - Solid, SS - Semi-Solid/sludge, RW - Receiving Water, GW - Ground Water, E - Effluent

CUSTODY TRANSFERS

Relinquished by (signature)	Received by (signature)	Date (mm/dd/yy)	Time (hh:mm)	Seals Intact? (Yes, No, NA)	Temperature Received (°C)
James R. Hayes		7/18/06	1400	—	—
		7-19-06	10:15	NA	2°C

CHAIN OF CUSTODY

Client: City of Morro Bay

Address: Wastewater Treatment Plant
160 Atascadero Road
Morro Bay, CA 93442

Project Manager: Doug Coats - MRS

Phone: (805) 644-1180

Fax: (805) 289-3935

Purchase Order No:

Aquatic Testing Laboratories

4350 Transport St., Unit 107
Ventura, CA 93003
(805) 650-0546 Fax (805) 650-0756

Sample ID	Sample Date	Sample Time	Sample Type *	Chlorine (TRC)**	Number of Containers	Testing Requested
Grab Eff. ARS	7/14/06	800	E	-0-	1 (one gallon)	FHM Acute daily renewal

Special Instructions:

** Note: Total residual chlorine must be taken immediately after sample collection if sample is a chlorinated effluent.

* L - Liquid, S - Solid, SS - Semi-Solid/sludge, RW - Receiving Water, GW - Ground Water, E - Effluent

CUSTODY TRANSFERS

Relinquished by (signature)	Received by (signature)	Date (mm/dd/yy)	Time (hh:mm)	Seals Intact? (Yes, No, NA)	Temperature Received (°C)
		7/19/06	1030	Y	—
		7/19/06	1:10	V	8

CHAIN OF CUSTODY

Client: City of Morro Bay

Address: Wastewater Treatment Plant
160 Atascadero Road
Morro Bay, CA 93442

Project Manager: Doug Coats - MRS

Phone: (805) 644-1180

Fax: (805) 289-3935

Purchase Order No:

Aquatic Testing Laboratories

4350 Transport St., Unit 107
Ventura, CA 93003
(805) 650-0546 Fax (805) 650-0756

Sample ID	Sample Date	Sample Time	Sample Type *	Chlorine (TRC)**	Number of Containers	Testing Requested
Grab Eff. ARS	7/20/06	800	E	0	1 (one gallon)	FHM Acute daily renewal

Special Instructions:

** Note: Total residual chlorine must be taken immediately after sample collection if sample is a chlorinated effluent.

* L - Liquid, S - Solid, SS - Semi-Solid/sludge, RW - Receiving Water, GW - Ground Water, E - Effluent

CUSTODY TRANSFERS

Relinquished by (signature)	Received by (signature)	Date (mm/dd/yy)	Time (hh:mm)	Seals Intact? (Yes, No, NA)	Temperature Received (°C)
	FedEx	7/20/06	1400	—	—
FedEx		7-21-06	0950	NT	2°C

Aquatic
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REFERENCE TOXICANT DATA

Aquatic
Testing
Laboratories

Fathead Minnow Reference Toxicant Data

FATHEAD MINNOW ACUTE
Method 2000.0
Reference Toxicant - SDS

Aquatic Testing Laboratories

QA/QC Batch No.: RT-060711

TEST SUMMARY

Species: *Pimephales promel*as.
Age: 12 days old.
Regulations: NPDES.
Test chamber volume: 250 ml.
Feeding: Prior to renewal at 48 hrs.
Temperature: 20 +/- 1°C.
Number of replicates: 2.
Dilution water: MHSF.

Source: In-lab culture.
Test type: Static-Renewal.
Test Protocol: EPA-821-R-02-012.
Endpoints: LC50 at 96 hrs.
Test chamber: 600 ml glass beakers.
Aeration: None.
Number of organisms per chamber: 10.
Photoperiod: 16/8 hrs light/dark.

TEST DATA

	INITIAL			24 Hr					48 Hr				
Date/Time:	7-11-06 1200			7-12-06 1200					7-13-06 1200				
Analyst:													
	°C	DO	pH	°C	DO	pH	# Dead A	# Dead B	°C	DO	pH	# Dead A	# Dead B
Control	20.4	8.4	7.8	19.7	7.2	7.4	0	0	19.9	8.1	7.4	0	0
1.0 mg/l	20.4	8.4	7.8	19.7	7.3	7.3	0	0	19.8	8.1	7.3	0	0
2.0 mg/l	20.4	8.5	7.8	19.6	6.8	7.1	0	0	19.8	8.0	7.3	0	0
4.0 mg/l	20.4	8.5	7.9	19.6	6.5	7.1	10	10	—	—	—	—	—
8.0 mg/l	20.4	8.6	7.9	19.7	5.0	7.0	10	10	—	—	—	—	—

