

**City of Morro Bay and
Cayucos Sanitary District**

**OFFSHORE MONITORING
AND REPORTING PROGRAM**

SEMIANNUAL EFFLUENT SAMPLING

**CHEMICAL AND BIOASSAY
ANALYSIS RESULTS**

JULY 2005



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 2005

Prepared by

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August 2005

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

27 August 2005

Reference: Chemical and Bioassay Analysis Results for Effluent Samples Collected in July 2005

Dear Mr. Keogh:

Enclosed are the results of:

- A chronic bioassay conducted on a composite effluent sample collected on 11 July 2005;
- An acute bioassay conducted on four effluent grab samples collected daily from 11 July through 14 July 2005;
- Chemical analyses conducted on grab and composite effluent samples collected on 13 July 2005; and
- Radioactivity measured on a composite effluent sample collected on 15 July 2005.

All analyses except asbestos were conducted in accordance with the requirements of Monitoring and Reporting Program Number 98-15¹ to assess compliance with effluent limitations specified in the Waste Discharge Requirements of the NPDES Discharge Permit². Analysis for asbestos was not conducted due to a laboratory error.³ Asbestos has never been detected in effluent samples collected in prior years.

Bioassay protocols conformed to the revised requirements specified by RWQCB⁴ staff that eliminated techniques previously used to mitigate interference from ammonia toxicity⁵. 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 This includes outdated acute-toxicity limitations that are no longer promulgated by the current version of the California Ocean Plan⁶ because they were determined to be unnecessarily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.

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 Refer to the attached letter to Ms. Bonnie Luke of Marine Research Specialists from Ms. Linda Phoudamneun of BC Laboratories dated 26 August 2005 describing why the asbestos analysis was not conducted.

⁴ California Regional Water Quality Control Board, Central Coast Division

⁵ 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

⁶ 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 (<i>Macrocystis pyrifera</i>)					
Chronic Germination	18 ⁹	5.6			134
Chronic Growth	18 ⁹	5.6			134
Acute:					
Fathead Minnow (<i>Pimephales promelas</i>)	>70.7 ¹⁰	1.41	1.5	2.0	2.5

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 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 2005 measured spore germination and growth response in giant kelp (*Macrocystis pyrifera*) after exposure to a range of effluent dilutions. Toxic screening studies conducted in 1993⁷ established that giant kelp (*M. pyrifera*) is substantially more sensitive to MBCSD⁸ 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 (5.6 TUc) were more than 20-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 18%, 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 and growth in concentrations as low as 32 µg/L of the reference toxicant. The concomitant NOEC for the reference toxicant of 18 µg/L was comparable to toxic concentrations found in reference tests conducted over the last several years.¹¹ 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.

⁷ 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.

⁸ City of Morro Bay and the Cayucos Sanitary District, joint owners of the wastewater treatment and disposal facility

⁹ 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

¹⁰ LC₅₀ or the effluent concentration that produces death of 50% of the test organisms exposed to the toxicants for 96 hours

¹¹ 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 protocols¹² 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)¹³ as compared to typical effluent ammonia concentrations (≤ 36 mg/L)¹⁴. This is because ammonia remains in a relatively benign, ionic ammonium¹⁵ 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 form¹⁶ 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 tests¹⁷. 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.¹⁸ 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.

¹² 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

¹³ Instantaneous maximum ammonia concentration specified in the NPDES waste-discharge requirements for the MBCSD effluent

¹⁴ Marine Research Specialists (MRS). 2005. 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

¹⁵ NH_4^+

¹⁶ NH_3

¹⁷ Mercer, B.W., Ames, L.L., Touhill, C.J., Slyke, W.J., Dean, R.B., 1970. Ammonia removal from secondary effluents by selective ion exchange. Journal of the Water Pollution Control Federation 42 (2,Part 2), R95–R107.

¹⁸ RWQCB, 2003 (Footnote 5) *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 13), pH increased from 7.7 to 8.2 in the test chamber containing 100% effluent. This caused toxic deionized ammonia concentrations to triple from 0.8 mg/l to 2.6 mg/l, and resulted in the mortality of all the 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 chemical¹⁹ 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 2005 bioassay were particularly susceptible to toxic exposure. They experienced 100% mortality in concentrations as low as 4 mg/L of the reference toxicant²⁰. The concomitant LC₅₀ for the reference toxicant was 2.8 mg/L, which is 1.5 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 13 July and 15 July 2005. 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-2005 effluent samples. These compounds were ammonia, copper, lead, zinc, total cyanide, low-toxicity congeners of the herbicide dioxin, and a commonly occurring phthalate compound (bis 2-ethylhexyl phthalate). Table 2 also shows that the concentrations measured for

¹⁹ Sodium dodecyl sulfate

²⁰ 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

Constituent	Units	Concentration	
		Measured	Limitation ²⁴
Cyanide	mg/L	0.021	0.13
Copper	µg/L	15.	140.
Lead	µg/L	2.1	270.
Zinc	µg/L	56.	1620.
Dioxin (TCDD equivalents)	pg/L	0.159	0.52 ²⁵
Radioactivity (gross α)	pCi/L	0.46±0.89	15. ²⁶
Radioactivity (gross β)	pCi/L	11.6±3.01	50. ²⁶
Bis (2-ethylhexyl) phthalate (BEHP)	µg/L	10.	470. ²⁵
Ammonia (as N)	mg/L	33.	80.4

these seven compounds were all well below the discharge limitations promulgated by the NPDES permit. The permit limits were derived from the receiving-water objectives stated in Table B of the California Ocean Plan,²¹ and a critical initial dilution ratio of 133:1 computed from a conservative oceanic dispersion model applied to the MBCSD outfall.²² Because the PQL's²³ 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.

All seven of the compounds found in the July-2005 effluent samples have been routinely detected at similarly low concentrations within effluent²⁷ and biosolid²⁸ samples collected over the past decade. Ammonia as nitrogen²⁹ is measured in grab effluent samples that are collected on a monthly basis. It has always been present in detectable concentrations that average 23 mg/L, well below the most-stringent permit limit of 80.4 mg/L, which applies to a 6-month median.

Metals

Similarly, 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

²¹ 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.

²² 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.

²³ The Practical Quantification Limit is the smallest quantifiable concentration based on the sample size and analytical technique.

²⁴ 6-month median limitation unless otherwise indicated.

²⁵ 30-Day Average

²⁶ Drinking Water Limit.

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 NH₃-N

concentrations, the latter are not a common occurrence, and did not measurably contribute to the concentrations measured in the July-2005 effluent samples.

In addition, the measured concentrations of lead (2.1 µg/L) and zinc (56 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 an order of magnitude lower than their respective permit limits.

BEHP

The phthalate compound, bis (2-ethylhexyl) phthalate (BEHP), is a ubiquitous compound that has also been consistently detected at low levels in effluent and biosolid samples collected over the past decade.³⁰ 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. However, although this phthalate compound can negatively affect human health, concentrations would have to be 47-times higher than those measured in July 2005 to be of a human-health concern.

Dioxin

The chemical compound dioxin was also detected in the July 2005 effluent sample. Like the phthalate compounds, dioxins are ubiquitous in the environment. Trace amounts of dioxin are released to the environment primarily through emissions from the incineration of municipal and chemical wastes, in exhaust from automobiles using leaded gasoline, and from the improper disposal of certain chlorinated chemical wastes. Dioxins are chemically stable and do not easily break down into other compounds. Therefore, once produced, dioxins persist in the environment and are found almost everywhere. Extremely small concentrations, less than a part-per-trillion, of various dioxin congeners are often found in effluent and biosolids discharged from publicly owned treatment works where they are formed during the chlorination process. Low concentrations of dioxin have been detected in 77% of the samples of MBCSD effluent collected over the last decade.

Cyanide

Only one additional compound was detected at quantifiable amounts in the July-2005 effluent sample. Cyanide was detected at a concentration (0.021 mg/L) only slightly above its PQL of 0.02 mg/L. The measured concentration was almost 6-times lower than the permit limitation and therefore, not of ecological concern. Although cyanide is not normally detected in effluent samples, it was also encountered in the January-2005 effluent sample, and is commonly found in low concentrations in biosolids³¹. Although there are many natural sources of cyanide, it is frequently used in pigments and can be introduced into the collection system during photo processing and newspaper printing. Cyanide is also a component in many insecticides. Regardless, at flow rates comparable to 2004, the mass emission of cyanide will remain well below the stringent mass-loading goal of 57 kg/yr identified in the NPDES permit.

³⁰ Table 3 (Page II-9) 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.

³¹ Table 22 (Page III-77) *op. cit.*

Table 3. Non-quantifiable Effluent Constituent Detects

Constituent	Units	MDL	Concentration		
			Estimated ³²	PQL	Limitation ²⁴
Antimony	mg/L	13	18	100.0	160.8 ²⁵
Chromium	µg/L	.24	1.9	10.0	270.
Nickel	µg/L	2.2	5	10.0	670.
Selenium	µg/L	.31	.94	2.0	2010.
Thallium	µg/L	.024	.067	1.0	1880. ²⁵
Chloroform	µg/L	.05	.30	.50	17400. ²⁵
Toluene	µg/L	.057	.31	.50	11400000. ²⁵
Methylene chloride	µg/L	.16	.16	1.0	— ³³
Xylenes	µg/L	.23	.58	1.0	— ³³
1,4 Dichlorobenzene	µg/L	.062	.22	.50	2410. ²⁵
3- &4-methyl phenol	µg/L	.60	.74	2.0	470. 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.

Detectable Chemical Constituents

In addition to the seven compounds detected in the effluent at quantifiable levels, eleven 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 five naturally occurring metals, a cleaning agent, two gasoline-related compounds, a chlorination by-product, a common solvent, and a non-chlorinated phenolic compound.

Chloroform is a common by-product of wastewater and drinking water chlorination, while the volatile organic chemical 1,4-dichlorobenzene is used to control moths, molds, and mildew, and to deodorize restrooms and waste containers. Both compounds have been occasionally detected in quantifiable concentrations in effluent samples collected in prior years. Another chemical, methylene chloride, is used as an industrial solvent and as a paint stripper. It may also be found in some aerosol and pesticide products and is used in the manufacture of photographic film. The two gasoline-related compounds, toluene and xylene, comprise one-half of the aromatic hydrocarbon compounds collectively known as BTEX (benzene, toluene, ethyl benzene, and xylene). BTEX compounds are primarily associated with gasoline contamination.

Conclusions

The comprehensive chemical and bioassay analyses conducted on effluent samples collected in July 2005 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-2005 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.

³² Not detected at levels above the indicated practical quantification (detection) limit

³³ Limit not specified in the NPDES discharge permit

Mr. B. Keogh
27 August 2005

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

Sincerely,

Douglas A. Coats, Ph.D.
Program Manager

Enclosure (Four Report Copies)

marine research specialists

3140 Telegraph Rd., 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

8 September 2005

Reference: Transmission Electron Microscopy Analysis Result for Asbestos Performed on Composite Effluent Sample Collected on 13 July 2005

Dear Mr. Keogh:

Enclosed are the results of a transmission electron microscopy analysis for asbestos conducted on a composite effluent sample collected from the WWTP on 13 July 2005. The asbestos structure concentration was calculated to be less than 4.3 MFL. Also included in this report are pertinent QA/QC data, including chains of custody.

Table 1. Comparison of Effluent Chemical Concentrations and NPDES Permit Limitations

Constituent	Concentration		
	Units	Measured	Limitation ¹
Asbestos Structures >10 µm	MFL	<4.3	— ²

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

Sincerely,

Douglas A. Coats, Ph.D.
Program Manager

Enclosure (Four Report Copies)

¹ 6-month median limitation unless otherwise indicated.

² Limit not specified in the NPDES discharge permit.

CHEMICAL ANALYSIS RESULTS

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

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

Reported: 09/16/05 14:27

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

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/05 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Acenaphthene	ND	ug/L	2.0	0.26	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Acenaphthylene	ND	ug/L	2.0	0.25	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Aldrin	ND	ug/L	2.0	0.45	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Aniline	ND	ug/L	5.0	0.72	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Anthracene	ND	ug/L	2.0	0.27	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzidine	ND	ug/L	20	5.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[a]anthracene	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[b]fluoranthene	ND	ug/L	2.0	0.41	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[k]fluoranthene	ND	ug/L	2.0	0.21	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[a]pyrene	ND	ug/L	2.0	0.31	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.66	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Benzoic acid	ND	ug/L	10	1.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzyl alcohol	ND	ug/L	2.0	0.30	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Benzyl butyl phthalate	ND	ug/L	2.0	0.74	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
alpha-BHC	ND	ug/L	2.0	0.42	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
beta-BHC	ND	ug/L	2.0	0.44	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
delta-BHC	ND	ug/L	2.0	0.33	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
gamma-BHC (Lindane)	ND	ug/L	2.0	0.41	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.37	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.37	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.28	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		
bis(2-Ethylhexyl)phthalate	10	ug/L	5.0	1.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	2.4	
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.41	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	

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

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

Reported: 09/16/05 14:27

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

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/05 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
4-Chloroaniline	ND	ug/L	2.0	0.66	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Chloronaphthalene	ND	ug/L	2.0	0.31	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.27	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Chrysene	ND	ug/L	2.0	0.43	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4,4'-DDD	ND	ug/L	2.0	1.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4,4'-DDE	ND	ug/L	3.0	1.2	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4,4'-DDT	ND	ug/L	2.0	1.6	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.68	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Dibenzofuran	ND	ug/L	2.0	0.29	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,2-Dichlorobenzene	ND	ug/L	2.0	0.32	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,3-Dichlorobenzene	ND	ug/L	2.0	0.34	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,4-Dichlorobenzene	ND	ug/L	2.0	0.39	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
3,3-Dichlorobenzidine	ND	ug/L	10	2.5	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Dieldrin	ND	ug/L	3.0	1.5	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Diethyl phthalate	ND	ug/L	2.0	0.39	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Dimethyl phthalate	ND	ug/L	2.0	0.24	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Di-n-butyl phthalate	ND	ug/L	2.0	0.31	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4-Dinitrotoluene	ND	ug/L	2.0	0.23	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,6-Dinitrotoluene	ND	ug/L	2.0	0.29	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Di-n-octyl phthalate	ND	ug/L	2.0	0.67	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.22	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Endosulfan I	ND	ug/L	10	1.7	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Endosulfan II	ND	ug/L	10	0.85	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	

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

Reported: 09/16/05 14:27

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

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/05 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Endosulfan sulfate	ND	ug/L	3.0	1.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Endrin	ND	ug/L	2.0	1.8	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Endrin aldehyde	ND	ug/L	10	4.0	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Fluoranthene	ND	ug/L	2.0	0.28	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Fluorene	ND	ug/L	2.0	0.32	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Heptachlor	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Heptachlor epoxide	ND	ug/L	2.0	0.54	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Hexachlorobenzene	ND	ug/L	2.0	0.44	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Hexachlorobutadiene	ND	ug/L	2.0	0.37	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.70	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Hexachloroethane	ND	ug/L	2.0	0.45	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.61	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Isophorone	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Methylnaphthalene	ND	ug/L	2.0	0.39	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Naphthalene	ND	ug/L	2.0	0.33	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Naphthylamine	ND	ug/L	20	4.1	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	C02
2-Nitroaniline	ND	ug/L	2.0	0.29	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
3-Nitroaniline	ND	ug/L	2.0	0.49	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
4-Nitroaniline	ND	ug/L	5.0	0.28	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Nitrobenzene	ND	ug/L	2.0	0.26	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
N-Nitrosodimethylamine	ND	ug/L	2.0	0.17	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.41	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.30	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	

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

Reported: 09/16/05 14:27

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

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/05 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Phenanthrene	ND	ug/L	2.0	0.30	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Pyrene	ND	ug/L	2.0	0.81	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.32	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Chlorophenol	ND	ug/L	2.0	0.27	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4-Dichlorophenol	ND	ug/L	2.0	0.30	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4-Dimethylphenol	ND	ug/L	2.0	0.58	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.30	EPA-625	07/15/05	07/21/05 01:03	SPB	MS-B1	1	BOG0955	ND	V11
2,4-Dinitrophenol	ND	ug/L	10	0.21	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Methylphenol	ND	ug/L	2.0	0.36	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
3- & 4-Methylphenol	0.74	ug/L	2.0	0.60	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	J
2-Nitrophenol	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4-Nitrophenol	ND	ug/L	2.0	0.16	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Pentachlorophenol	ND	ug/L	10	0.42	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Phenol	ND	ug/L	2.0	0.18	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.36	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.39	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Fluorophenol (Surrogate)	45.6	%	46 - 93 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		S09
Phenol-d5 (Surrogate)	43.5	%	31 - 69 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		
Nitrobenzene-d5 (Surrogate)	105	%	67 - 117 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		
2-Fluorobiphenyl (Surrogate)	84.3	%	53 - 111 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		
2,4,6-Tribromophenol (Surrogate)	94.5	%	62 - 119 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		
p-Terphenyl-d14 (Surrogate)	92.4	%	66 - 137 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		



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

Reported: 08/25/05 15:47

Water Analysis (General Chemistry)

BCL Sample ID: 0506889-01		Client Sample Name: GRAB, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Ammonia as N (Distilled)	33	mg/L	2.5	1.0	EPA-350.1	07/15/05	07/15/05 14:00	VC1	AAII-5	50	BOG0644	0.25	A01



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

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Water Analysis (General Chemistry)

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Total Cyanide	0.021	mg/L	0.020	0.0063	EPA-335.3	07/18/05	07/19/05 04:30	MRM	AAII-1	1	BOG0747	ND	

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

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Water Analysis (Metals)

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM												
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Total Antimony	18	ug/L	100	13	EPA-200.7	07/20/05	07/21/05 23:35	ARD	PE-OP2	1	BOG0863	ND	J	
Total Beryllium	ND	ug/L	10	1.5	EPA-200.7	07/20/05	07/21/05 23:35	ARD	PE-OP2	1	BOG0863	ND		
Total Cadmium	ND	ug/L	10	1.8	EPA-200.7	07/20/05	07/21/05 23:35	ARD	PE-OP2	1	BOG0863	0.60		
Total Chromium	1.9	ug/L	10	0.24	EPA-200.7	07/20/05	07/21/05 23:35	ARD	PE-OP2	1	BOG0863	0.38	J	
Total Copper	15	ug/L	10	1.8	EPA-200.7	07/20/05	07/21/05 23:35	ARD	PE-OP2	1	BOG0863	0.096		
Total Mercury	ND	ug/L	0.20	0.020	EPA-245.1	07/22/05	07/25/05 16:25	DKC	CETAC1	1	BOG1042	ND		
Total Nickel	5.0	ug/L	10	2.2	EPA-200.7	07/20/05	07/21/05 23:35	ARD	PE-OP2	1	BOG0863	1.0	J	
Total Silver	ND	ug/L	10	2.0	EPA-200.7	07/20/05	07/21/05 23:35	ARD	PE-OP2	1	BOG0863	ND		
Total Zinc	56	ug/L	50	3.1	EPA-200.7	07/20/05	07/21/05 23:35	ARD	PE-OP2	1	BOG0863	12		
Total Recoverable Arsenic	ND	ug/L	2.0	0.89	EPA-200.8	07/19/05	07/27/05 17:37	PPS	PE-EL1	1	BOG0784	ND		
Total Recoverable Lead	2.1	ug/L	1.0	0.019	EPA-200.8	07/19/05	07/27/05 17:37	PPS	PE-EL1	1	BOG0784	0.003		
Total Recoverable Selenium	0.94	ug/L	2.0	0.31	EPA-200.8	07/19/05	07/27/05 17:37	PPS	PE-EL1	1	BOG0784	ND	J	
Total Recoverable Thallium	0.067	ug/L	1.0	0.024	EPA-200.8	07/19/05	07/27/05 17:37	PPS	PE-EL1	1	BOG0784	0.032	J	

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

Reported: 08/25/05 15:47

Organochlorine Pesticides and PCB's (EPA Method 608)

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Aldrin	ND	ug/L	0.0050	0.0023	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
alpha-BHC	ND	ug/L	0.0050	0.0016	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
beta-BHC	ND	ug/L	0.0050	0.0027	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
delta-BHC	ND	ug/L	0.0050	0.0020	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.0018	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Chlordane (Technical)	ND	ug/L	0.50	0.44	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
4,4'-DDD	ND	ug/L	0.0050	0.0011	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
4,4'-DDE	ND	ug/L	0.0050	0.0019	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
4,4'-DDT	ND	ug/L	0.0050	0.0021	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Dieldrin	ND	ug/L	0.0050	0.0020	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Endosulfan I	ND	ug/L	0.0050	0.0019	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Endosulfan II	ND	ug/L	0.0050	0.0021	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Endosulfan sulfate	ND	ug/L	0.0050	0.0021	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Endrin	ND	ug/L	0.0050	0.0025	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	V11
Endrin aldehyde	ND	ug/L	0.010	0.0024	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Heptachlor	ND	ug/L	0.0050	0.0023	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Heptachlor epoxide	ND	ug/L	0.0050	0.0019	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Methoxychlor	ND	ug/L	0.0050	0.0021	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Toxaphene	ND	ug/L	2.0	0.42	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
PCB-1016	ND	ug/L	0.20	0.034	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
PCB-1221	ND	ug/L	0.20	0.089	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
PCB-1232	ND	ug/L	0.20	0.090	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
PCB-1242	ND	ug/L	0.20	0.095	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
PCB-1248	ND	ug/L	0.20	0.025	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
PCB-1254	ND	ug/L	0.20	0.042	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	



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

Reported: 08/25/05 15:47

Organochlorine Pesticides and PCB's (EPA Method 608)

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
PCB-1260	ND	ug/L	0.20	0.043	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123	ND	
TCMX (Surrogate)	46.2	%	55 - 123 (LCL - UCL)		EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123		S09
Dibutyl chlorendate (Surrogate)	51.5	%	48 - 149 (LCL - UCL)		EPA-608	07/15/05	07/29/05 13:37	SAM	GC-1	1	BOG1123		



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

Reported: 08/25/05 15:47

Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru- ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	ug/L	0.50	0.11	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Bromodichloromethane	ND	ug/L	0.50	0.067	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Bromoform	ND	ug/L	0.50	0.051	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Bromomethane	ND	ug/L	1.0	0.45	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Carbon tetrachloride	ND	ug/L	0.50	0.099	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Chlorobenzene	ND	ug/L	0.50	0.050	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Chloroethane	ND	ug/L	0.50	0.12	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Chloroform	0.30	ug/L	0.50	0.050	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	J
Chloromethane	ND	ug/L	0.50	0.21	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Dibromochloromethane	ND	ug/L	0.50	0.056	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
1,2-Dichlorobenzene	ND	ug/L	0.50	0.085	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.081	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
1,4-Dichlorobenzene	0.22	ug/L	0.50	0.062	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	J
1,1-Dichloroethane	ND	ug/L	0.50	0.17	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
1,2-Dichloroethane	ND	ug/L	0.50	0.11	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
1,1-Dichloroethene	ND	ug/L	0.50	0.088	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.11	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
1,2-Dichloropropane	ND	ug/L	0.50	0.13	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.079	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Ethylbenzene	ND	ug/L	0.50	0.13	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Methylene chloride	0.16	ug/L	1.0	0.16	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	J
Methyl t-butyl ether	ND	ug/L	0.50	0.052	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	0.21	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.057	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	V11
Tetrachloroethene	ND	ug/L	0.50	0.12	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	

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

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

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Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Toluene	0.31	ug/L	0.50	0.057	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	J
1,1,1-Trichloroethane	ND	ug/L	0.50	0.093	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.063	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Trichloroethene	ND	ug/L	0.50	0.055	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Trichlorofluoromethane	ND	ug/L	0.50	0.094	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.18	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Vinyl chloride	ND	ug/L	0.50	0.098	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	
Total Xylenes	0.58	ug/L	1.0	0.23	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	J
Acrolein	ND	ug/L	50	1.0	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623		
Acrylonitrile	ND	ug/L	20	0.66	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623		
p- & m-Xylenes	0.39	ug/L	0.50	0.10	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	J
o-Xylene	0.19	ug/L	0.50	0.13	EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623	ND	J
1,2-Dichloroethane-d4 (Surrogate)	97.2	%	76 - 114 (LCL - UCL)		EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623		
Toluene-d8 (Surrogate)	100	%	88 - 110 (LCL - UCL)		EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623		
4-Bromofluorobenzene (Surrogate)	96.4	%	86 - 115 (LCL - UCL)		EPA-624	07/15/05	07/16/05 02:03	MGC	MS-V7	1	BOG0623		

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

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

BCL Sample ID: 0506889-01		Client Sample Name: GRAB, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.32	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
2-Chlorophenol	ND	ug/L	2.0	0.27	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
2,4-Dichlorophenol	ND	ug/L	2.0	0.30	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
2,4-Dimethylphenol	ND	ug/L	2.0	0.58	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
2,4-Dinitrophenol	ND	ug/L	10	0.21	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
2-Methylphenol	ND	ug/L	2.0	0.36	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
3- & 4-Methylphenol	1.3	ug/L	2.0	0.60	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	J
2-Nitrophenol	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
4-Nitrophenol	ND	ug/L	2.0	0.16	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	V11
Pentachlorophenol	ND	ug/L	10	0.42	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
Phenol	ND	ug/L	2.0	0.18	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.36	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.39	EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955	ND	
2-Fluorophenol (Surrogate)	43.2	%	46 - 93 (LCL - UCL)		EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955		S09
Phenol-d5 (Surrogate)	39.1	%	31 - 69 (LCL - UCL)		EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955		
Nitrobenzene-d5 (Surrogate)	79.2	%	67 - 117 (LCL - UCL)		EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955		
2-Fluorobiphenyl (Surrogate)	66.2	%	53 - 111 (LCL - UCL)		EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955		
2,4,6-Tribromophenol (Surrogate)	100	%	62 - 119 (LCL - UCL)		EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955		
p-Terphenyl-d14 (Surrogate)	65.8	%	66 - 137 (LCL - UCL)		EPA-625	07/15/05	07/21/05 00:35	SKC	MS-B1	1.01	BOG0955		S09



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

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

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Acenaphthene	ND	ug/L	2.0	0.26	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Acenaphthylene	ND	ug/L	2.0	0.25	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Aldrin	ND	ug/L	2.0	0.45	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Aniline	ND	ug/L	5.0	0.72	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Anthracene	ND	ug/L	2.0	0.27	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzidine	ND	ug/L	20	5.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[a]anthracene	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[b]fluoranthene	ND	ug/L	2.0	0.41	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[k]fluoranthene	ND	ug/L	2.0	0.21	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[a]pyrene	ND	ug/L	2.0	0.31	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.66	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Benzoic acid	ND	ug/L	10	1.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Benzyl alcohol	ND	ug/L	2.0	0.30	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Benzyl butyl phthalate	ND	ug/L	2.0	0.74	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
alpha-BHC	ND	ug/L	2.0	0.42	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
beta-BHC	ND	ug/L	2.0	0.44	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
delta-BHC	ND	ug/L	2.0	0.33	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
gamma-BHC (Lindane)	ND	ug/L	2.0	0.41	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.37	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.37	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
bis(2-Ethylhexyl)phthalate	10	ug/L	5.0	1.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	2.4	
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.41	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4-Chloroaniline	ND	ug/L	2.0	0.66	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Chloronaphthalene	ND	ug/L	2.0	0.31	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.27	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	

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

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

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Chrysene	ND	ug/L	2.0	0.43	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4,4'-DDD	ND	ug/L	2.0	1.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4,4'-DDE	ND	ug/L	3.0	1.2	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4,4'-DDT	ND	ug/L	2.0	1.6	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.68	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Dibenzofuran	ND	ug/L	2.0	0.29	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,2-Dichlorobenzene	ND	ug/L	2.0	0.32	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,3-Dichlorobenzene	ND	ug/L	2.0	0.34	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,4-Dichlorobenzene	ND	ug/L	2.0	0.39	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
3,3-Dichlorobenzidine	ND	ug/L	10	2.5	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Dieldrin	ND	ug/L	3.0	1.5	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Diethyl phthalate	ND	ug/L	2.0	0.39	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Dimethyl phthalate	ND	ug/L	2.0	0.24	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Di-n-butyl phthalate	ND	ug/L	2.0	0.31	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4-Dinitrotoluene	ND	ug/L	2.0	0.23	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,6-Dinitrotoluene	ND	ug/L	2.0	0.29	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Di-n-octyl phthalate	ND	ug/L	2.0	0.67	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.22	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Endosulfan I	ND	ug/L	10	1.7	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Endosulfan II	ND	ug/L	10	0.85	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Endosulfan sulfate	ND	ug/L	3.0	1.3	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Endrin	ND	ug/L	2.0	1.8	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Endrin aldehyde	ND	ug/L	10	4.0	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Fluoranthene	ND	ug/L	2.0	0.28	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Fluorene	ND	ug/L	2.0	0.32	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	

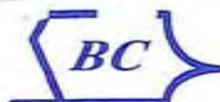
Marine Research Specialists
3140 Telegraph Road
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Project: Semi-annual eff
Project Number: [none]
Project Manager: Doug Coats

Reported: 08/25/05 15:47

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

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Heptachlor	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Heptachlor epoxide	ND	ug/L	2.0	0.54	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Hexachlorobenzene	ND	ug/L	2.0	0.44	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Hexachlorobutadiene	ND	ug/L	2.0	0.37	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.70	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Hexachloroethane	ND	ug/L	2.0	0.45	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.61	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Isophorone	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Methylnaphthalene	ND	ug/L	2.0	0.39	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Naphthalene	ND	ug/L	2.0	0.33	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Naphthylamine	ND	ug/L	20	4.1	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	C02
2-Nitroaniline	ND	ug/L	2.0	0.29	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
3-Nitroaniline	ND	ug/L	2.0	0.49	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
4-Nitroaniline	ND	ug/L	5.0	0.28	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Nitrobenzene	ND	ug/L	2.0	0.26	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
N-Nitrosodimethylamine	ND	ug/L	2.0	0.17	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.41	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.30	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Phenanthrene	ND	ug/L	2.0	0.30	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Pyrene	ND	ug/L	2.0	0.81	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.32	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Chlorophenol	ND	ug/L	2.0	0.27	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4-Dichlorophenol	ND	ug/L	2.0	0.30	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4-Dimethylphenol	ND	ug/L	2.0	0.58	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	



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

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

Reported: 08/25/05 15:47

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

BCL Sample ID: 0506889-02 | Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
2,4-Dinitrophenol	ND	ug/L	10	0.21	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Methylphenol	ND	ug/L	2.0	0.36	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
3- & 4-Methylphenol	0.74	ug/L	2.0	0.60	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	J
2-Nitrophenol	ND	ug/L	2.0	0.35	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
4-Nitrophenol	ND	ug/L	2.0	0.16	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	V11
Pentachlorophenol	ND	ug/L	10	0.42	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
Phenol	ND	ug/L	2.0	0.18	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.36	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.39	EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955	ND	
2-Fluorophenol (Surrogate)	45.6	%	46 - 93 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		S09
Phenol-d5 (Surrogate)	43.5	%	31 - 69 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		
Nitrobenzene-d5 (Surrogate)	105	%	67 - 117 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		
2-Fluorobiphenyl (Surrogate)	84.3	%	53 - 111 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		
2,4,6-Tribromophenol (Surrogate)	94.5	%	62 - 119 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		
p-Terphenyl-d14 (Surrogate)	92.4	%	66 - 137 (LCL - UCL)		EPA-625	07/15/05	07/21/05 01:03	SKC	MS-B1	1	BOG0955		

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

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

Reported: 08/25/05 15:47

Organo-Phosphorus Pesticide Analysis (EPA Method 8140)

BCL Sample ID: 0506889-02		Client Sample Name: COMPOSITE, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Azinphos methyl	ND	ug/L	0.20	0.045	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Bolstar	ND	ug/L	0.20	0.033	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Chlorpyrifos	ND	ug/L	0.20	0.036	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Coumaphos	ND	ug/L	0.20	0.070	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Demeton O/S	ND	ug/L	0.20	0.073	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Diazinon	ND	ug/L	0.20	0.027	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Dichlorvos	ND	ug/L	0.20	0.040	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Disulfoton	ND	ug/L	0.50	0.14	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Ethoprop	ND	ug/L	0.20	0.036	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Fensulfothion	ND	ug/L	0.20	0.047	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Fenthion	ND	ug/L	0.20	0.037	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Merphos	ND	ug/L	0.20	0.039	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Methyl parathion	ND	ug/L	0.20	0.045	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Mevinphos	ND	ug/L	0.20	0.033	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Naled	ND	ug/L	0.20	0.040	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Phorate	ND	ug/L	0.20	0.025	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Ronnel (Fenclorphos)	ND	ug/L	0.20	0.035	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Stirophos (Tetrachlorvinphos)	ND	ug/L	0.20	0.040	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Tokuthion (Prothiofos)	ND	ug/L	0.20	0.040	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Trichloronate	ND	ug/L	0.20	0.036	EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779	ND	
Triphenylphosphate (Surrogate)	90.0	%	55 - 132 (LCL - UCL)		EPA-8140	07/14/05	07/20/05 01:14	ZZZ	GC-7	1	BOG0779		

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

REPORT

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

Client: BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Attention: Shelley Taylor

Report date: August 2, 2005
Date Received: July 18, 2005
Laboratory No: 944780

Sample Matrix: Water

Investigation: Gross Alpha Activity
Gross Beta Activity

Analytical results

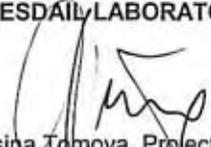
Sample ID	Analysis	Method	pCi/L	Two Sigma Error	MDA	Date Analyzed
05-7031-1	Alpha	SM7110C	0.46	+/- 0.89	2.42	08/01/05
	Beta	EPA 900.0	11.6	+/- 3.01	2.51	08/01/05

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



August 02, 2005

Alta Project I.D.: 26454

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 15, 2005 under your Project Name "Morro Bay WWTP". This sample was extracted and analyzed using EPA Method 1613 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,