	RENEWAL			72 Hr					96 Hr				
Date/Time:	7-13-06 1200			7-14-06 1200					7-15-06 1200				
Analyst:													
	°C	DO	pH	°C	DO	pH	# Dead A	# Dead B	°C	DO	pH	# Dead A	# Dead B
Control	20.3	8.9	7.8	19.7	7.4	7.3	0	0	20.1	7.0	7.3	0	0
1.0 mg/l	20.3	8.9	7.9	19.7	7.5	7.2	0	0	20.1	7.6	7.2	0	0
2.0 mg/l	20.3	9.0	7.9	19.8	8.0	7.2	0	0	20.1	7.6	7.2	0	0
4.0 mg/l	—	—	—	—	—	—	—	—	—	—	—	—	—
8.0 mg/l	—	—	—	—	—	—	—	—	—	—	—	—	—

Comments:
Control: Alkalinity: 57 mg/l; Hardness: 97 mg/l; Conductivity: 340 umho.
SDS: Alkalinity: 56 mg/l; Hardness: 98 mg/l; Conductivity: 335 umho.

TEST ORGANISM LOG

Aquatic Testing Laboratories

FATHEAD MINNOW - LARVAL
(*Pimephales promelas*)

QA/QC BATCH NO.: RT-060711

SOURCE: In-Lab Culture

DATE HATCHED: 6-30-06

APPROXIMATE QUANTITY: 300

GENERAL APPEARANCE: good

 # MORTALITIES 48 HOURS PRIOR TO TO USE IN TESTING: 0

DATE USED IN LAB: 7/11/06

AVERAGE FISH WEIGHT: 0.006 **gm**

TEST LOADING LIMITS: 0.65 gm/liter

200 ml test solution volume = 0.013 gm mean fish weight limit
250 ml test solution volume = 0.016 gm mean fish weight limit

ACCLIMATION WATER QUALITY:

Temp.: 20-8 **°C** **pH:** 7.8 **Ammonia:** 0.2 **mg/l NH_3-N**

DO: 8-8 **mg/l** **Alkalinity:** 57 **mg/l** **Hardness:** 97 **mg/l**

READINGS RECORDED BY: _____ **DATE:** 7-16-06

Acute Fish Test-96 Hr Survival

Start Date:	11 Jul-06 12:00	Test ID:	RT-060711f	Sample ID:	REF-Ref Toxicant
End Date:	15 Jul-06 12:00	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	SDS-Sodium dodecyl sulfate
Sample Date:	11 Jul-06 00:00	Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

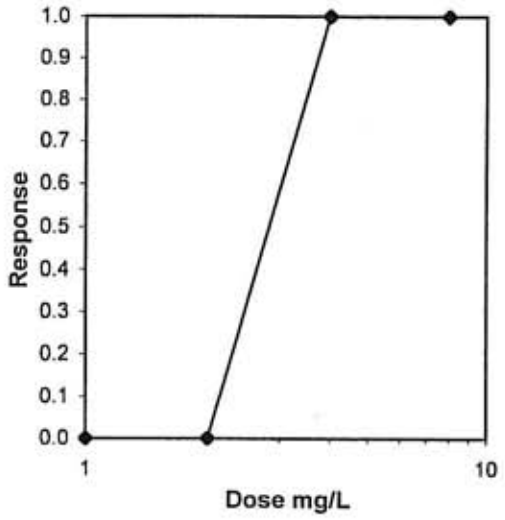
Conc-mg/L	1	2
D-Control	1.0000	1.0000
1	1.0000	1.0000
2	1.0000	1.0000
4	0.0000	0.0000
8	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-mg/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
D-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
1	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
2	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
4	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20
8	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Graphical Method

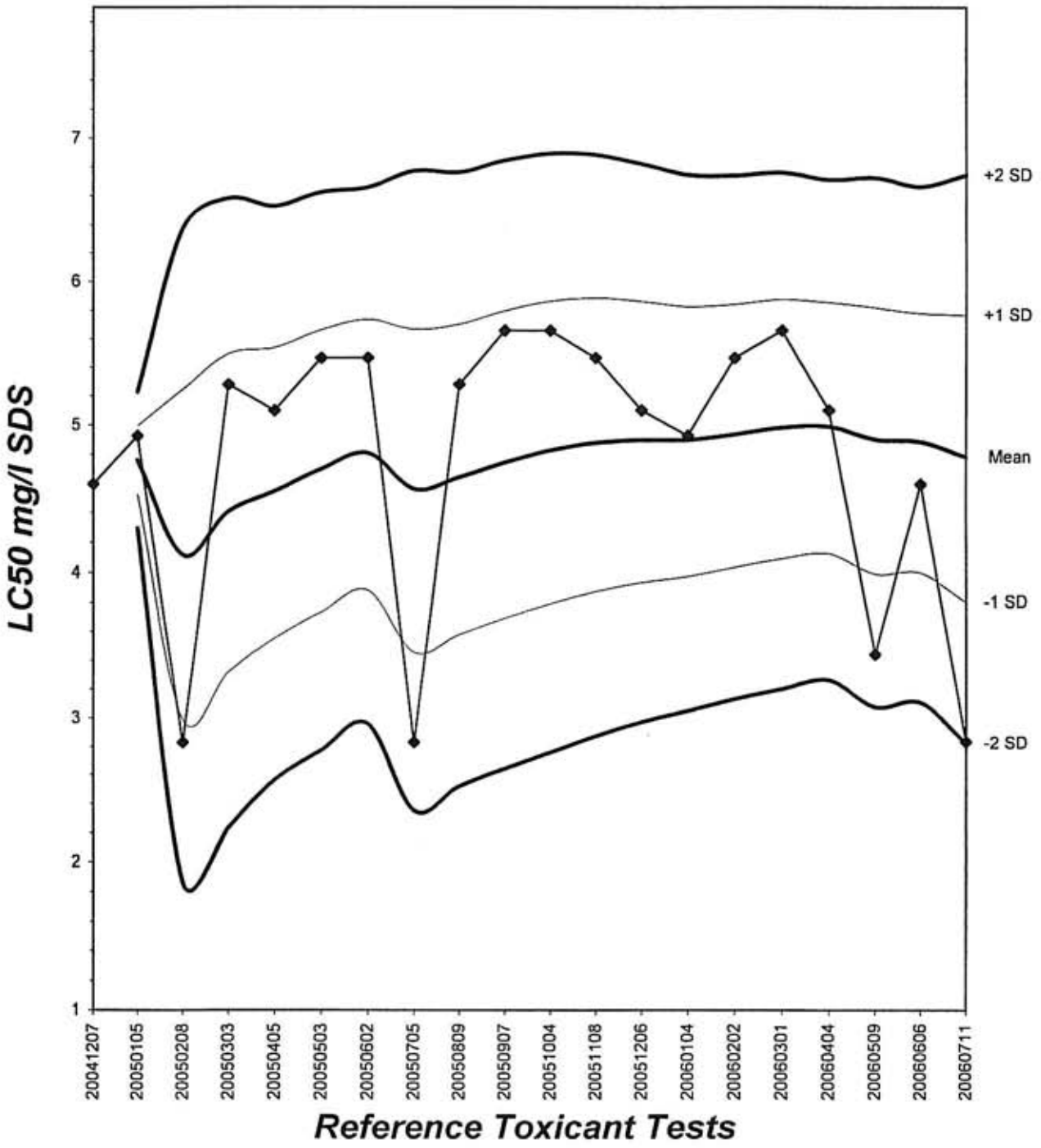
Trim Level	EC50
0.0%	2.8284



Reviewed by:

Fathead Minnow Larval Acute Laboratory Control Chart

CV% = 20.5



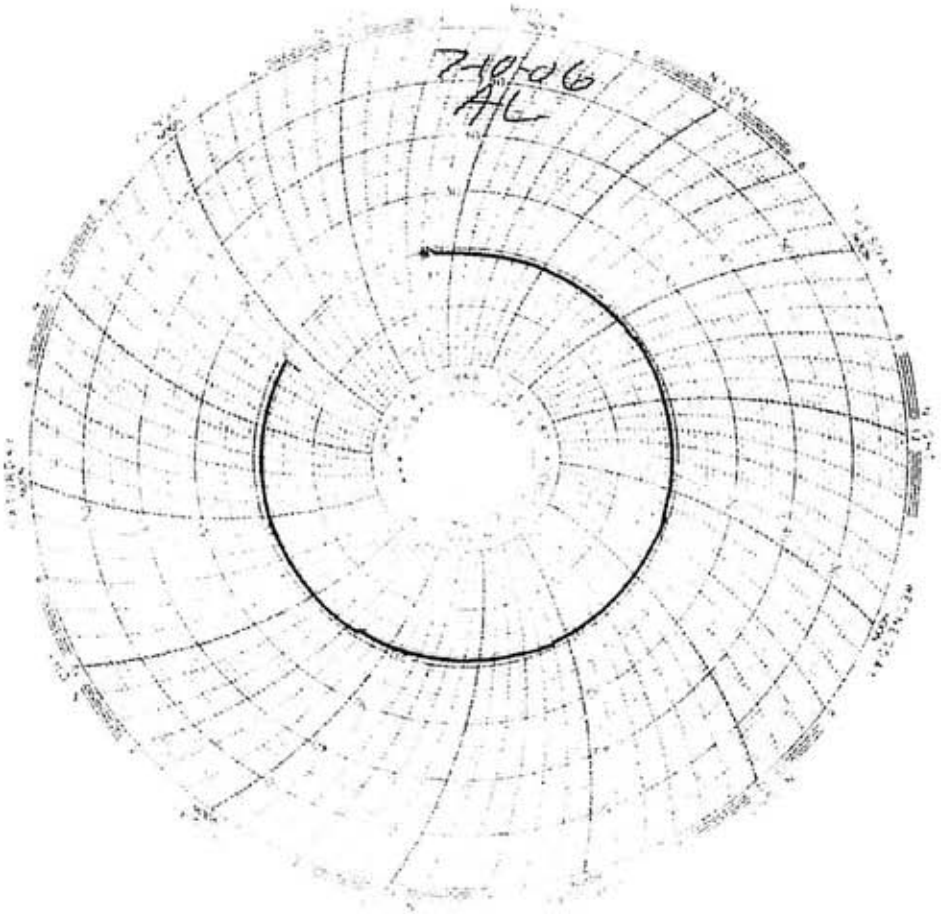
Aquatic Testing Laboratories

Laboratory Temperature Chart

QA/QC Batch No: RT-060711

Date Tested: 07/11/06 to 07/15/06

Acceptable Range: 20+/- 1°C



Aquatic
Testing
Laboratories

Giant Kelp Germination and Germ Tube Growth Short-Term Toxicity Test

- *Test and Result Summary*
- *Data Summary and Statistical Analysis*
- *Raw Test Data: Water Quality & Test Organism Measurements*

GIANT KELP GERMINATION AND GROWTH TEST
REFERENCE TOXICANT - COPPER

Aquatic Testing Laboratories

QA/QC Batch No.: RT-060718

Date Tested: 07/18/06 - 07/20/06

TEST SUMMARY

Species: *Macrocystis pyrifera*.
Protocol: EPA Method 1009.0.
Test type: Static.
Test chamber: 100 ml plastic petri dishes.
Temperature: 15 +/- 1°C.
Number of spores per ml: 7,500 (approx.).
Standard toxicant: Copper chloride.
Lab seawater: 0.2 um filtered seawater.

Source: Field collected.
Dilution water: Lab seawater.
Endpoints: NOEC, IC25 at 48 hrs.
Test volume: 50 ml.
Aeration: None.
Number of replicates: 5.
Ref. tox. source: Mallinckrodt.
Preservative: none.

RESULTS SUMMARY

Sample Concentration	Percent Germination		Mean Germ Tube Length (μm)	
Control	85.6%		16.45	
10 μg/l	84.9%		16.80	
18 μg/l	87.4%		16.90	
32 μg/l	80.5%		13.35	*
56 μg/l	63.9%	*	11.65	*
100 μg/l	32.4%	*	7.60	*
180 μg/l	11.6%	*	5.80	*
* Statistically significantly less than control at P = 0.05 level				

CHRONIC TOXICITY

Germination NOEC	32 μg/l
Germination IC25	55.2 μg/l
Germ Tube Growth NOEC	18 μg/l
Germ Tube Growth IC25	43.5 μg/l

QA/QC TEST ACCEPTABILITY

Parameter	Result
Mean control germination ≥70%	Yes (85.6%)
Mean control germination tube length >10 μm	Yes (16.45 μm)
Germination tube growth NOEC <35 μg/l Copper	Yes (32 μg/l)
%MSD <20% relative to control (germination & growth)	Yes (germ = 11.1%, growth = 6.0%)

Macrocystis Germination and Growth Test-Proportion Germinated

Start Date:	18 Jul-06 14:30	Test ID:	RT-060718k	Sample ID:	REF-Ref Toxicant
End Date:	20 Jul-06 14:00	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	CUCL-Copper chloride
Sample Date:	18 Jul-06 00:00	Protocol:	MBP 90	Test Species:	MP-Macrocystis pyrifera
Comments:					

Conc-ug/L	1	2	3	4	5
D-Control	0.7981	0.8447	0.8667	0.8932	0.8762
10	0.8692	0.8000	0.8137	0.8627	0.8981
18	0.9057	0.8462	0.9118	0.8077	0.9010
32	0.8491	0.7757	0.7822	0.7547	0.8627
56	0.4815	0.6214	0.7054	0.7500	0.6372
100	0.2476	0.4434	0.2636	0.3818	0.2816
180	0.1927	0.1455	0.1089	0.0288	0.1062