Martha M. Maier
HRMS Services Director



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



Sample ID: COMP EFFLUENT						EPA Method 1613				
Client Data			Sample Data			Laboratory Data				
Name:	Marine Research Specialists		Matrix:	Aqueous		Lab Sample:	26454-001	Date Received:	15-Jul-05	
Project:	Morro Bay WWTP		Sample Size:	0.992 L		QC Batch No.:	7048	Date Extracted:	28-Jul-05	
Date Collected:	14-Jul-05					Date Analyzed DB-5:	30-Jul-05	Date Analyzed DB-225:	NA	
Time Collected:	0945									
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	MDL ^c	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers	
2,3,7,8-TCDD	ND	0.384		0.699		IS 13C-2,3,7,8-TCDD	88.9	25 - 164		
1,2,3,7,8-PeCDD	ND	1.06		1.12		13C-1,2,3,7,8-PeCDD	93.4	25 - 181		
1,2,3,4,7,8-HxCDD	ND	1.50		0.727		13C-1,2,3,4,7,8-HxCDD	72.6	32 - 141		
1,2,3,6,7,8-HxCDD	ND	1.50		0.729		13C-1,2,3,6,7,8-HxCDD	83.2	28 - 130		
1,2,3,7,8,9-HxCDD	ND	1.47		2.22		13C-1,2,3,4,6,7,8-HpCDD	83.5	23 - 140		
1,2,3,4,6,7,8-HpCDD	7.43			0.826	J	13C-OCDD	78.8	17 - 157		
OCDD	75.9			2.43		13C-2,3,7,8-TCDF	90.9	24 - 169		
2,3,7,8-TCDF	ND	1.57		0.486		13C-1,2,3,7,8-PeCDF	92.7	24 - 185		
1,2,3,7,8-PeCDF	ND	1.66		1.26		13C-2,3,4,7,8-PeCDF	99.2	21 - 178		
2,3,4,7,8-PeCDF	ND	1.16		0.707		13C-1,2,3,4,7,8-HxCDF	80.2	26 - 152		
1,2,3,4,7,8-HxCDF	ND	0.939		0.932		13C-1,2,3,6,7,8-HxCDF	82.1	26 - 123		
1,2,3,6,7,8-HxCDF	ND	0.920		0.937		13C-2,3,4,6,7,8-HxCDF	84.6	28 - 136		
2,3,4,6,7,8-HxCDF	ND	1.00		0.932		13C-1,2,3,7,8,9-HxCDF	82.9	29 - 147		
1,2,3,7,8,9-HxCDF	ND	1.14		1.65		13C-1,2,3,4,6,7,8-HpCDF	83.8	28 - 143		
1,2,3,4,6,7,8-HpCDF	ND	3.81		1.21		13C-1,2,3,4,7,8,9-HpCDF	86.7	26 - 138		
1,2,3,4,7,8,9-HpCDF	ND	2.47		1.52		13C-OCDF	81.5	17 - 157		
OCDF	8.49			1.78	J	CRS 37Cl-2,3,7,8-TCDD	97.9	35 - 197		
Totals						Toxic Equivalent Quotient (TEQ) Data ^e				
Total TCDD	2.98					TEQ (Min):	0.0827			
Total PeCDD	ND		7.87			a. Sample specific estimated detection limit.				
Total HxCDD	ND	2.63				b. Estimated maximum possible concentration.				
Total HpCDD	15.7					c. Method detection limit.				
Total TCDF	6.40				D	d. Lower control limit - upper control limit.				
Total PeCDF	2.61					e. Toxic Equivalent Quotient (TEQ) based on World Health Organization Toxic Equivalent Factors				
Total HxCDF	ND	1.71								
Total HpCDF	ND	4.72								

Analyst: MAS

Approved By: William J. Luksemburg 02-Aug-2005 11:14

ACUTE AND CHRONIC BIOASSAY RESULTS

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 16, 2005

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

Laboratory No.: A-05071202-001
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.

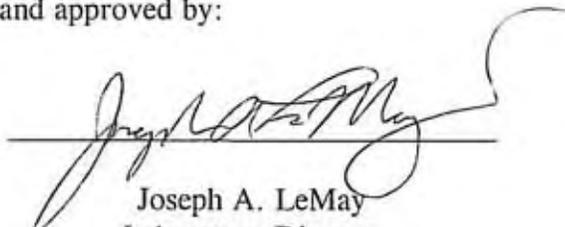
Date Sampled: 07/11, 07/12, 07/13, 07/14/05
Date Received: 07/12, 07/13, 07/14, 07/15/05
Temp. Received: 2°C, 2°C, 2°C, 3°C
Chlorine (TRC): 0.0 mg/l, 0.0 mg/l, 0.0 mg/l, 0.0 mg/l
Dates Tested: 07/12/05 to 07/16/05

Sample Analysis: The following analyses were performed on your sample:
Fathead Minnow 96hr Acute Static-Renewal Toxicity Test (EPA Method 2000.0).
Attached are the test data generated from the analysis of your sample.

Result Summary:

<u>Sample ID.</u>	<u>Results</u>
Grab Effluent	LC50 = 70.7% TUa = 1.41

Quality Control: Reviewed and approved by:


Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW ACUTE NPDES TEST



Lab No.: A-05071202

Client/ID: MRS - Morro Bay

Start Date: 07/12/05

TEST SUMMARY

Species: *Pimephales promelas*.

Age: 14 (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-050706.

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)	20.3	20°C	20°C	20°C	30°C
DO (mg/l)	8.7	7.4	8.3	7.9	7.6
pH	8.1	7.6	7.7	7.6	7.6
Total Res. Chlorine (mg/l)	0	0	0	0	0
Ammonia (mg/l NH ₃ -N)	0.2	44	44	40	44
Alkalinity (mg/l CaCO ₃)	57	290	266	272	265
Hardness (mg/l CaCO ₃)	91	220	290	297	264
Conductivity (umhos)	340	1885	2070	1915	1775

Comments:

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

FATHEAD MINNOW ACUTE NPDES TEST



Lab No.: A-05071202

Client/ID: MRS - Morro Bay

Start Date: 07/12/05

RAW TEST DATA

		DAY 1		DAY 2		DAY 3		DAY 4		
		0 hr	24hr							
Analyst Initials:		1100	1300	LM	LM	LM	LM	LM	LM	
Time of Readings:		LM	LM	1300	1200	1200	1200	1200	1200	
Control	DO	8.7	7.1	8.9	7.4	8.7	7.3	8.9	7.4	
	pH	8.1	7.8	8.2	7.9	8.2	8.0	8.2	8.0	
	Temp	20.3	20.1	20.1	20.1	20.1	20.3	20.2	20.1	
	# Alive	Rep A	—	10	—	10	—	10	—	10
		Rep B	—	10	—	10	—	10	—	10
6.25%	DO	8.6	7.1	8.9	7.4	8.7	7.5	8.9	7.4	
	pH	8.0	7.8	8.1	7.9	8.0	8.0	8.1	7.9	
	Temp	20.3	20.0	20.1	20.1	20.1	20.3	20.3	20.1	
	# Alive	Rep A	—	10	—	10	—	10	—	10
		Rep B	—	10	—	10	—	10	—	10
12.5%	DO	8.6	6.9	8.8	7.0	8.5	7.2	8.8	7.3	
	pH	8.0	7.8	8.0	7.8	7.9	7.9	8.0	7.9	
	Temp	20.2	20.0	20.1	20.1	20.1	20.3	20.3	20.1	
	# Alive	Rep A	—	10	—	10	—	10	—	10
		Rep B	—	10	—	10	—	10	—	10
25%	DO	8.5	6.2	8.7	7.8	8.4	7.9	8.6	6.6	
	pH	7.9	7.9	7.9	8.1	7.8	8.3	7.9	7.9	
	Temp	20.2	20.0	20.1	20.0	20.1	20.3	20.5	20.0	
	# Alive	Rep A	—	10	—	10	—	10	—	10
		Rep B	—	10	—	10	—	10	—	10
50%	DO	8.3	8.0	8.4	7.7	8.3	7.2	8.5	7.3	
	pH	7.8	8.2	7.8	8.2	7.7	8.2	7.8	8.2	
	Temp	20.1	20.0	20.2	20.0	20.1	20.2	20.7	20.0	
	# Alive	Rep A	—	10	—	10	—	10	—	10
		Rep B	—	10	—	10	—	10	—	10
100%	DO	8.0	7.6	—	—	—	—	—	—	
	pH	7.7	8.2	—	—	—	—	—	—	
	Temp	19.8	20.0	—	—	—	—	—	—	
	# Alive	Rep A	—	0/10	—	—	—	—	—	—
		Rep B	—	0/10	—	—	—	—	—	—

LABORATORY REPORT

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CA DOHS ELAP Cert. No.: 1775

Date: July 16, 2005
Client: Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura, CA 93003
Attn: Doug Coats

Laboratory No.: A-05071202-002
Sample I.D.: Morro Bay Effluent

Sample Control: The sample was received by ATL within the recommended hold time, in a chilled state, with the chain of custody record attached.

Date Sampled: 07/11/05
Date Received: 07/12/05
Temp. Received: 2°C
Chlorine (TRC): 0.0 mg/l
Dates Tested: 07/12/05 to 07/14/05

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

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:

<u>Sample ID.</u>	<u>Results</u>	<u>NOEC</u>	<u>TUc</u>
Comp Effluent	Kelp Germination:	18%	5.6
	Kelp Growth:	18%	5.6

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST



Lab No.: A-05071202
Client/ID: MRS Morro Bay Comp. Effluent

Date Tested: 07/12/05 - 07/14/05

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-050712 (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)	89.2%		16.20	
5.6%	87.8%		16.40	
10%	89.8%		16.65	
18%	88.6%		16.70	
32%	68.9%	*	13.45	*
56%	39.6%	*	10.40	*

* Statistically significantly less than control at P = 0.05 level

CHRONIC TOXICITY

END POINT	GERMINATION	GERM TUBE LENGTH
NOEC	18%	18%
TUc (100/NOEC)	5.56	5.56

QA/QC TEST ACCEPTABILITY

Parameter	Result
Mean control germination $\geq 70\%$	Yes (89.2%)
Mean control germination tube length $> 10 \mu\text{m}$	Yes (16.20 μm)
Please see RT-050712 report for additional test acceptability criteria.	

Macrocystis Germination and Growth Test-Proportion Germinated

Start Date: 12 Jul-05 16:00	Test ID: 5071202k	Sample ID: CA0047881-Morro Bay SD
End Date: 14 Jul-05 16:00	Lab ID: CAATL-Aquatic Testing Labs	Sample Type: EFF1-POTW
Sample Date: 11 Jul-05 00:00	Protocol: MBP 90	Test Species: MP-Macrocystis pyrifera

Comments:

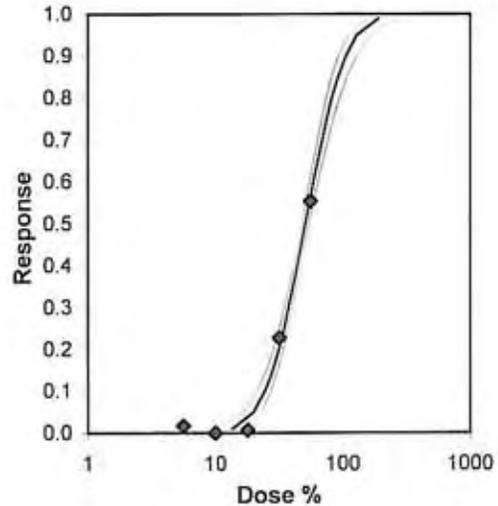
Conc-%	1	2	3	4	5
B-Control	0.9057	0.8846	0.8641	0.9048	0.9020
D-Control	0.9065	0.8835	0.8692	0.8713	0.9083
5.6	0.8824	0.8952	0.8654	0.8713	0.8739
10	0.8900	0.9038	0.8952	0.9223	0.8812
18	0.8812	0.8679	0.9020	0.8952	0.8835
32	0.8039	0.6226	0.7037	0.7037	0.6117
56	0.3458	0.6055	0.4299	0.3426	0.2574

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					Rank Sum	1-Tailed Critical	Number Resp	Total Number
			Mean	Min	Max	CV%	N				
B-Control	0.8922	1.0050	1.2371	1.1932	1.2586	2.281	5			56	520
D-Control	0.8877	1.0000	1.2300	1.2007	1.2631	2.439	5				
5.6	0.8776	0.9886	1.2137	1.1951	1.2412	1.475	5	21.00	16.00	64	523
10	0.8985	1.0121	1.2473	1.2189	1.2884	2.125	5	28.00	16.00	52	513
18	0.8860	0.9980	1.2267	1.1989	1.2523	1.691	5	22.50	16.00	59	517
*32	0.6891	0.7763	0.9820	0.8980	1.1121	8.762	5	15.00	16.00	164	527
*56	0.3962	0.4463	0.6786	0.5321	0.8917	19.982	5	15.00	16.00	320	532

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.86937	0.9	1.15797	4.92676
Bartlett's Test indicates unequal variances (p = 1.30E-04)	25.1501	15.0863		
The control means are not significantly different (p = 0.71)	0.38263	2.30601		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	18	32	24	5.55556

Parameter	Value	SE	95% Fiducial Limits		Maximum Likelihood-Probit						
			Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter		
Slope	4.04377	0.35672	3.3446	4.74294	0.10769	5.11956	11.3449	0.16	1.70827	0.24729	7
Intercept	-1.9079	0.58721	-3.0588	-0.7569							
TSCR	0.10629	0.00777	0.09107	0.12152							
Point	Probits	%	95% Fiducial Limits								
EC01	2.674	13.5825	10.4564	16.3687							
EC05	3.355	20.0221	16.6628	22.861							
EC10	3.718	24.6236	21.3307	27.3565							
EC15	3.964	28.3118	25.1675	30.9168							
EC20	4.158	31.6332	28.6664	34.1179							
EC25	4.326	34.7916	32.0052	37.183							
EC40	4.747	44.2202	41.7251	46.7603							
EC50	5.000	51.0824	48.2782	54.4111							
EC60	5.253	59.0096	55.3223	63.9296							
EC75	5.674	75.0013	68.5984	84.5277							
EC80	5.842	82.4896	74.5717	94.6123							
EC85	6.036	92.167	82.1373	107.97							
EC90	6.282	105.972	92.6928	127.575							
EC95	6.645	130.327	110.788	163.508							
EC99	7.326	192.116	154.576	260.818							



Macrocystis Germination and Growth Test-Growth-Length

Start Date: 12 Jul-05 16:00 Test ID: 5071202k Sample ID: CA0047881-Morro Bay SD
 End Date: 14 Jul-05 16:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: EFF1-POTW
 Sample Date: 11 Jul-05 00:00 Protocol: MBP 90 Test Species: MP-Macrocystis pyrifera
 Comments:

Conc-%	1	2	3	4	5
B-Control	15.750	16.500	16.500	15.750	16.500
D-Control	16.000	16.250	16.500	15.750	16.750
5.6	15.750	16.750	16.500	16.250	16.750
10	16.250	16.250	17.250	16.500	17.000
18	17.250	16.500	16.750	16.250	16.750
32	13.750	13.500	14.250	14.000	11.750
56	8.250	13.250	11.500	8.250	10.750

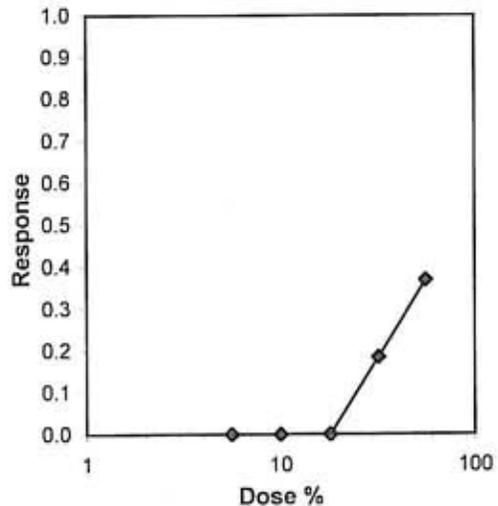
Conc-%	Mean	N-Mean	Transform: Untransformed					Rank Sum	1-Tailed Critical	Isotonic	
			Mean	Min	Max	CV%	N			Mean	N-Mean
B-Control	16.200	0.9969	16.200	15.750	16.500	2.536	5			16.488	1.0000
D-Control	16.250	1.0000	16.250	15.750	16.750	2.433	5				
5.6	16.400	1.0092	16.400	15.750	16.750	2.551	5	31.50	16.00	16.488	1.0000
10	16.650	1.0246	16.650	16.250	17.250	2.728	5	32.50	16.00	16.488	1.0000
18	16.700	1.0277	16.700	16.250	17.250	2.220	5	35.50	16.00	16.488	1.0000
*32	13.450	0.8277	13.450	11.750	14.250	7.365	5	15.00	16.00	13.450	0.8158
*56	10.400	0.6400	10.400	8.250	13.250	20.790	5	15.00	16.00	10.400	0.6308

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.87979	0.9	0.0154	3.29444
Bartlett's Test indicates unequal variances (p = 6.53E-04)	21.4945	15.0863		
The control means are not significantly different (p = 0.85)	0.19612	2.30601		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	18	32	24	5.55556

Linear Interpolation (80 Resamples)

Point	%	SE	95% CL(Exp)		Skew
IC05	21.800	0.494	20.661	23.115	-0.0869
IC10	25.599	0.974	23.567	28.231	-0.0918
IC15	29.399	1.460	26.554	33.425	-0.0941
IC20	34.046	2.300	29.201	39.660	-0.4266
IC25	40.533				
IC40	>56				
IC50	>56				