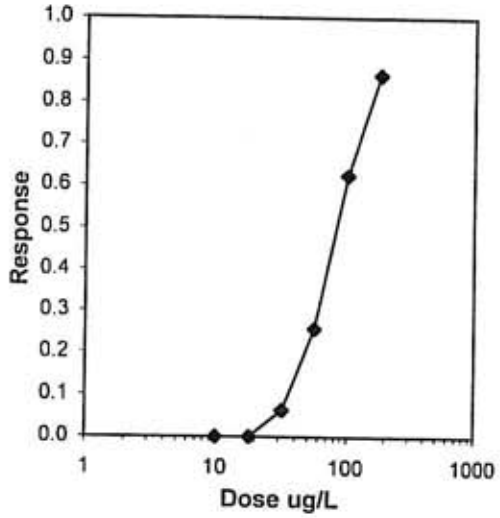
			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-ug/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
D-Control	0.8558	1.0000	1.1833	1.1047	1.2379	4.315	5				0.8597	1.0000
10	0.8488	0.9918	1.1739	1.1071	1.2460	4.876	5	0.186	2.409	0.1218	0.8597	1.0000
18	0.8745	1.0218	1.2126	1.1168	1.2692	5.525	5	-0.580	2.409	0.1218	0.8597	1.0000
32	0.8049	0.9405	1.1157	1.0527	1.1913	5.530	5	1.338	2.409	0.1218	0.8049	0.9363
*56	0.6391	0.7468	0.9287	0.7669	1.0472	11.465	5	5.036	2.409	0.1218	0.6391	0.7434
*100	0.3236	0.3781	0.6028	0.5208	0.7287	14.953	5	11.480	2.409	0.1218	0.3236	0.3764
*180	0.1164	0.1360	0.3369	0.1707	0.4544	31.279	5	16.738	2.409	0.1218	0.1164	0.1354

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.96648	0.91	-0.3597	-0.1593
Bartlett's Test indicates equal variances (p = 0.69)	3.91508	16.8119		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSB	MSE	F-Stat	F-Prob	df
Dunnett's Test	32	56	42.332		0.09492	0.58043	0.00639	90.8023	4.9E-17	6, 28

Linear Interpolation (80 Resamples)

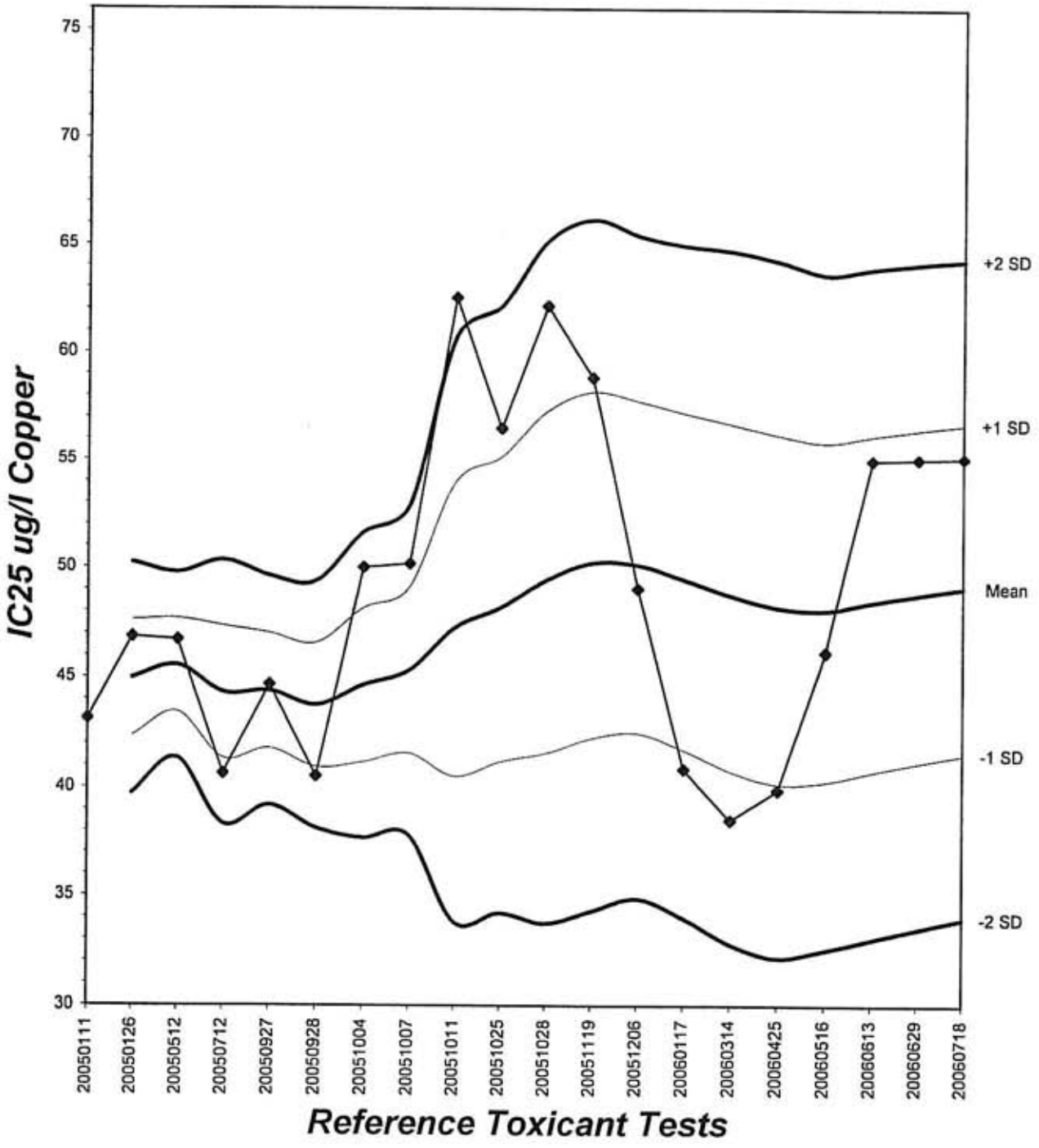
Point	ug/L	SE	95% CL(Exp)		Skew
IC05	28.986	3.888	19.521	38.625	0.1294
IC10	36.515	3.045	28.371	45.457	0.0994
IC15	42.736	3.772	34.886	57.008	0.8133
IC20	48.958	4.583	39.886	65.125	0.5010
IC25	55.179	4.708	44.024	69.293	0.0229
IC40	73.194	4.358	60.739	83.509	-1.1068
IC50	85.185	4.067	76.114	97.685	-0.1710