SHORT-TERM TOXICITY TEST



Lab No.: Marro Bay

TEST DATA

Petri Dish No.	Test Sample Conc.	Total Number Counted	Number of Germin.	Number Non-Germin.	Germ Tube Lengths (micrometer units)									
					1	2	3	4	5	6	7	8	9	10
1	32	102	82	20	5	4	7	6	6	7	5	5	4	6
2	18	102	92	10	6	7	7	8	7	6	5	7	7	7
3	B	106	96	10	7	6	5	7	7	6	5	8	8	4
4	10	100	89	11	7	7	6	6	7	7	5	7	7	6
5	56	109	66	43	6	4	4	5	7	8	4	6	5	4
6	5.6	104	90	14	5	6	7	5	7	7	7	6	8	8
7	10	104	94	10	6	7	7	6	7	5	7	7	6	7
8	18	105	94	11	7	6	7	5	8	8	7	6	6	5
9	5.6	101	88	13	6	5	7	7	6	5	7	7	8	7
10	32	106	66	40	4	5	5	7	6	6	4	4	7	6
11	56	107	46	61	5	7	4	3	3	4	2	4	3	5
12	B	104	92	12	7	5	7	7	6	8	7	6	7	6
13	5.5	111	97	14	7	6	8	7	8	7	7	7	4	6
14	18	103	91	12	7	6	7	5	6	7	7	7	8	7
15	B	103	89	14	5	6	6	7	7	7	8	7	7	6
16	32	108	76	32	4	5	5	5	6	7	7	5	7	6
17	10	105	94	11	7	8	7	6	7	7	6	8	7	6
18	56	108	37	71	4	3	3	4	2	3	2	2	6	4
19	B	105	95	10	7	6	7	7	6	7	5	5	7	6
20	56	101	26	75	3	4	8	4	3	4	5	5	4	3

Comments:

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

Analyst:

Date: 7-14-05

SHORT-TERM TOXICITY TEST



Lab No.: Morro Bay

TEST DATA

Petri Dish No.	Test Sample Conc.	Total Number Counted	Number of Germin.	Number Non-Germin.	Germ Tube Lengths (micrometer units)									
					1	2	3	4	5	6	7	8	9	10
21	5.6	102	90	12	6	7	7	7	6	5	7	6	5	7
22	32	108	76	32	6	6	7	8	4	4	3	7	5	6
23	10	103	95	8	7	7	8	7	6	6	7	5	6	7
24	18	101	89	12	6	7	7	8	7	6	7	7	7	7
25	10	101	89	12	8	8	7	6	7	6	5	7	7	7
26	18	106	92	14	8	7	7	6	5	7	7	6	5	8
27	5.6	105	94	11	7	8	7	7	7	6	7	5	6	7
28	32	103	63	40	7	6	5	4	3	4	4	4	5	5
29	56	107	37	70	7	4	3	2	2	2	3	4	4	5
30	B	102	92	10	7	6	7	5	7	7	8	7	6	6
31														
32														
33														
34														
35														
36														
37														
38														
39														
40														

Comments:

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

Analyst: [Signature]

Date: 7-14-05

GIANT KELP GERMINATION AND GROWTH SHORT-TERM TOXICITY TEST



Lab No.: A-05071202-001

Client ID: MRS - Morro Bay Effluent

Start Date: 07/12/2005

WATER QUALITY READINGS

Sample	Initial Readings				Final Readings			
	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)	Temp (°C)	DO (mg/l)	pH	Salinity (o/oo)
Control	15.4	7.7	8.2	34	14.2	7.6	8.2	34
Brine Control	15.6	7.8	8.3	34	14.4	7.7	8.2	34
5.6%	15.7	7.7	8.2	34	14.3	7.8	8.2	34
10%	15.6	7.6	8.2	34	14.6	7.6	8.2	34
18%	15.7	7.6	8.2	34	14.3	7.7	8.2	34
32%	15.6	7.2	8.2	34	14.1	7.8	8.2	34
56%	15.8	7.0	8.1	34	14.6	7.7	8.2	34

Sample as received: Chlorine: 0.0 mg/l; pH: 7.6; Salinity: 0 ppt; Temp: 2°C;
DO: 7.4 mg/l; NH₃-N: 44 mg/l..

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

Initial readings: Analyst: [Signature] Date: 7-12-05 Time: 1600

Final readings: Analyst: [Signature] Date: 7-14-05 Time: 1600

QA/QC REPORTS & CHAINS OF CUSTODY



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

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

Reported: 08/25/05 15:47

Water Analysis (Metals) Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Total Recoverable Arsenic	BOG0784	BOG0784-BLK1	ND	ug/L	2.0	0.89	
Total Recoverable Lead	BOG0784	BOG0784-BLK1	ND	ug/L	1.0	0.019	
Total Recoverable Selenium	BOG0784	BOG0784-BLK1	ND	ug/L	2.0	0.31	
Total Recoverable Thallium	BOG0784	BOG0784-BLK1	0.032000	ug/L	1.0	0.024	J
Total Antimony	BOG0863	BOG0863-BLK1	ND	ug/L	100	13	
Total Beryllium	BOG0863	BOG0863-BLK1	ND	ug/L	10	1.5	
Total Cadmium	BOG0863	BOG0863-BLK1	ND	ug/L	10	1.8	
Total Chromium	BOG0863	BOG0863-BLK1	0.38275	ug/L	10	0.24	J
Total Copper	BOG0863	BOG0863-BLK1	ND	ug/L	10	1.8	
Total Nickel	BOG0863	BOG0863-BLK1	ND	ug/L	10	2.2	
Total Silver	BOG0863	BOG0863-BLK1	ND	ug/L	10	2.0	
Total Zinc	BOG0863	BOG0863-BLK1	12.397	ug/L	50	3.1	J
Total Mercury	BOG1042	BOG1042-BLK1	ND	ug/L	0.20	0.020	

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

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

Reported: 08/25/05 15:47

Water Analysis (Metals)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits	
										RPD	Percent Recovery Lab Quals
Total Recoverable Arsenic	BOG0784	BOG0784-DUP1	Duplicate	0.89500	ND					20	
		BOG0784-MS1	Matrix Spike	0.89500	51.149	50.000			101		70 - 130
		BOG0784-MSD1	Matrix Spike Duplicate	0.89500	51.397	50.000	ug/L	0.00	101	20	70 - 130
Total Recoverable Lead	BOG0784	BOG0784-DUP1	Duplicate	10.161	9.7530					20	
		BOG0784-MS1	Matrix Spike	10.161	57.003	50.000			93.7		70 - 130
		BOG0784-MSD1	Matrix Spike Duplicate	10.161	57.437	50.000	ug/L	0.956	94.6	20	70 - 130
Total Recoverable Selenium	BOG0784	BOG0784-DUP1	Duplicate	ND	ND					20	
		BOG0784-MS1	Matrix Spike	ND	49.088	50.000			98.2		70 - 130
		BOG0784-MSD1	Matrix Spike Duplicate	ND	48.640	50.000	ug/L	0.921	97.3	20	70 - 130
Total Recoverable Thallium	BOG0784	BOG0784-DUP1	Duplicate	0.12000	0.032000					20	A02, J
		BOG0784-MS1	Matrix Spike	0.12000	17.532	20.000			87.1		70 - 130
		BOG0784-MSD1	Matrix Spike Duplicate	0.12000	17.806	20.000	ug/L	1.48	88.4	20	70 - 130
Total Antimony	BOG0863	BOG0863-DUP1	Duplicate	ND	ND					20	
		BOG0863-MS1	Matrix Spike	ND	385.36	400.00			96.3		75 - 125
		BOG0863-MSD1	Matrix Spike Duplicate	ND	390.85	400.00	ug/L	1.44	97.7	20	75 - 125
Total Beryllium	BOG0863	BOG0863-DUP1	Duplicate	ND	ND					20	
		BOG0863-MS1	Matrix Spike	ND	189.57	200.00			94.8		75 - 125
		BOG0863-MSD1	Matrix Spike Duplicate	ND	190.70	200.00	ug/L	0.631	95.4	20	75 - 125
Total Cadmium	BOG0863	BOG0863-DUP1	Duplicate	ND	ND					20	
		BOG0863-MS1	Matrix Spike	ND	192.78	200.00			96.4		75 - 125
		BOG0863-MSD1	Matrix Spike Duplicate	ND	193.84	200.00	ug/L	0.517	96.9	20	75 - 125
Total Chromium	BOG0863	BOG0863-DUP1	Duplicate	2.0404	1.7689					20	J
		BOG0863-MS1	Matrix Spike	2.0404	192.04	200.00			95.0		75 - 125
		BOG0863-MSD1	Matrix Spike Duplicate	2.0404	194.27	200.00	ug/L	1.15	96.1	20	75 - 125
Total Copper	BOG0863	BOG0863-DUP1	Duplicate	90.628	78.998					20	
		BOG0863-MS1	Matrix Spike	90.628	269.60	200.00			89.5		75 - 125
		BOG0863-MSD1	Matrix Spike Duplicate	90.628	280.63	200.00	ug/L	5.96	95.0	20	75 - 125
Total Nickel	BOG0863	BOG0863-DUP1	Duplicate	6.8480	7.0282					20	J
		BOG0863-MS1	Matrix Spike	6.8480	386.00	400.00			94.8		75 - 125
		BOG0863-MSD1	Matrix Spike Duplicate	6.8480	390.26	400.00	ug/L	1.15	95.9	20	75 - 125



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

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

Reported: 08/25/05 15:47

Water Analysis (Metals) Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits	
										RPD	Percent Recovery Lab Quals
Total Silver	BOG0863	BOG0863-DUP1	Duplicate	ND	ND		ug/L			20	
		BOG0863-MS1	Matrix Spike	ND	93.760	100.00	ug/L		93.8		75 - 125
		BOG0863-MSD1	Matrix Spike Duplicate	ND	95.691	100.00	ug/L	2.01	95.7	20	75 - 125
Total Zinc	BOG0863	BOG0863-DUP1	Duplicate	110.82	119.59		ug/L	7.61		20	
		BOG0863-MS1	Matrix Spike	110.82	311.54	200.00	ug/L		100		75 - 125
		BOG0863-MSD1	Matrix Spike Duplicate	110.82	309.10	200.00	ug/L	0.904	99.1	20	75 - 125
Total Mercury	BOG1042	BOG1042-DUP1	Duplicate	ND	ND		ug/L			20	
		BOG1042-MS1	Matrix Spike	ND	1.0025	1.0000	ug/L		100		70 - 130
		BOG1042-MSD1	Matrix Spike Duplicate	ND	1.0000	1.0000	ug/L	0.00	100	20	70 - 130

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

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

Reported: 08/25/05 15:47

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	BOG1123	BOG1123-BLK1	ND	ug/L	0.050	0.0023	
alpha-BHC	BOG1123	BOG1123-BLK1	ND	ug/L	0.050	0.0016	
beta-BHC	BOG1123	BOG1123-BLK1	ND	ug/L	0.050	0.0027	
delta-BHC	BOG1123	BOG1123-BLK1	ND	ug/L	0.050	0.0020	
gamma-BHC (Lindane)	BOG1123	BOG1123-BLK1	ND	ug/L	0.050	0.0018	
Chlordane (Technical)	BOG1123	BOG1123-BLK1	ND	ug/L	0.50	0.44	
4,4'-DDD	BOG1123	BOG1123-BLK1	ND	ug/L	0.10	0.0011	
4,4'-DDE	BOG1123	BOG1123-BLK1	ND	ug/L	0.10	0.0019	
4,4'-DDT	BOG1123	BOG1123-BLK1	ND	ug/L	0.10	0.0021	
Dieldrin	BOG1123	BOG1123-BLK1	ND	ug/L	0.10	0.0020	
Endosulfan I	BOG1123	BOG1123-BLK1	ND	ug/L	0.050	0.0019	
Endosulfan II	BOG1123	BOG1123-BLK1	ND	ug/L	0.10	0.0021	
Endosulfan sulfate	BOG1123	BOG1123-BLK1	ND	ug/L	0.10	0.0021	
Endrin	BOG1123	BOG1123-BLK1	ND	ug/L	0.10	0.0025	
Endrin aldehyde	BOG1123	BOG1123-BLK1	ND	ug/L	0.10	0.0024	
Heptachlor	BOG1123	BOG1123-BLK1	ND	ug/L	0.050	0.0023	
Heptachlor epoxide	BOG1123	BOG1123-BLK1	ND	ug/L	0.050	0.0019	
Methoxychlor	BOG1123	BOG1123-BLK1	ND	ug/L	0.50	0.0021	
Toxaphene	BOG1123	BOG1123-BLK1	ND	ug/L	2.0	0.42	
PCB-1016	BOG1123	BOG1123-BLK1	ND	ug/L	0.20	0.034	
PCB-1221	BOG1123	BOG1123-BLK1	ND	ug/L	0.20	0.089	
PCB-1232	BOG1123	BOG1123-BLK1	ND	ug/L	0.20	0.090	
PCB-1242	BOG1123	BOG1123-BLK1	ND	ug/L	0.20	0.095	
PCB-1248	BOG1123	BOG1123-BLK1	ND	ug/L	0.20	0.025	
PCB-1254	BOG1123	BOG1123-BLK1	ND	ug/L	0.20	0.042	



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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)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
PCB-1260	BOG1123	BOG1123-BLK1	ND	ug/L	0.20	0.043	
Total PCB's (Summation)	BOG1123	BOG1123-BLK1	ND	ug/L	0.20	0.10	
TCMX (Surrogate)	BOG1123	BOG1123-BLK1	88.6	%	55 - 123 (LCL - UCL)		
Dibutyl chlorendate (Surrogate)	BOG1123	BOG1123-BLK1	87.8	%	48 - 149 (LCL - UCL)		



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Organochlorine Pesticides and PCB's (EPA Method 608) Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits	
										RPD	Percent Recovery Lab
Aldrin	BOG1123	BOG1123-MS1	Matrix Spike	ND	0.22905	0.25000	ug/L	10.2	91.6	22	50 - 143
		BOG1123-MSD1	Matrix Spike Duplicate	ND	0.20679	0.25000					
gamma-BHC (Lindane)	BOG1123	BOG1123-MS1	Matrix Spike	ND	0.22143	0.25000	ug/L	8.59	88.6	20	38 - 134
		BOG1123-MSD1	Matrix Spike Duplicate	ND	0.20325	0.25000					
4,4'-DDT	BOG1123	BOG1123-MS1	Matrix Spike	ND	0.23647	0.25000	ug/L	7.80	94.6	30	30 - 154
		BOG1123-MSD1	Matrix Spike Duplicate	ND	0.21873	0.25000					
Dieldrin	BOG1123	BOG1123-MS1	Matrix Spike	ND	0.24043	0.25000	ug/L	9.93	96.2	22	60 - 150
		BOG1123-MSD1	Matrix Spike Duplicate	ND	0.21786	0.25000					
Endrin	BOG1123	BOG1123-MS1	Matrix Spike	ND	0.27459	0.25000	ug/L	9.92	110	24	57 - 163
		BOG1123-MSD1	Matrix Spike Duplicate	ND	0.24903	0.25000					
Heptachlor	BOG1123	BOG1123-MS1	Matrix Spike	ND	0.084480	0.25000	ug/L	3.00	33.8	22	51 - 148 Q03
		BOG1123-MSD1	Matrix Spike Duplicate	ND	0.081966	0.25000					
PCB-1260	BOG1123	BOG1123-MS1	Matrix Spike	ND	ND		ug/L			200	0 - 200
		BOG1123-MSD1	Matrix Spike Duplicate	ND	ND						
TCMX (Surrogate)	BOG1123	BOG1123-MS1	Matrix Spike	ND	0.32043	0.30000	ug/L		107		55 - 123
		BOG1123-MSD1	Matrix Spike Duplicate	ND	0.30557	0.30000					
Dibutyl chlorendate (Surrogate)	BOG1123	BOG1123-MS1	Matrix Spike	ND	0.67910	0.75000	ug/L		90.5		48 - 149
		BOG1123-MSD1	Matrix Spike Duplicate	ND	0.64295	0.75000					

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Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits	
										RPD	Percent Recovery Lab
Benzene	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.660	25.000	ug/L		103		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.800	25.000	ug/L	0.00	103	20	70 - 130
Bromodichloromethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.730	25.000	ug/L		103		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	26.310	25.000	ug/L	1.92	105	20	70 - 130
Bromoform	BOG0623	BOG0623-MS1	Matrix Spike	ND	23.730	25.000	ug/L		94.9		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	23.860	25.000	ug/L	0.525	95.4	20	70 - 130
Bromomethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	27.290	25.000	ug/L		109		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	29.930	25.000	ug/L	9.61	120	20	70 - 130
Carbon tetrachloride	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.720	25.000	ug/L		103		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.940	25.000	ug/L	0.966	104	20	70 - 130
Chlorobenzene	BOG0623	BOG0623-MS1	Matrix Spike	ND	23.920	25.000	ug/L		95.7		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.430	25.000	ug/L	2.07	97.7	20	70 - 130
Chloroethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.600	25.000	ug/L		102		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.530	25.000	ug/L	0.00	102	20	70 - 130
Chloroform	BOG0623	BOG0623-MS1	Matrix Spike	ND	26.080	25.000	ug/L		104		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	26.060	25.000	ug/L	0.00	104	20	70 - 130
Chloromethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	28.140	25.000	ug/L		113		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	28.450	25.000	ug/L	0.881	114	20	70 - 130
Dibromochloromethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	24.910	25.000	ug/L		99.6		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.250	25.000	ug/L	1.40	101	20	70 - 130
1,2-Dichlorobenzene	BOG0623	BOG0623-MS1	Matrix Spike	ND	24.080	25.000	ug/L		96.3		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.360	25.000	ug/L	1.14	97.4	20	70 - 130
1,3-Dichlorobenzene	BOG0623	BOG0623-MS1	Matrix Spike	ND	23.700	25.000	ug/L		94.8		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.080	25.000	ug/L	1.57	96.3	20	70 - 130
1,4-Dichlorobenzene	BOG0623	BOG0623-MS1	Matrix Spike	ND	23.970	25.000	ug/L		95.9		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.280	25.000	ug/L	1.24	97.1	20	70 - 130
1,1-Dichloroethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	24.760	25.000	ug/L		99.0		70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.010	25.000	ug/L	1.01	100	20	70 - 130

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 Project Manager: Doug Coats

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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	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.11	
Bromodichloromethane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.067	
Bromoform	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.051	
Bromomethane	BOG0623	BOG0623-BLK1	ND	ug/L	2.0	0.45	
Carbon tetrachloride	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.099	
Chlorobenzene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.050	
Chloroethane	BOG0623	BOG0623-BLK1	ND	ug/L	2.0	0.12	
Chloroform	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.050	
Chloromethane	BOG0623	BOG0623-BLK1	ND	ug/L	2.0	0.21	
Dibromochloromethane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.056	
1,2-Dichlorobenzene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.085	
1,3-Dichlorobenzene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.081	
1,4-Dichlorobenzene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.062	
1,1-Dichloroethane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.17	
1,2-Dichloroethane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.11	
1,1-Dichloroethene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.088	
trans-1,2-Dichloroethene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.11	
1,2-Dichloropropane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.13	
cis-1,3-Dichloropropene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.079	
trans-1,3-Dichloropropene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.13	
Ethylbenzene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.13	
Methylene chloride	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.16	
1,1,2,2-Tetrachloroethane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.057	
Tetrachloroethene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.12	
Toluene	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.057	



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Project: Semi-annual eff
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Project Manager: Doug Coats

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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
1,1,1-Trichloroethane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.093	
1,1,2-Trichloroethane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.063	
Trichloroethene	BOG0623	BOG0623-BLK1	ND	ug/L	0.50	0.055	
Trichlorofluoromethane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.094	
1,1,2-Trichloro-1,2,2-trifluoroethane	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.18	
Vinyl chloride	BOG0623	BOG0623-BLK1	ND	ug/L	1.0	0.098	
Total Xylenes	BOG0623	BOG0623-BLK1	ND	ug/L	2.0	0.23	
1,2-Dichloroethane-d4 (Surrogate)	BOG0623	BOG0623-BLK1	100	%	76 - 114 (LCL - UCL)		
Toluene-d8 (Surrogate)	BOG0623	BOG0623-BLK1	101	%	88 - 110 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BOG0623	BOG0623-BLK1	97.3	%	86 - 115 (LCL - UCL)		

Volatile Organic Analysis (EPA Method 624)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits	
										RPD	Percent Recovery Lab Quals
1,2-Dichloroethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	24.770	25.000	ug/L	1.12	99.1	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.500	25.000					
1,1-Dichloroethene	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.070	25.000	ug/L	1.98	100	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.390	25.000					
trans-1,2-Dichloroethene	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.460	25.000	ug/L	0.985	102	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.340	25.000					
1,2-Dichloropropane	BOG0623	BOG0623-MS1	Matrix Spike	ND	24.380	25.000	ug/L	1.83	97.5	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.830	25.000					
cis-1,3-Dichloropropene	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.010	25.000	ug/L	1.98	100	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.600	25.000					
trans-1,3-Dichloropropene	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.100	25.000	ug/L	1.98	100	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.410	25.000					
Ethylbenzene	BOG0623	BOG0623-MS1	Matrix Spike	ND	24.470	25.000	ug/L	1.02	97.9	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.730	25.000					
Methylene chloride	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.180	25.000	ug/L	1.60	101	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.850	25.000					
Methyl t-butyl ether	BOG0623	BOG0623-MS1	Matrix Spike	ND	24.910	25.000	ug/L	0.806	99.6	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.700	25.000					
1,1,2,2-Tetrachloroethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	19.030	25.000	ug/L	1.99	76.1	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	18.660	25.000					
Tetrachloroethene	BOG0623	BOG0623-MS1	Matrix Spike	ND	26.110	25.000	ug/L	2.84	104	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	26.630	25.000					
Toluene	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.540	25.000	ug/L	0.976	102	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.850	25.000					
1,1,1-Trichloroethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	26.050	25.000	ug/L	1.90	104	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	26.380	25.000					
1,1,2-Trichloroethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.160	25.000	ug/L	1.96	101	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.670	25.000					



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Volatile Organic Analysis (EPA Method 624) Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits	
										RPD	Percent Recovery Lab Quals
Trichloroethene	BOG0623	BOG0623-MS1	Matrix Spike	ND	28.340	25.000	ug/L	3.48	113	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	29.250	25.000					
Trichlorofluoromethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.140	25.000	ug/L	0.00	101	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.310	25.000					
1,1,2-Trichloro-1,2,2-trifluoroethane	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.230	25.000	ug/L	0.00	101	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.320	25.000					
Vinyl chloride	BOG0623	BOG0623-MS1	Matrix Spike	ND	25.110	25.000	ug/L	1.98	100	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	25.480	25.000					
Total Xylenes	BOG0623	BOG0623-MS1	Matrix Spike	ND	72.930	75.000	ug/L	1.13	97.2	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	73.710	75.000					
p- & m-Xylenes	BOG0623	BOG0623-MS1	Matrix Spike	ND	48.640	50.000	ug/L	0.819	97.3	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	49.050	50.000					
o-Xylene	BOG0623	BOG0623-MS1	Matrix Spike	ND	24.290	25.000	ug/L	1.43	97.2	20	70 - 130
		BOG0623-MSD1	Matrix Spike Duplicate	ND	24.660	25.000					
1,2-Dichloroethane-d4 (Surrogate)	BOG0623	BOG0623-MS1	Matrix Spike	ND	10.420	10.000	ug/L		104		76 - 114
		BOG0623-MSD1	Matrix Spike Duplicate	ND	10.300	10.000					
Toluene-d8 (Surrogate)	BOG0623	BOG0623-MS1	Matrix Spike	ND	10.350	10.000	ug/L		104		88 - 110
		BOG0623-MSD1	Matrix Spike Duplicate	ND	10.320	10.000					
4-Bromofluorobenzene (Surrogate)	BOG0623	BOG0623-MS1	Matrix Spike	ND	10.040	10.000	ug/L		100		86 - 115
		BOG0623-MSD1	Matrix Spike Duplicate	ND	10.180	10.000					



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Project Manager: Doug Coats

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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
Acenaphthene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.26	
Acenaphthylene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.25	
Aldrin	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.45	
Aniline	BOG0955	BOG0955-BLK1	ND	ug/L	5.0	0.72	
Anthracene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.27	
Benzidine	BOG0955	BOG0955-BLK1	ND	ug/L	20	5.3	
Benzo[a]anthracene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.35	
Benzo[b]fluoranthene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.41	
Benzo[k]fluoranthene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.21	
Benzo[a]pyrene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.31	
Benzo[g,h,i]perylene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.66	
Benzoic acid	BOG0955	BOG0955-BLK1	ND	ug/L	10	1.3	
Benzyl alcohol	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.30	
Benzyl butyl phthalate	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.74	
alpha-BHC	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.42	
beta-BHC	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.44	
delta-BHC	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.33	
gamma-BHC (Lindane)	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.41	
bis(2-Chloroethoxy)methane	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.37	
bis(2-Chloroethyl) ether	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.37	
bis(2-Ethylhexyl)phthalate	BOG0955	BOG0955-BLK1	2.3910	ug/L	5.0	1.3	J
4-Bromophenyl phenyl ether	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.41	
4-Chloroaniline	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.66	
2-Chloronaphthalene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.31	
4-Chlorophenyl phenyl ether	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.27	



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Project Manager: Doug Coats

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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
Chrysene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.43	
4,4'-DDD	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	1.3	
4,4'-DDE	BOG0955	BOG0955-BLK1	ND	ug/L	3.0	1.2	
4,4'-DDT	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	1.6	
Dibenzo[a,h]anthracene	BOG0955	BOG0955-BLK1	ND	ug/L	3.0	0.68	
Dibenzofuran	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.29	
1,2-Dichlorobenzene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.32	
1,3-Dichlorobenzene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.34	
1,4-Dichlorobenzene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.39	
3,3-Dichlorobenzidine	BOG0955	BOG0955-BLK1	ND	ug/L	10	2.5	
Dieldrin	BOG0955	BOG0955-BLK1	ND	ug/L	3.0	1.5	
Diethyl phthalate	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.39	
Dimethyl phthalate	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.24	
Di-n-butyl phthalate	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.31	
2,4-Dinitrotoluene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.23	
2,6-Dinitrotoluene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.29	
Di-n-octyl phthalate	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.67	
1,2-Diphenylhydrazine	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.22	
Endosulfan I	BOG0955	BOG0955-BLK1	ND	ug/L	10	1.7	
Endosulfan II	BOG0955	BOG0955-BLK1	ND	ug/L	10	0.85	
Endosulfan sulfate	BOG0955	BOG0955-BLK1	ND	ug/L	3.0	1.3	
Endrin	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	1.8	
Endrin aldehyde	BOG0955	BOG0955-BLK1	ND	ug/L	10	4.0	
Fluoranthene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.28	
Fluorene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.32	



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

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

Reported: 08/25/05 15:47

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
Heptachlor	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.35	
Heptachlor epoxide	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.54	
Hexachlorobenzene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.44	
Hexachlorobutadiene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.37	
Hexachlorocyclopentadiene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.70	
Hexachloroethane	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.45	
Indeno[1,2,3-cd]pyrene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.61	
Isophorone	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.35	
2-Methylnaphthalene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.39	
Naphthalene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.33	
2-Naphthylamine	BOG0955	BOG0955-BLK1	ND	ug/L	20	4.1	
2-Nitroaniline	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.29	
3-Nitroaniline	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.49	
4-Nitroaniline	BOG0955	BOG0955-BLK1	ND	ug/L	5.0	0.28	
Nitrobenzene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.26	
N-Nitrosodimethylamine	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.17	
N-Nitrosodi-N-propylamine	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.41	
N-Nitrosodiphenylamine	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.30	
Phenanthrene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.30	
Pyrene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.81	
1,2,4-Trichlorobenzene	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.35	
4-Chloro-3-methylphenol	BOG0955	BOG0955-BLK1	ND	ug/L	5.0	0.32	
2-Chlorophenol	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.27	
2,4-Dichlorophenol	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.30	
2,4-Dimethylphenol	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.58	



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3140 Telegraph Road
Ventura CA, 93003-3238

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

Reported: 08/25/05 15:47

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-Dinitrophenol	BOG0955	BOG0955-BLK1	ND	ug/L	10	0.21	
2-Methylphenol	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.36	
3- & 4-Methylphenol	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.60	
2-Nitrophenol	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.35	
4-Nitrophenol	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.16	
Pentachlorophenol	BOG0955	BOG0955-BLK1	ND	ug/L	10	0.42	
Phenol	BOG0955	BOG0955-BLK1	ND	ug/L	2.0	0.18	
2,4,5-Trichlorophenol	BOG0955	BOG0955-BLK1	ND	ug/L	5.0	0.36	
2,4,6-Trichlorophenol	BOG0955	BOG0955-BLK1	ND	ug/L	5.0	0.39	
2-Fluorophenol (Surrogate)	BOG0955	BOG0955-BLK1	53.9	%	46 - 93 (LCL - UCL)		
Phenol-d5 (Surrogate)	BOG0955	BOG0955-BLK1	33.9	%	31 - 69 (LCL - UCL)		
Nitrobenzene-d5 (Surrogate)	BOG0955	BOG0955-BLK1	107	%	67 - 117 (LCL - UCL)		
2-Fluorobiphenyl (Surrogate)	BOG0955	BOG0955-BLK1	104	%	53 - 111 (LCL - UCL)		
2,4,6-Tribromophenol (Surrogate)	BOG0955	BOG0955-BLK1	112	%	62 - 119 (LCL - UCL)		
p-Terphenyl-d14 (Surrogate)	BOG0955	BOG0955-BLK1	93.8	%	66 - 137 (LCL - UCL)		

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

Reported: 08/25/05 15:47

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625) Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits	
										RPD	Percent Recovery Lab Quals
Acenaphthene	BOG0955	BOG0955-MS1	Matrix Spike	ND	64.419	80.000	ug/L		80.5		53 - 100
		BOG0955-MSD1	Matrix Spike Duplicate	ND	59.658	80.000	ug/L	7.61	74.6	21	53 - 100
1,4-Dichlorobenzene	BOG0955	BOG0955-MS1	Matrix Spike	ND	67.594	80.000	ug/L		84.5		51 - 96
		BOG0955-MSD1	Matrix Spike Duplicate	ND	60.234	80.000	ug/L	11.5	75.3	22	51 - 96
2,4-Dinitrotoluene	BOG0955	BOG0955-MS1	Matrix Spike	ND	78.277	80.000	ug/L		97.8		59 - 104
		BOG0955-MSD1	Matrix Spike Duplicate	ND	73.790	80.000	ug/L	5.89	92.2	22	59 - 104
Hexachlorobenzene	BOG0955	BOG0955-MS1	Matrix Spike	ND	73.669	80.000	ug/L		92.1		66 - 111
		BOG0955-MSD1	Matrix Spike Duplicate	ND	68.319	80.000	ug/L	7.55	85.4	21	66 - 111
Hexachlorobutadiene	BOG0955	BOG0955-MS1	Matrix Spike	ND	57.799	80.000	ug/L		72.2		36 - 91
		BOG0955-MSD1	Matrix Spike Duplicate	ND	51.270	80.000	ug/L	11.9	64.1	25	36 - 91
Hexachloroethane	BOG0955	BOG0955-MS1	Matrix Spike	ND	67.060	80.000	ug/L		83.8		47 - 99
		BOG0955-MSD1	Matrix Spike Duplicate	ND	58.685	80.000	ug/L	13.2	73.4	21	47 - 99
Nitrobenzene	BOG0955	BOG0955-MS1	Matrix Spike	ND	78.280	80.000	ug/L		97.8		59 - 111
		BOG0955-MSD1	Matrix Spike Duplicate	ND	70.641	80.000	ug/L	10.2	88.3	21	59 - 111
N-Nitrosodi-N-propylamine	BOG0955	BOG0955-MS1	Matrix Spike	ND	78.708	80.000	ug/L		98.4		54 - 127
		BOG0955-MSD1	Matrix Spike Duplicate	ND	72.329	80.000	ug/L	8.47	90.4	23	54 - 127
Pyrene	BOG0955	BOG0955-MS1	Matrix Spike	ND	62.047	80.000	ug/L		77.6		57 - 122
		BOG0955-MSD1	Matrix Spike Duplicate	ND	56.492	80.000	ug/L	9.45	70.6	26	57 - 122
1,2,4-Trichlorobenzene	BOG0955	BOG0955-MS1	Matrix Spike	ND	59.625	80.000	ug/L		74.5		51 - 96
		BOG0955-MSD1	Matrix Spike Duplicate	ND	54.793	80.000	ug/L	8.39	68.5	23	51 - 96
4-Chloro-3-methylphenol	BOG0955	BOG0955-MS1	Matrix Spike	ND	81.692	80.000	ug/L		102		65 - 106
		BOG0955-MSD1	Matrix Spike Duplicate	ND	75.821	80.000	ug/L	7.32	94.8	14	65 - 106
2-Chlorophenol	BOG0955	BOG0955-MS1	Matrix Spike	ND	70.190	80.000	ug/L		87.7		62 - 94
		BOG0955-MSD1	Matrix Spike Duplicate	ND	63.737	80.000	ug/L	9.56	79.7	15	62 - 94
2-Methylphenol	BOG0955	BOG0955-MS1	Matrix Spike	ND	76.366	80.000	ug/L		95.5		49 - 121
		BOG0955-MSD1	Matrix Spike Duplicate	ND	69.630	80.000	ug/L	9.32	87.0	19	49 - 121
3- & 4-Methylphenol	BOG0955	BOG0955-MS1	Matrix Spike	ND	102.89	80.000	ug/L		129		57 - 106 Q03
		BOG0955-MSD1	Matrix Spike Duplicate	ND	94.874	80.000	ug/L	8.06	119	16	57 - 106 Q03