Reviewed by:

Giant Kelp Germination Laboratory Control Chart

CV% = 15.5



Macrocystis Germination and Growth Test-Growth-Length

Start Date:	18 Jul-06 14:30	Test ID:	RT-060718k	Sample ID:	REF-Ref Toxicant
End Date:	20 Jul-06 14:00	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	CUCL-Copper chloride
Sample Date:	18 Jul-06 00:00	Protocol:	MBP 90	Test Species:	MP-Macrocystis pyrifera
Comments:					

Conc-ug/L	1	2	3	4	5
D-Control	15.250	16.000	17.250	17.250	16.500
10	16.750	17.500	15.500	17.000	17.250
18	16.500	17.500	16.250	17.000	17.250
32	12.750	13.750	13.500	13.750	13.000
56	11.750	10.250	12.500	12.000	11.750
100	7.500	8.500	7.250	7.000	7.750
180	5.500	5.500	6.000	6.000	6.000

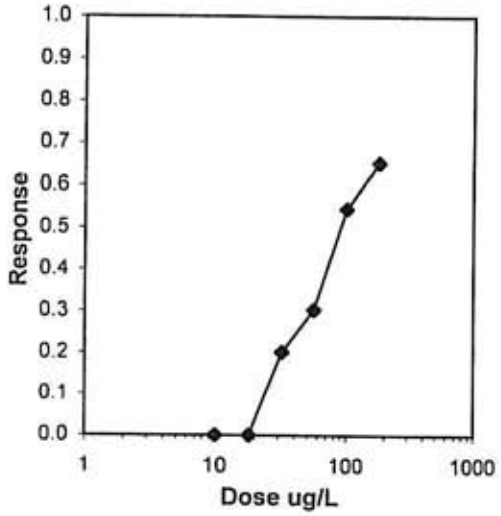
			Transform: Untransformed					1-Tailed			Isotonic	
Conc-ug/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
D-Control	16.450	1.0000	16.450	15.250	17.250	5.198	5				16.717	1.0000
10	16.800	1.0213	16.800	15.500	17.500	4.635	5	-0.856	2.409	0.985	16.717	1.0000
18	16.900	1.0274	16.900	16.250	17.500	3.068	5	-1.101	2.409	0.985	16.717	1.0000
*32	13.350	0.8116	13.350	12.750	13.750	3.402	5	7.583	2.409	0.985	13.350	0.7986
*56	11.650	0.7082	11.650	10.250	12.500	7.214	5	11.741	2.409	0.985	11.650	0.6969
*100	7.600	0.4620	7.600	7.000	8.500	7.573	5	21.647	2.409	0.985	7.600	0.4546
*180	5.800	0.3526	5.800	5.500	6.000	4.722	5	26.050	2.409	0.985	5.800	0.3470

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.94161	0.91	-0.6797	0.2185
Bartlett's Test indicates equal variances (p = 0.42)	5.99222	16.8119		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSB	MSE	F-Stat	F-Prob	df
Dunnett's Test	18	32	24		0.9847	103.033	0.41786	246.576	6.7E-23	6, 28