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

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

Reported: 08/25/05 15:47

Base Neutral and Acid Extractables Organic Analysis (EPA Method 625) Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Control Limits		
									Percent Recovery	RPD	Percent Recovery Lab Quals
4-Nitrophenol	BOG0955	BOG0955-MS1	Matrix Spike	ND	41.365	80.000	ug/L	1.36	51.7	30	23 - 71
		BOG0955-MSD1	Matrix Spike Duplicate	ND	40.776	80.000			51.0		23 - 71
Pentachlorophenol	BOG0955	BOG0955-MS1	Matrix Spike	ND	92.420	80.000	ug/L	7.14	116	14	75 - 119
		BOG0955-MSD1	Matrix Spike Duplicate	ND	86.517	80.000			108		75 - 119
Phenol	BOG0955	BOG0955-MS1	Matrix Spike	ND	35.687	80.000	ug/L	6.72	44.6	18	29 - 64
		BOG0955-MSD1	Matrix Spike Duplicate	ND	33.345	80.000			41.7		29 - 64
2,4,6-Trichlorophenol	BOG0955	BOG0955-MS1	Matrix Spike	ND	81.181	80.000	ug/L	5.70	101	16	63 - 107
		BOG0955-MSD1	Matrix Spike Duplicate	ND	76.353	80.000			95.4		63 - 107
2-Fluorophenol (Surrogate)	BOG0955	BOG0955-MS1	Matrix Spike	ND	50.481	80.000	ug/L		63.1		46 - 93
		BOG0955-MSD1	Matrix Spike Duplicate	ND	46.312	80.000			57.9		46 - 93
Phenol-d5 (Surrogate)	BOG0955	BOG0955-MS1	Matrix Spike	ND	37.371	80.000	ug/L		46.7		31 - 69
		BOG0955-MSD1	Matrix Spike Duplicate	ND	35.054	80.000			43.8		31 - 69
Nitrobenzene-d5 (Surrogate)	BOG0955	BOG0955-MS1	Matrix Spike	ND	89.119	80.000	ug/L		111		67 - 117
		BOG0955-MSD1	Matrix Spike Duplicate	ND	80.391	80.000			100		67 - 117
2-Fluorobiphenyl (Surrogate)	BOG0955	BOG0955-MS1	Matrix Spike	ND	67.680	80.000	ug/L		84.6		53 - 111
		BOG0955-MSD1	Matrix Spike Duplicate	ND	62.224	80.000			77.8		53 - 111
2,4,6-Tribromophenol (Surrogate)	BOG0955	BOG0955-MS1	Matrix Spike	ND	89.715	80.000	ug/L		112		62 - 119
		BOG0955-MSD1	Matrix Spike Duplicate	ND	84.327	80.000			105		62 - 119
p-Terphenyl-d14 (Surrogate)	BOG0955	BOG0955-MS1	Matrix Spike	ND	37.434	40.000	ug/L		93.6		66 - 137
		BOG0955-MSD1	Matrix Spike Duplicate	ND	33.882	40.000			84.7		66 - 137

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

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

Reported: 08/25/05 15:47

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	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.045	
Bolstar	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.033	
Chlorpyrifos	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.036	
Coumaphos	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.070	
Demeton O/S	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.073	
Diazinon	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.027	
Dichlorvos	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.040	
Disulfoton	BOG0779	BOG0779-BLK1	ND	ug/L	0.50	0.14	
Ethoprop	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.036	
Fensulfothion	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.047	
Fenthion	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.037	
Merphos	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.039	
Methyl parathion	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.045	
Mevinphos	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.033	
Naled	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.040	
Phorate	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.025	
Ronnel (Fenchlorphos)	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.035	
Stirophos (Tetrachlorvinphos)	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.040	
Tokuthion (Prothiofos)	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.040	
Trichloronate	BOG0779	BOG0779-BLK1	ND	ug/L	0.20	0.036	
Triphenylphosphate (Surrogate)	BOG0779	BOG0779-BLK1	94.8	%	55 - 132 (LCL - UCL)		



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Project: Semi-annual eff
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Project Manager: Doug Coats

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Organo-Phosphorus Pesticide Analysis (EPA Method 8140) Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		Lab Quals
										RPD	Percent Recovery	
Bolstar	BOG0779	BOG0779-MS1	Matrix Spike	ND	0.88850	1.0000	ug/L		88.8		47 - 131	
		BOG0779-MSD1	Matrix Spike Duplicate	ND	0.91600	1.0000	ug/L	3.10	91.6	30	47 - 131	
Chlorpyrifos	BOG0779	BOG0779-MS1	Matrix Spike	ND	0.86150	1.0000	ug/L		86.2		57 - 125	
		BOG0779-MSD1	Matrix Spike Duplicate	ND	0.82950	1.0000	ug/L	3.78	83.0	29	57 - 125	
Diazinon	BOG0779	BOG0779-MS1	Matrix Spike	ND	0.87250	1.0000	ug/L		87.2		58 - 128	
		BOG0779-MSD1	Matrix Spike Duplicate	ND	0.86500	1.0000	ug/L	0.806	86.5	30	58 - 128	
Methyl parathion	BOG0779	BOG0779-MS1	Matrix Spike	ND	0.81150	1.0000	ug/L		81.2		53 - 126	
		BOG0779-MSD1	Matrix Spike Duplicate	ND	0.83800	1.0000	ug/L	3.15	83.8	30	53 - 126	
Mevinphos	BOG0779	BOG0779-MS1	Matrix Spike	ND	0.87100	1.0000	ug/L		87.1		44 - 169	
		BOG0779-MSD1	Matrix Spike Duplicate	ND	0.81600	1.0000	ug/L	6.52	81.6	30	44 - 169	
Ronnel (Fenclorophos)	BOG0779	BOG0779-MS1	Matrix Spike	ND	0.82250	1.0000	ug/L		82.2		42 - 122	
		BOG0779-MSD1	Matrix Spike Duplicate	ND	0.80600	1.0000	ug/L	1.97	80.6	26	42 - 122	
Stirophos (Tetrachlorvinphos)	BOG0779	BOG0779-MS1	Matrix Spike	ND	0.85650	1.0000	ug/L		85.6		55 - 140	
		BOG0779-MSD1	Matrix Spike Duplicate	ND	0.87750	1.0000	ug/L	2.54	87.8	29	55 - 140	
Triphenylphosphate (Surrogate)	BOG0779	BOG0779-MS1	Matrix Spike	ND	2.3665	2.5000	ug/L		94.7		55 - 132	
		BOG0779-MSD1	Matrix Spike Duplicate	ND	2.3415	2.5000	ug/L		93.7		55 - 132	



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

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

Reported: 08/25/05 15:47

Water Analysis (General Chemistry) Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Ammonia as N (Distilled)	BOG0644	BOG0644-BLK1	ND	mg/L	0.050	0.020	
Total Cyanide	BOG0747	BOG0747-BLK1	ND	mg/L	0.020	0.0063	

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

Reported: 08/25/05 15:47

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample ID	QC Sample Type	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		Lab Quals
										RPD	Percent Recovery	
Ammonia as N (Distilled)	BOG0644	BOG0644-DUP1	Duplicate	32.860	34.031		mg/L	3.50		20		A01
		BOG0644-MS1	Matrix Spike	32.860	38.324	4.0000	mg/L		137		80 - 120	A01, A03
		BOG0644-MSD1	Matrix Spike Duplicate	32.860	38.324	4.0000	mg/L	0.00	137	20	80 - 120	A01, A03
Total Cyanide	BOG0747	BOG0747-DUP1	Duplicate	0.021250	0.021250		mg/L	0.00		10		
		BOG0747-MS1	Matrix Spike	0.021250	0.27200	0.25000	mg/L		100		90 - 110	
		BOG0747-MSD1	Matrix Spike Duplicate	0.021250	0.27200	0.25000	mg/L	0.00	100	20	90 - 110	



BC Laboratories, Inc

Dear Marine Research Specialists:

This report contains the analytical results for the samples received under chain of custody by BC Laboratories, Inc. The samples were logged into the Laboratory Information Management System (LIMS) and BC Lab numbers were assigned to each sample. The result of the temperature check, condition of the samples and any other discrepancies were recorded on the cooler receipt form.

All applicable quality control procedures met method-specific acceptance criteria, except as noted on the following analytical and quality control reports.

This report shall not be reproduced except in full, without written approval of the laboratory.

A handwritten signature in black ink, consisting of several fluid, overlapping strokes, is positioned above a solid horizontal line.

Authorized Signature



Laboratories, Inc

Date of Report: 08/25/2005

Doug Coats

Marine Research Specialists

3140 Telegraph Road

Suite A

Ventura, CA 93003-3238

RE: Semi-annual eff

BC Lab Number: 0506889

Enclosed are the results of analyses for samples received by the laboratory on 07/13/05 17:51. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Linda Proudamme Br." The signature is written in a cursive, flowing style.

Contact Person: Shelley Taylor

Client Service Rep

A handwritten signature in black ink, consisting of a few stylized, overlapping strokes, positioned above a solid horizontal line. Below the line, the text "Authorized Signature" is printed.

Authorized Signature

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

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

Reported: 08/25/05 15:47

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		Lab Quals
										Percent Recovery	RPD	
Ammonia as N (Distilled)	BOG0644	BOG0644-BS1	LCS	0.75868	0.80000	0.050	mg/L	94.8		85 - 115		
Total Cyanide	BOG0747	BOG0747-BS1	LCS	0.36450	0.37500	0.020	mg/L	97.2		90 - 110		



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3140 Telegraph Road
Ventura CA, 93003-3238

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

Reported: 08/25/05 15:47

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		Lab Quals
										Percent Recovery	RPD	
Total Recoverable Arsenic	BOG0784	BOG0784-BS1	LCS	48.148	50.000	2.0	ug/L	96.3		85 - 115		
Total Recoverable Lead	BOG0784	BOG0784-BS1	LCS	46.538	50.000	1.0	ug/L	93.1		85 - 115		
Total Recoverable Selenium	BOG0784	BOG0784-BS1	LCS	47.603	50.000	2.0	ug/L	95.2		85 - 115		
Total Recoverable Thallium	BOG0784	BOG0784-BS1	LCS	17.925	20.000	1.0	ug/L	89.6		85 - 115		
Total Antimony	BOG0863	BOG0863-BS1	LCS	391.05	400.00	100	ug/L	97.8		85 - 115		
Total Beryllium	BOG0863	BOG0863-BS1	LCS	192.68	200.00	10	ug/L	96.3		85 - 115		
Total Cadmium	BOG0863	BOG0863-BS1	LCS	200.22	200.00	10	ug/L	100		85 - 115		
Total Chromium	BOG0863	BOG0863-BS1	LCS	196.17	200.00	10	ug/L	98.1		85 - 115		
Total Copper	BOG0863	BOG0863-BS1	LCS	195.62	200.00	10	ug/L	97.8		85 - 115		
Total Nickel	BOG0863	BOG0863-BS1	LCS	391.34	400.00	10	ug/L	97.8		85 - 115		
Total Silver	BOG0863	BOG0863-BS1	LCS	97.229	100.00	10	ug/L	97.2		85 - 115		
Total Zinc	BOG0863	BOG0863-BS1	LCS	206.38	200.00	50	ug/L	103		85 - 115		
Total Mercury	BOG1042	BOG1042-BS1	LCS	1.0625	1.0000	0.20	ug/L	106		85 - 115		



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Project Manager: Doug Coats

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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		Lab Quals
										Percent Recovery	RPD	
Aldrin	BOG1123	BOG1123-BS1	LCS	0.20871	0.25000	0.050	ug/L	83.5		48 - 138		
gamma-BHC (Lindane)	BOG1123	BOG1123-BS1	LCS	0.20411	0.25000	0.050	ug/L	81.6		49 - 124		
4,4'-DDT	BOG1123	BOG1123-BS1	LCS	0.22116	0.25000	0.10	ug/L	88.5		46 - 134		
Dieldrin	BOG1123	BOG1123-BS1	LCS	0.22147	0.25000	0.10	ug/L	88.6		57 - 146		
Endrin	BOG1123	BOG1123-BS1	LCS	0.25829	0.25000	0.10	ug/L	103		52 - 169		
Heptachlor	BOG1123	BOG1123-BS1	LCS	0.079431	0.25000	0.050	ug/L	31.8		59 - 140		L01
PCB-1260	BOG1123	BOG1123-BS1	LCS	ND		0.20	ug/L			0 - 200		
TCMX (Surrogate)	BOG1123	BOG1123-BS1	LCS	0.30367	0.30000	1.0	ug/L	101		55 - 123		
Dibutyl chlorendate (Surrogate)	BOG1123	BOG1123-BS1	LCS	0.65068	0.75000	1.0	ug/L	86.8		48 - 149		



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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		Lab Quals
										Percent Recovery	RPD	
Benzene	BOG0623	BOG0623-BS1	LCS	26.350	25.000	1.0	ug/L	105		70 - 130		
Bromodichloromethane	BOG0623	BOG0623-BS1	LCS	26.190	25.000	1.0	ug/L	105		70 - 130		
Bromoform	BOG0623	BOG0623-BS1	LCS	24.040	25.000	1.0	ug/L	96.2		70 - 130		
Bromomethane	BOG0623	BOG0623-BS1	LCS	31.400	25.000	2.0	ug/L	126		70 - 130		
Carbon tetrachloride	BOG0623	BOG0623-BS1	LCS	26.780	25.000	1.0	ug/L	107		70 - 130		
Chlorobenzene	BOG0623	BOG0623-BS1	LCS	24.660	25.000	1.0	ug/L	98.6		70 - 130		
Chloroethane	BOG0623	BOG0623-BS1	LCS	25.960	25.000	2.0	ug/L	104		70 - 130		
Chloroform	BOG0623	BOG0623-BS1	LCS	26.990	25.000	1.0	ug/L	108		70 - 130		
Chloromethane	BOG0623	BOG0623-BS1	LCS	29.070	25.000	2.0	ug/L	116		70 - 130		
Dibromochloromethane	BOG0623	BOG0623-BS1	LCS	25.110	25.000	1.0	ug/L	100		70 - 130		
1,2-Dichlorobenzene	BOG0623	BOG0623-BS1	LCS	24.610	25.000	1.0	ug/L	98.4		70 - 130		
1,3-Dichlorobenzene	BOG0623	BOG0623-BS1	LCS	24.140	25.000	1.0	ug/L	96.6		70 - 130		
1,4-Dichlorobenzene	BOG0623	BOG0623-BS1	LCS	24.420	25.000	1.0	ug/L	97.7		70 - 130		
1,1-Dichloroethane	BOG0623	BOG0623-BS1	LCS	25.660	25.000	1.0	ug/L	103		70 - 130		
1,2-Dichloroethane	BOG0623	BOG0623-BS1	LCS	24.900	25.000	1.0	ug/L	99.6		70 - 130		
1,1-Dichloroethene	BOG0623	BOG0623-BS1	LCS	25.980	25.000	1.0	ug/L	104		70 - 130		
trans-1,2-Dichloroethene	BOG0623	BOG0623-BS1	LCS	26.290	25.000	1.0	ug/L	105		70 - 130		
1,2-Dichloropropane	BOG0623	BOG0623-BS1	LCS	25.010	25.000	1.0	ug/L	100		70 - 130		
cis-1,3-Dichloropropene	BOG0623	BOG0623-BS1	LCS	25.780	25.000	1.0	ug/L	103		70 - 130		
trans-1,3-Dichloropropene	BOG0623	BOG0623-BS1	LCS	25.160	25.000	1.0	ug/L	101		70 - 130		
Ethylbenzene	BOG0623	BOG0623-BS1	LCS	24.940	25.000	1.0	ug/L	99.8		70 - 130		
Methylene chloride	BOG0623	BOG0623-BS1	LCS	25.740	25.000	1.0	ug/L	103		70 - 130		
Methyl t-butyl ether	BOG0623	BOG0623-BS1	LCS	26.030	25.000	0.50	ug/L	104		70 - 130		
1,1,2,2-Tetrachloroethane	BOG0623	BOG0623-BS1	LCS	21.990	25.000	1.0	ug/L	88.0		70 - 130		
Tetrachloroethene	BOG0623	BOG0623-BS1	LCS	26.420	25.000	1.0	ug/L	106		70 - 130		
Toluene	BOG0623	BOG0623-BS1	LCS	25.830	25.000	1.0	ug/L	103		70 - 130		
1,1,1-Trichloroethane	BOG0623	BOG0623-BS1	LCS	27.320	25.000	1.0	ug/L	109		70 - 130		



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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		Lab Quals
										Percent Recovery	RPD	
1,1,2-Trichloroethane	BOG0623	BOG0623-BS1	LCS	25.560	25.000	1.0	ug/L	102		70 - 130		
Trichloroethene	BOG0623	BOG0623-BS1	LCS	26.640	25.000	0.50	ug/L	107		70 - 130		
Trichlorofluoromethane	BOG0623	BOG0623-BS1	LCS	25.880	25.000	1.0	ug/L	104		70 - 130		
1,1,2-Trichloro-1,2,2-trifluoroethane	BOG0623	BOG0623-BS1	LCS	25.810	25.000	1.0	ug/L	103		70 - 130		
Vinyl chloride	BOG0623	BOG0623-BS1	LCS	26.320	25.000	1.0	ug/L	105		70 - 130		
Total Xylenes	BOG0623	BOG0623-BS1	LCS	74.510	75.000	2.0	ug/L	99.3		70 - 130		
p- & m-Xylenes	BOG0623	BOG0623-BS1	LCS	49.670	50.000	0.50	ug/L	99.3		70 - 130		
o-Xylene	BOG0623	BOG0623-BS1	LCS	24.840	25.000	0.50	ug/L	99.4		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BOG0623	BOG0623-BS1	LCS	10.890	10.000		ug/L	109		76 - 114		
Toluene-d8 (Surrogate)	BOG0623	BOG0623-BS1	LCS	10.250	10.000		ug/L	102		88 - 110		
4-Bromofluorobenzene (Surrogate)	BOG0623	BOG0623-BS1	LCS	10.170	10.000		ug/L	102		86 - 115		



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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		Lab Quals
										Percent Recovery	RPD	
Acenaphthene	BOG0955	BOG0955-BS1	LCS	61.754	80.000	2.0	ug/L	77.2		51 - 103		
1,4-Dichlorobenzene	BOG0955	BOG0955-BS1	LCS	63.319	80.000	2.0	ug/L	79.1		50 - 100		
2,4-Dinitrotoluene	BOG0955	BOG0955-BS1	LCS	76.280	80.000	2.0	ug/L	95.4		55 - 109		
Hexachlorobenzene	BOG0955	BOG0955-BS1	LCS	70.601	80.000	2.0	ug/L	88.3		65 - 113		
Hexachlorobutadiene	BOG0955	BOG0955-BS1	LCS	53.492	80.000	2.0	ug/L	66.9		35 - 96		
Hexachloroethane	BOG0955	BOG0955-BS1	LCS	61.730	80.000	2.0	ug/L	77.2		42 - 108		
Nitrobenzene	BOG0955	BOG0955-BS1	LCS	74.729	80.000	2.0	ug/L	93.4		58 - 114		
N-Nitrosodi-N-propylamine	BOG0955	BOG0955-BS1	LCS	77.056	80.000	2.0	ug/L	96.3		52 - 133		
Pyrene	BOG0955	BOG0955-BS1	LCS	57.831	80.000	2.0	ug/L	72.3		53 - 127		
1,2,4-Trichlorobenzene	BOG0955	BOG0955-BS1	LCS	57.864	80.000	2.0	ug/L	72.3		48 - 103		
4-Chloro-3-methylphenol	BOG0955	BOG0955-BS1	LCS	77.893	80.000	5.0	ug/L	97.4		62 - 110		
2-Chlorophenol	BOG0955	BOG0955-BS1	LCS	67.489	80.000	2.0	ug/L	84.4		63 - 96		
2-Methylphenol	BOG0955	BOG0955-BS1	LCS	73.534	80.000	2.0	ug/L	91.9		47 - 128		
3- & 4-Methylphenol	BOG0955	BOG0955-BS1	LCS	100.68	80.000	2.0	ug/L	126		62 - 104		L01
4-Nitrophenol	BOG0955	BOG0955-BS1	LCS	43.481	80.000	2.0	ug/L	54.4		22 - 71		
Pentachlorophenol	BOG0955	BOG0955-BS1	LCS	90.215	80.000	10	ug/L	113		67 - 127		
Phenol	BOG0955	BOG0955-BS1	LCS	35.774	80.000	2.0	ug/L	44.7		31 - 64		
2,4,6-Trichlorophenol	BOG0955	BOG0955-BS1	LCS	78.591	80.000	5.0	ug/L	98.2		62 - 109		
2-Fluorophenol (Surrogate)	BOG0955	BOG0955-BS1	LCS	50.926	80.000		ug/L	63.7		46 - 93		
Phenol-d5 (Surrogate)	BOG0955	BOG0955-BS1	LCS	38.123	80.000		ug/L	47.7		31 - 69		
Nitrobenzene-d5 (Surrogate)	BOG0955	BOG0955-BS1	LCS	87.457	80.000		ug/L	109		67 - 117		
2-Fluorobiphenyl (Surrogate)	BOG0955	BOG0955-BS1	LCS	64.388	80.000		ug/L	80.5		53 - 111		
2,4,6-Tribromophenol (Surrogate)	BOG0955	BOG0955-BS1	LCS	88.771	80.000		ug/L	111		62 - 119		
p-Terphenyl-d14 (Surrogate)	BOG0955	BOG0955-BS1	LCS	35.845	40.000		ug/L	89.6		66 - 137		



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Project: Semi-annual eff
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Project Manager: Doug Coats

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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		Lab Quals
										Percent Recovery	RPD	
Bolstar	BOG0779	BOG0779-BS1	LCS	0.96750	1.0000	0.20	ug/L	96.8		49 - 134		
Chlorpyrifos	BOG0779	BOG0779-BS1	LCS	0.90900	1.0000	0.20	ug/L	90.9		61 - 125		
Diazinon	BOG0779	BOG0779-BS1	LCS	0.94000	1.0000	0.20	ug/L	94.0		63 - 128		
Methyl parathion	BOG0779	BOG0779-BS1	LCS	0.86600	1.0000	0.20	ug/L	86.6		57 - 122		
Mevinphos	BOG0779	BOG0779-BS1	LCS	0.82400	1.0000	0.20	ug/L	82.4		48 - 164		
Ronnel (Fenchlorphos)	BOG0779	BOG0779-BS1	LCS	0.87700	1.0000	0.20	ug/L	87.7		45 - 122		
Stirophos (Tetrachlorvinphos)	BOG0779	BOG0779-BS1	LCS	0.88500	1.0000	0.20	ug/L	88.5		50 - 145		
Triphenylphosphate (Surrogate)	BOG0779	BOG0779-BS1	LCS	2.4265	2.5000	0.20	ug/L	97.1		55 - 132		



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

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Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 0506889-03		Client Sample Name: Travel Blank, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	ug/L	0.50	0.11	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Bromodichloromethane	ND	ug/L	0.50	0.067	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Bromoform	ND	ug/L	0.50	0.051	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Bromomethane	ND	ug/L	1.0	0.45	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Carbon tetrachloride	ND	ug/L	0.50	0.099	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Chlorobenzene	ND	ug/L	0.50	0.050	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Chloroethane	ND	ug/L	0.50	0.12	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Chloroform	ND	ug/L	0.50	0.050	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Chloromethane	ND	ug/L	0.50	0.21	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Dibromochloromethane	ND	ug/L	0.50	0.056	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,2-Dichlorobenzene	ND	ug/L	0.50	0.085	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.081	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,4-Dichlorobenzene	ND	ug/L	0.50	0.062	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,1-Dichloroethane	ND	ug/L	0.50	0.17	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,2-Dichloroethane	ND	ug/L	0.50	0.11	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,1-Dichloroethene	ND	ug/L	0.50	0.088	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.11	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,2-Dichloropropane	ND	ug/L	0.50	0.13	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.079	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Ethylbenzene	ND	ug/L	0.50	0.13	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Methylene chloride	0.48	ug/L	1.0	0.16	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	J
Methyl t-butyl ether	ND	ug/L	0.50	0.052	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	0.21	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.057	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	V11
Tetrachloroethene	ND	ug/L	0.50	0.12	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	

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 Project Manager: Doug Coats

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Volatile Organic Analysis (EPA Method 624)

BCL Sample ID: 0506889-03		Client Sample Name: Travel Blank, 7/13/2005 2:00:00PM											
Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Toluene	ND	ug/L	0.50	0.057	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.093	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.063	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Trichloroethene	ND	ug/L	0.50	0.055	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Trichlorofluoromethane	ND	ug/L	0.50	0.094	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.18	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Vinyl chloride	ND	ug/L	0.50	0.098	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Total Xylenes	ND	ug/L	1.0	0.23	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
Acrolein	ND	ug/L	50	1.0	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623		
Acrylonitrile	ND	ug/L	20	0.66	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623		
p- & m-Xylenes	ND	ug/L	0.50	0.10	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
o-Xylene	ND	ug/L	0.50	0.13	EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623	ND	
1,2-Dichloroethane-d4 (Surrogate)	110	%	76 - 114 (LCL - UCL)		EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623		
Toluene-d8 (Surrogate)	99.5	%	88 - 110 (LCL - UCL)		EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623		
4-Bromofluorobenzene (Surrogate)	98.2	%	86 - 115 (LCL - UCL)		EPA-624	07/15/05	07/16/05 01:38	MGC	MS-V7	1	BOG0623		



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Project Number: [none]
Project Manager: Doug Coats

Reported: 08/25/05 15:47

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.
- S08 The internal standard on the sample was not within the control limits.
- Q03 Matrix spike recovery(s) is(are) not within the control limits.
- L01 The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
- J Estimated value
- C02 The relative standard deviation of the calibration curve response factors exceeds the control limit.
- A03 The sample concentration is more than 4 times the spike level.
- 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
Ventura CA, 93003-3238

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

Reported: 08/25/05 15:47

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information
------------	---------------------------

0506889-01	COC Number: --- Project Number: --- Sampling Location: --- Sampling Point: GRAB Sampled By: ---	Receive Date: 07/13/05 17:51 Sampling Date: 07/13/05 14:00 Sample Depth: --- Sample Matrix: Water
0506889-02	COC Number: --- Project Number: --- Sampling Location: --- Sampling Point: COMPOSITE Sampled By: ---	Receive Date: 07/13/05 17:51 Sampling Date: 07/13/05 14:00 Sample Depth: --- Sample Matrix: Water
0506889-03	COC Number: --- Project Number: --- Sampling Location: --- Sampling Point: Travel Blank Sampled By: ---	Receive Date: 07/13/05 17:51 Sampling Date: 07/13/05 14:00 Sample Depth: --- Sample Matrix: Water

BC LABORATORIES, INC.

41 ... las C ...
 Bakersfield, CA 93308
 (661) 327-4911 · FAX
 (661) 327-1918

CHAIN OF CUSTODY

Bill To:

Report To:

MARINE RESEARCH SPEC.

Consultant Firm: MARINE RESEARCH SPEC.

ADDRESS: 3639 E. HARBOR #208

3639 E. HARBOR #208, VENTURA, CA 93001-4277

CITY: VENTURA

Attn: DOUG COATS

05-6889

Site #: MBWWTP-SEMI-ANNUAL-EFF.

STATE: CA ZIP: 93001-4277

PROG. MGR: DOUG COATS

SAMPLER NAME:

ANALYSIS REQUESTED

Pesticides - HHS
 Turn Around Time Requested
 600 X88

Number and Container Type

ASBESTOS	
GROSS ALPHA & BETA	
EPA 8140 / 1014	
EPA 8280 DIOXIN/TCDD/PCDD	
624+ IACROLE/ACRYLONITRILE	
EPA 608 & EPA 625	
CYANIDE	
M, SE, TL, ZN	
AG, AS, CD, SB, BR, CU, CR, PB, HG	
TOTAL CHLORINATED (625)	
TOTAL NON-CHLORINATED (625)	
MERCURY (S/N) Dst	

Seq#	Sample Description	Date Sampled	Time Sampled	Matrix	ASBESTOS	GROSS ALPHA & BETA	EPA 8140 / 1014	EPA 8280 DIOXIN/TCDD/PCDD	624+ IACROLE/ACRYLONITRILE	EPA 608 & EPA 625	CYANIDE	M, SE, TL, ZN	AG, AS, CD, SB, BR, CU, CR, PB, HG	TOTAL CHLORINATED (625)	TOTAL NON-CHLORINATED (625)	MERCURY (S/N) Dst	
1	GRAB -1	7-13-05	1400	WATER													
2	COMPOSITE -2	7-13-05	1400	WATER													
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

CHK BY DISTRIBUTION
 010 MAS/MS/STO
 SUB-OUT

Comments: FAX RESULTS TO DOUG COATS @ (805) 644-1189

Relinquished by: (Signature)

Stacy R. Miller

Received by: Date & Time

Jeyman 7-13-05 140

Relinquished by: (Signature)

Jeyman

Received by: Date & Time

Nancy Belasco 7/15/05 17:51

Relinquished by: (Signature)

Received by: Date & Time

Submission #: 05-6889

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 Containers None Comments:
 Intact? Yes No Intact? Yes No

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

COC Received
 YES NO

Ice Chest ID w/r
 Temperature: 7.6 °C
 Thermometer ID: 48

Emissivity 0.93
 Container ITR

Date/Time 7/13 18:10
 Analyst Init KRL

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL		C								
PT PE UNPRESERVED										
IT INORGANIC CHEMICAL METALS		D,E								
IT INORGANIC CHEMICAL METALS		A								
PT CYANIDE		B								
T NITROGEN FORMS	A									
T TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
00ml TOTAL ORGANIC CARBON										
IT TOX										
PT CHEMICAL OXYGEN DEMAND										
1A PHENOLICS										
0ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL		K, 6								
IT EPA 413.1, 413.2, 418.1										
T ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
0 ml VOA VIAL- 504										
QT EPA 508/608/8080		H								
QT EPA 515.1/8150										
IT EPA 525										
IT EPA 525 TRAVEL BLANK										
100ml EPA 547										
00ml EPA 531.1										
IT EPA 548- 608		G								
QT EPA 549- 8270		F								
IT EPA 622- 625	B, c									
IT EPA 8015M- 8141		I								
QT QA/QC										
IT AMBER		J								
0Z JAR										
32 OZ JAR										
OIL SIEVE										
CB VIAL										
PLASTIC BAG										
FERRUS IRON										
INCORE										

Comments:
 Sample Numbering Completed By: KRL Date/Time: 7/13 19:27



Laboratories, Inc

Marine Research Specialists
3140 Telegraph Road
Ventura, CA 93003-3238
Attn: Doug Coats

<u>BC Lab #</u>	<u>Client ID</u>	<u>Date Sampled</u>	<u>Time Sampled</u>
05-07031-01	Composite	07-15-05	14:00

Attached are the results analyzed by Truesdail Laboratories, Inc.

BC LABORATORIES, INC.

410 as C
 Bakersfield, CA 93308
 (661) 327-4911 · FAX
 (661) 327-1918

CHAIN OF CUSTODY

Bill To: Report To: **05-7031**

MARINE RESEARCH SPEC.

Consultant Firm: MARINE RESEARCH SPEC.

ANALYSIS REQUESTED

ADDRESS: 3639 E. HARBOR #208

3639 E. HARBOR #208, VENTURA, CA 93001-4277

CITY: VENTURA

Attn: DOUG COATS

Site #: MBWWTP-SEMI-ANNUAL-EFF.

STATE: CA ZIP: 93001-4277

PROG. MGR: DOUG COATS

SAMPLER NAME: **Steve**

Seq#	Sample Description	Date Sampled	Time Sampled	Matrix	ANALYSIS REQUESTED	Number and Container Type
1	[REDACTED]			[REDACTED]	[REDACTED]	
2	-1 COMPOSITE	7-15-05	1400	WATER	[REDACTED]	
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

CHK BY: **MS** DISTRIBUTION
 [REDACTED]
 [REDACTED] **X**

Comments: FAX RESULTS TO DOUG COATS @ (805) 644-1189

Relinquished by: (Signature)

[Signature]

Received by: Date & Time

Jerry Mon 7-15-05 1400

Relinquished by: (Signature)

[Signature]

Received by: Date & Time

Tami Obafemi 7-15-05 2:00

Relinquished by: (Signature)

Received by: Date & Time

Submission #: 05-7031

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 Containers None Comments:
 Intact? Yes No Intact? Yes No

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

COC Received
 YES NO

Ice Chest ID: R1W
 Temperature: 3.7 °C
 Thermometer ID: #42

Emissivity Container: 802pe

Date/Time: 7/15/05
 Analyst Init: OTO

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
PT GENERAL MINERAL/ GENERAL PHYSICAL	A,B,C									
PT PE UNPRESERVED										
PT INORGANIC CHEMICAL METALS										
T INORGANIC CHEMICAL METALS										
PT CYANIDE										
T NITROGEN FORMS										
T TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
90ml TOTAL ORGANIC CARBON										
T TOX										
PT CHEMICAL OXYGEN DEMAND										
TA PHENOLICS										
0ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
PT EPA 413.1, 413.2, 418.1										
T ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
9 ml VOA VIAL- 504										
T EPA 508/608/8080										
QT EPA 515.1/8150										
T EPA 525										
T EPA 525 TRAVEL BLANK										
100ml EPA 547										
90ml EPA 531.1										
T EPA 548										
QT EPA 549										
T EPA 632										
T EPA 8015M										
QT QAIQC										
T AMBER										
OZ. JAR										
32 OZ. JAR										
OIL SLEEVE										
CB VIAL										
PLASTIC BAG										
ERROUS IRON										
NCORE										

Comments:
 Sample Numbering Completed By: OTO Date/Time: 7/15/05 2100



Laboratories, Inc

August 26, 2005

Marine Research Specialists
3140 Telegraph Road
Ventura, CA 93003

Dear Bonnie Luke,

On July 13, 2005 BC Laboratories received a composite BC Lab work order number 05-06889-2. The Composite sample was suppose to be analyzed for Asbestos per the chain of custody. Due to an error at the laboratory the Asbestos sample did not get subbed out to the subcontract laboratory Asbestos TEM.

Yours In Service,

A handwritten signature in black ink that reads "Linda Phoudamneun". The signature is written in a cursive, flowing style.