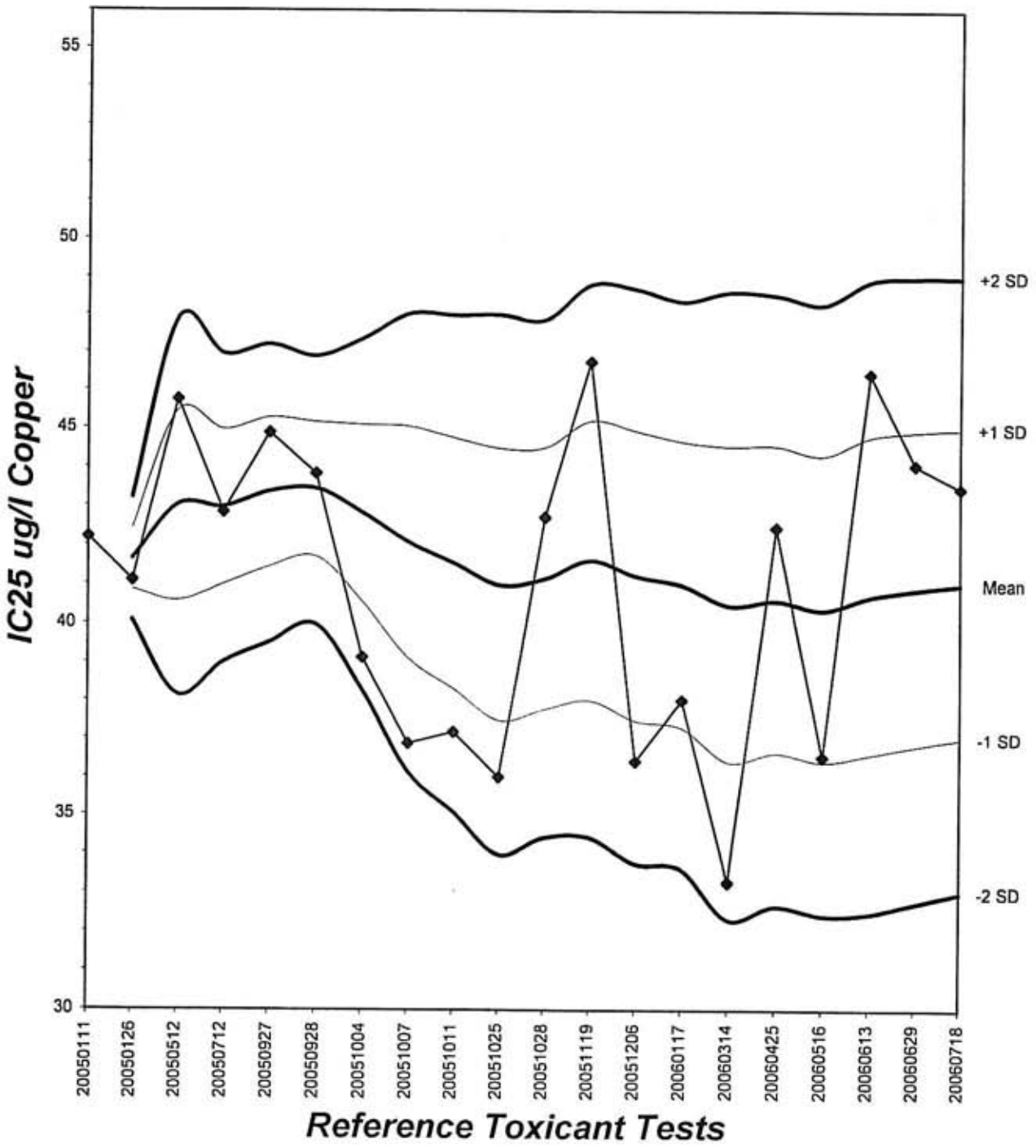
Linear Interpolation (80 Resamples)

Point	ug/L	SE	95% CL(Exp)		Skew
IC05	21.476	0.415	19.783	22.308	-1.2334
IC10	24.951	0.600	23.092	26.616	-0.1402
IC15	28.427	0.824	25.677	30.923	0.1614
IC20	31.903	1.995	28.249	40.211	1.4186
IC25	43.471	3.642	31.807	51.923	0.2330
IC40	73.600	3.020	63.097	81.201	-0.2343
IC50	91.761	2.623	85.634	100.307	0.4894



Giant Kelp Germ Tube Growth Laboratory Control Chart

CV% = 9.8



GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST

Aquatic Testing Laboratories

QA/QC No.: RT-060718

Start Date: 07/18/2006

Dish No.	Sample Conc.	Total Number Counted	Number Germin.	Number Non-Germin.	Germ Tube Lengths (micrometer units)									
					A	B	C	D	E	F	G	H	I	J
1	C	104	83	21	6	4	7	7	6	5	7	7	6	6
2	18	106	96	10	7	7	6	4	7	7	8	7	7	6
3	100	105	26	79	3	4	3	2	2	3	4	2	4	3
4	56	108	52	56	6	4	3	5	4	4	5	6	6	4
5	C	103	87	16	8	7	7	6	7	5	6	5	7	6
6	C	105	91	14	7	8	7	4	8	8	7	6	7	7
7	56	103	64	39	4	6	4	5	5	4	3	3	2	5
8	56	112	79	33	5	6	4	4	5	7	4	4	6	5
9	56	108	81	27	6	4	7	6	4	5	4	3	4	5
10	C	103	92	11	8	7	7	6	7	7	8	7	5	7
11	10	107	93	14	7	8	7	7	6	7	7	6	7	5
12	100	106	47	59	4	2	3	5	4	3	3	4	4	2
13	180	109	21	88	3	2	2	3	2	2	2	2	2	2
14	32	106	90	16	4	6	7	4	3	5	6	6	4	6
15	100	110	29	81	3	4	3	2	2	3	3	3	4	2
16	100	110	42	68	3	2	2	4	3	3	2	4	3	2
17	180	110	16	94	2	2	2	3	2	2	2	2	3	2
18	10	105	84	21	7	9	7	6	5	7	8	8	7	6
19	18	104	88	16	8	7	7	6	7	8	7	7	6	7
20	180	101	11	90	3	2	2	4	2	2	2	3	2	2

Comments: Micrometer conversion factor: 1 unit = 2.5 um at 400X power

Analyst: _____ Date: 7-21-06 Time: 0800

GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST

Aquatic Testing Laboratories

QA/QC No.: RT-060718

Start Date: 07/18/2006

Dish No.	Sample Conc.	Total Number Counted	Number Germin.	Number Non-Germin.	Germ Tube Lengths (micrometer units)									
					A	B	C	D	E	F	G	H	I	J
21	32	107	83	24	7	4	7	5	4	6	6	7	4	5
22	C	105	92	13	8	7	8	7	6	7	4	7	7	5
23	10	102	83	19	7	6	5	7	7	5	6	6	7	6
24	100	103	29	74	4	3	2	5	4	2	2	3	4	2
25	180	104	3	101	3	2	2	2	4	2	2	2	3	2
26	32	101	79	22	4	6	5	6	6	5	4	5	7	6
27	18	102	93	9	7	5	7	6	6	7	8	7	7	5
28	10	102	88	14	6	7	7	8	5	7	6	7	7	8
29	32	106	80	26	6	7	8	7	7	4	3	4	5	4
30	18	104	84	20	8	6	7	7	8	5	7	7	6	7
31	18	101	91	10	7	8	7	6	7	7	5	7	8	7
32	10	108	97	11	8	7	7	8	6	5	7	7	8	6
33	32	102	88	14	6	5	6	4	4	5	6	4	6	6
34	180	113	12	101	2	3	2	2	4	2	2	3	2	2
35	56	113	72	41	6	4	4	5	7	4	6	4	4	3
36														
37														
38														
39														
40														

Comments:

Micrometer conversion factor: 1 unit = 2.5 um at 400X power

GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST

Aquatic Testing Laboratories

QA/QC No.: RT-060718

Start Date: 07/18/2006

WATER QUALITY READINGS

	Initial Readings				Final Readings			
Sample	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)
Control	15.3	7.7	8.1	34	14.2	7.5	8.1	34
10 µg/l	15.6	7.4	8.1	34	14.5	7.4	8.1	34
18 µg/l	15.6	7.6	8.1	34	14.2	7.4	8.1	34
32µg/l	15.2	7.4	8.1	34	14.5	7.5	8.1	34
56 µg/l	15.1	7.4	8.1	34	14.3	7.4	8.1	34
100 µg/l	15.7	7.4	8.1	34	14.0	7.5	8.1	34
180 µg/l	15.6	7.4	8.1	34	14.2	7.4	8.1	34

Comments:

Reference toxicant: Copper chloride.

All dilutions made with reference lab seawater.

Illumination (16 hr light / 8 hr dark at 50 ± 10 uE/m²/s) at 5 locations in incubator: (four corners and center): 52, 58, 60, 55, 54 uE/m²/s.

Initial readings: Analyst: _____ Date: 7-18-06 Time: 1430

Final readings: Analyst: _____ Date: 7-20-06 Time: 14:00

Aquatic Testing Laboratories

GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST

QA/QC No.: RT-060718

Start Date: 07/18/2006

RANDOMIZATION WORKSHEET

Beaker No.	Sample Conc.	Beaker No.	Sample Conc.	Beaker No.	Sample Conc.	Beaker No.	Sample Conc.	Notes
1	C	11	10	21	32	31	18	
2	18	12	100	22	C	32	10	
3	100	13	180	23	10	33	32	
4	56	14	32	24	100	34	180	Need 7500/ml x 50 ml = 375,000 spores.
5	C	15	100	25	180	35	56	
6	C	16	100	26	32	36		Add 0.25 ml spore stock of 6 spores per 5x5 hemacytometer grid
7	56	17	180	27	18	37		
8	56	18	10	28	10	38		11:45 - dry
9	56	19	18	29	32	39		12:45 - wet 13:45 → remove blades
10	C	20	180	30	18	40		

Analyst: JA Date: 7-18-2006 Time: 11:45

Aquatic Testing Laboratories

Laboratory Temperature Chart

QA/QC Batch No: RT-060718

Date Tested: 07/18/06 to 07/20/06

Acceptable Range: 15+/- 1°C