Linda Phoudamneun
BC Laboratories
Client Service Rep
(661) 852-4203
lindap@bclabs.com

Section I: Sample Inventory Report

Date Received: 7/15/2005

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
26454-001	COMP EFFLUENT
26454-002	COMP INFLUENT
26454-003	TRAVEL BLANK

Method Blank						EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7048	Lab Sample:	0-MB001	Date Analyzed DB-5:	30-Jul-05	Date Analyzed DB-225:	NA
Sample Size:	1.000 L	Date Extracted:	28-Jul-05						
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	MDL ^c	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.417		0.699		<u>IS</u> 13C-2,3,7,8-TCDD	88.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.754		1.12		13C-1,2,3,7,8-PeCDD	89.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.28		0.727		13C-1,2,3,4,7,8-HxCDD	82.3	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.23		0.729		13C-1,2,3,6,7,8-HxCDD	91.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.23		2.22		13C-1,2,3,4,6,7,8-HpCDD	85.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.42		0.826		13C-OCDD	84.0	17 - 157	
OCDD	ND	7.04		2.43		13C-2,3,7,8-TCDF	85.2	24 - 169	
2,3,7,8-TCDF	ND	0.448		0.486		13C-1,2,3,7,8-PeCDF	89.1	24 - 185	
1,2,3,7,8-PeCDF	ND	0.642		1.26		13C-2,3,4,7,8-PeCDF	93.4	21 - 178	
2,3,4,7,8-PeCDF	ND	0.559		0.707		13C-1,2,3,4,7,8-HxCDF	91.9	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.381		0.932		13C-1,2,3,6,7,8-HxCDF	98.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.617		0.937		13C-2,3,4,6,7,8-HxCDF	95.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.351		0.932		13C-1,2,3,7,8,9-HxCDF	92.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.502		1.65		13C-1,2,3,4,6,7,8-HpCDF	93.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.856		1.21		13C-1,2,3,4,7,8,9-HpCDF	93.5	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.719		1.52		13C-OCDF	87.2	17 - 157	
OCDF	ND	3.32		1.78		<u>CRS</u> 37Cl-2,3,7,8-TCDD	91.7	35 - 197	
Totals						Toxic Equivalent Quotient (TEQ) Data ^e			
Total TCDD	ND	0.907				TEQ (Min):	0		
Total PeCDD	ND	0.754							
Total HxCDD	ND	1.25							
Total HpCDD	ND	1.42							
Total TCDF	ND	0.448							
Total PeCDF	ND	0.599							
Total HxCDF	ND	0.755							
Total HpCDF	ND	1.07							

Analyst: MAS

Approved By: William J. Luksemburg 02-Aug-2005 11:14

OPR Results				EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	7048	Lab Sample:	0-OPR001		
Sample Size:	1.000 L	Date Extracted:	28-Jul-05	Date Analyzed DB-5:	30-Jul-05	Date Analyzed DB-225:	NA
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.47	6.7 - 15.8	<u>IS</u> 13C-2,3,7,8-TCDD	79.8	25 - 164	
1,2,3,7,8-PeCDD	50.0	49.4	35 - 71	13C-1,2,3,7,8-PeCDD	82.0	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	50.5	35 - 82	13C-1,2,3,4,7,8-HxCDD	78.0	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	51.1	38 - 67	13C-1,2,3,6,7,8-HxCDD	86.1	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	52.4	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	81.0	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	49.2	35 - 70	13C-OCDD	79.7	17 - 157	
OCDD	100	103	78 - 144	13C-2,3,7,8-TCDF	80.1	24 - 169	
2,3,7,8-TCDF	10.0	9.66	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	83.3	24 - 185	
1,2,3,7,8-PeCDF	50.0	48.4	40 - 67	13C-2,3,4,7,8-PeCDF	86.5	21 - 178	
2,3,4,7,8-PeCDF	50.0	49.7	34 - 80	13C-1,2,3,4,7,8-HxCDF	87.6	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	48.9	36 - 67	13C-1,2,3,6,7,8-HxCDF	96.7	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	47.9	42 - 65	13C-2,3,4,6,7,8-HxCDF	95.1	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	48.5	35 - 78	13C-1,2,3,7,8,9-HxCDF	87.6	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	49.4	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	87.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	47.9	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	85.1	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	47.5	39 - 69	13C-OCDF	83.4	17 - 157	
OCDF	100	96.5	63 - 170	<u>CRS</u> 37Cl-2,3,7,8-TCDD	87.5	35 - 197	

Analyst: MAS

Approved By: William J. Luksemburg 02-Aug-2005 11:14



ALTA CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 26454
Temp 27°C Storage ID: WR-8

Storage Secured
Ycs No

Project I.D.: Marro Bay WWTP P.O. #: _____ Sampler: Steve Aschenbrener (Name)
TAT: (Check One):
 21 Days (STD) 14 Days
 7 Days Other:

Invoice to: Name Dr Doug Coats Company Marine Research Specialists Address 3140 Telegraph Rd Suite A City Ventura State CA Zip 93003 Ph# 8056441180 Fax # 2893935
Relinquished by: (Signature and Printed Name) Steve Aschenbrener Date: 14 July 05 Time: 10:30 Received by: (Signature and Printed Name) Christina Vredeve Date: 7/15/05 Time: 0900
Relinquished by: (Signature and Printed Name) _____ Date: _____ Received by: (Signature and Printed Name) _____ Date: _____ Time: _____

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Alta Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 933-1640 • Fax (916) 673-0106
www.altalab.com

Method of Shipment: _____

Add Analysis(es) Requested: EPA1613

Container(s): _____

Shipments ID: _____

ATTN: _____

Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	2378-TCDD	2378-TCDD/TCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE	PAH	WHO-29
----------	------	--------	-----------	----------------	-----------	-----------	----------------	-----------	----------------	--------	---------------	---------------	------	-----	--------

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	2378-TCDD	2378-TCDD/TCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE	PAH	WHO-29	
Comp Effluent	14 July 05	0945	24 hour comp effluent	1	A	EF	X	X	X											
Comp Influent	14 July 05	0950	24 hour Comp Influent	1	A	EF	X	X	X											
Travel Blank				1	A															

Special Instructions/Comments: If you have any questions, please contact Dr Coats; Analyze effluent only/

SEND DOCUMENTATION AND RESULTS TO:

Name: Dr Doug Coats
Company: Marine Research Specialists
Address: 3140 Telegraph Rd Suite A
City: Ventura State: CA Zip: 93003
Phone: 8056441180 Fax: 8052893935
Email: Doug.Coats@mrsenv.com
Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum
O = Other _____

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MMS Train, O = Other _____

*Bottle Preservative Type: T = Thiosulfate,
O = Other _____

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 26454

1. Date Samples Arrived: <u>7/15/05 0900</u> Initials: <u>CW</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>0645 7/19/05</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) Ice / <u>Blue Ice</u> / Dry Ice / None Temp °C <u>2.7°</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	NA <input type="checkbox"/>
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>8521 1335 0748</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. Intact? If not intact, describe condition in comment section.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9. Sample Container Intact? If no, indicate sample condition in comment section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Chain of Custody (COC) or other Sample Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Shipping Container (circle): <u>ALTA</u> Client <u>Retain</u> or Return or Disposed			
13. Container(s) and/or Bottle(s) Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



***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 *	Number of Containers	Testing Requested
Grab Eff. ARS	7/11/05	0810	E	1 (one gallon)	FHM Acute daily renewal
Comp. Eff.	7/11/05	1030	E	1 (one gallon)	Giant Kelp Chronic

Special Instructions:

* 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)
<i>Bruce Keogh</i>	<i>Fed Ex</i>	7/11/05	1430	—	—
<i>Fed Ex</i>	<i>[Signature]</i>	7-12-15	1002	NR	2°C

CHAIN OF CUSTODY

Client: City of Morro Bay

Wastewater Treatment Plant

Address: 160 Atascadero Road

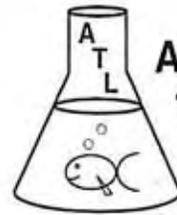
Morro Bay, CA 93442

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 *	Number of Containers	Testing Requested
Grab Eff. ARS	7-12-05	0820	E	1 (one gallon)	FHM Acute daily renewal

Special Instructions:

* 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)
<i>Bruce Keogh</i>	<i>Felix</i>	7-12-05	1430	—	—
<i>Felix</i>	<i>PHM</i>	7-13-05	1000	NA	2°C

CHAIN OF CUSTODY

Client: City of Morro Bay

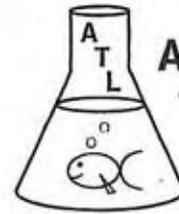
Address: Wastewater Treatment Plant
160 Atascadero Road
Morro Bay, CA 93442

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 *	Number of Containers	Testing Requested
Grab Eff. ARS	7-13-05	0810	E	1 (one gallon)	FHM Acute daily renewal

Special Instructions:

* 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)
<i>Bruce Keag</i>	<i>Fred [unclear]</i>	7-13-05	1430	—	—
<i>Fred [unclear]</i>	<i>[unclear]</i>	7-14-05	0930	NA	2°

CHAIN OF CUSTODY

Client: City of Morro Bay

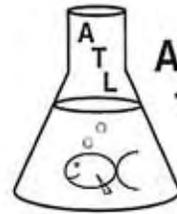
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Sample ID	Sample Date	Sample Time	Sample Type #	Number of Containers	Testing Requested
Grab Eff. ARS	7-14-05	0810	E	1 (one gallon)	FHM Acute daily renewal
Special Instructions:					

* 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)
<i>[Signature]</i>	<i>[Signature]</i>	7-14-05	1400	—	—
<i>[Signature]</i>	<i>[Signature]</i>	7-15-05	1000	—	3°C



***REFERENCE
TOXICANT
DATA***

FATHEAD MINNOW ACUTE REFERENCE TOXICANT TEST

QA/QC Batch No.: RT050706

TEST SUMMARY

Species: Pimephales promelas.
 Test type: Static, renewal at 48hr.
 Test chamber volume: 250 ml.
 Test chamber: 600 ml beakers.
 Number of replicates: 2.
 Photoperiod: 16/8 hrs light/dark.

Source: In-Lab Culture.
 Regulations: NPDES.
 Endpoints: LC50 at 96 hrs.
 Temperature: 20 +/- 1°C.
 Number of fish per chamber: 10.
 Ref. toxicant: Sodium dodecyl sulfate (SDS).

Age: 14 days (1-14).
 Test Protocol: EPA/600/4-90/027F.
 Feeding: Prior to renewal at 48hr.
 Aeration: None, unless DO drops below 4.0 mg/l
 Dilution water: Mod. hard reconstituted water.

TEST DATA

	INITIAL			24 Hr				48 Hr				RENEWAL				72 Hr				96 Hr							
DATE/TIME:	7-6-05 13:00			7-7-05 12:00				7-8-05 11:00				7-8-05 11:00				7-9-05 12:00				7-10-05 13:00							
ANALYST:	<i>Ln</i>			<i>Ln</i>				<i>Ln</i>				<i>Ln</i>				<i>Ln</i>				<i>Ln</i>							
	°C	DO	pH	°C	DO	pH	# Dead	°C	DO	pH	# Dead	°C	DO	pH	# Dead	°C	DO	pH	# Dead	°C	DO	pH	# Dead	°C	DO	pH	# Dead
CONTROL	20.1	8.9	8.2	20.1	8.0	7.9	0	20.3	6.6	7.8	0	20.1	8.7	8.1	0	20.0	6.2	7.8	0	20.3	7.0	7.9	0	20.3	7.0	7.9	0
1.0 mg/l	20.1	8.9	8.2	20.1	7.9	7.9	0	20.2	6.4	7.8	0	20.1	8.8	8.1	0	20.0	5.8	7.7	0	20.3	7.2	7.8	0	20.3	7.2	7.8	0
2.0 mg/l	20.1	9.0	8.2	20.1	7.8	7.9	0	20.2	6.5	7.8	0	20.1	8.9	8.1	0	20.0	6.3	7.7	0	20.3	6.8	7.8	0	20.3	6.8	7.8	0
4.0 mg/l	20.1	9.0	8.2	20.1	7.7	7.9	6	20.2	6.2	7.7	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.0 mg/l	20.1	9.1	8.2	20.1	7.1	7.8	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comments:	Control: Alkalinity: <u>57</u> mg/l; Hardness: <u>91</u> mg/l; Conductivity: <u>340</u> umho. SDS: Alkalinity: <u>56</u> mg/l; Hardness: <u>92</u> mg/l; Conductivity: <u>335</u> umho.																										

RESULTS

LC50: 7.5 mg/l 95% Confidence Limits: ≤ u ≤ mg/l
 Method: Graphical Trimmed Spearman-Kärber Probit

Acute Fish Test-96 Hr Survival

Start Date: 06 Jul-05 13:30	Test ID: RT-050706	Sample ID: REF-Ref Toxicant
End Date: 10 Jul-05 13:00	Lab ID: CAATL-Aquatic Testing Labs	Sample Type: SDS-Sodium dodecyl sulfate
Sample Date: 10 Jul-05 00:00	Protocol: EPAA 91-EPA Acute	Test Species: PP-Pimephales promelas

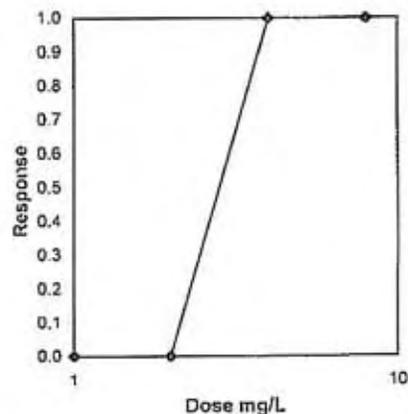
Conc-mg/L	1	2
D-Control	1.0000	1.0000
1	1.0000	1.0000
2	1.0000	1.0000
4	0.0000	0.0000
8	0.0000	0.0000

Conc-mg/L	Mean	N-Mean	Transform: Arcsin Square Root					N	Number Resp	Total Number
			Mean	Min	Max	CV%				
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				

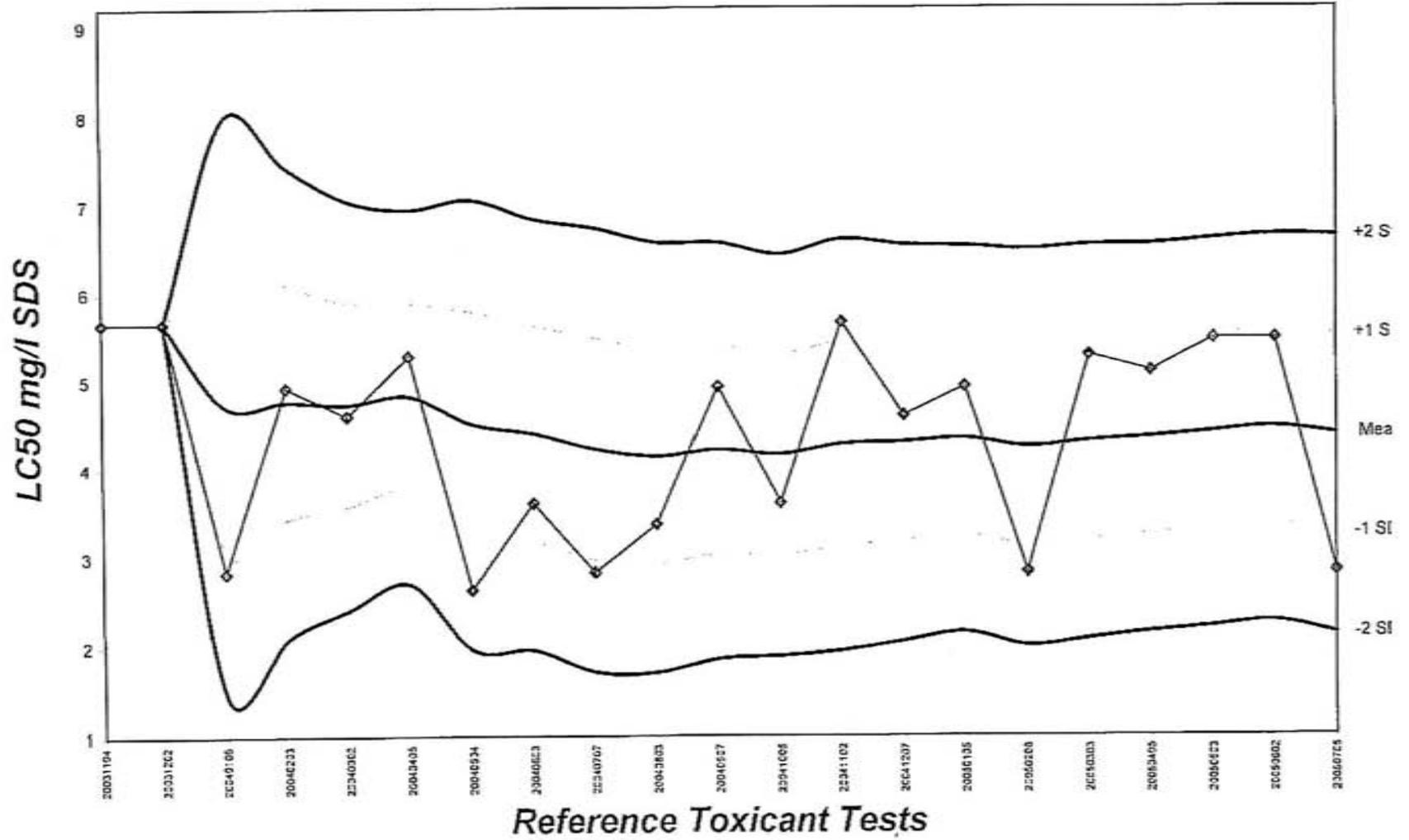
Graphical Method

Trim Level	EC50
0.0%	2.8284



Fathead Minnow Acute Laboratory Control Chart

CV% = 25.6



TEST ORGANISM LOG

FATHEAD MINNOW - LARVAL
(*Pimephales promelas*)



QA/QC BATCH NO.: RT-050206

SOURCE: In-Lab Culture

DATE HATCHED: 6-22-05

APPROXIMATE QUANTITY: 400

GENERAL APPEARANCE: good

MORTALITIES 48 HOURS PRIOR TO
TO USE IN TESTING: 0

DATES USED IN LAB: 7/6/05
to
1/1

AVERAGE FISH WEIGHT: 0.005 gm

TEST LOADING LIMITS: 0.65 gm/liter

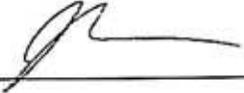
200 ml test solution volume = 0.013 gm mean fish weight limit

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

ACCLIMATION WATER QUALITY:

Temp.: 22 °C pH: 7.9 Ammonia: 0.2 mg/l NH₃-N

DO: 8.2 mg/l Alkalinity: 54 mg/l Hardness: 92 mg/l

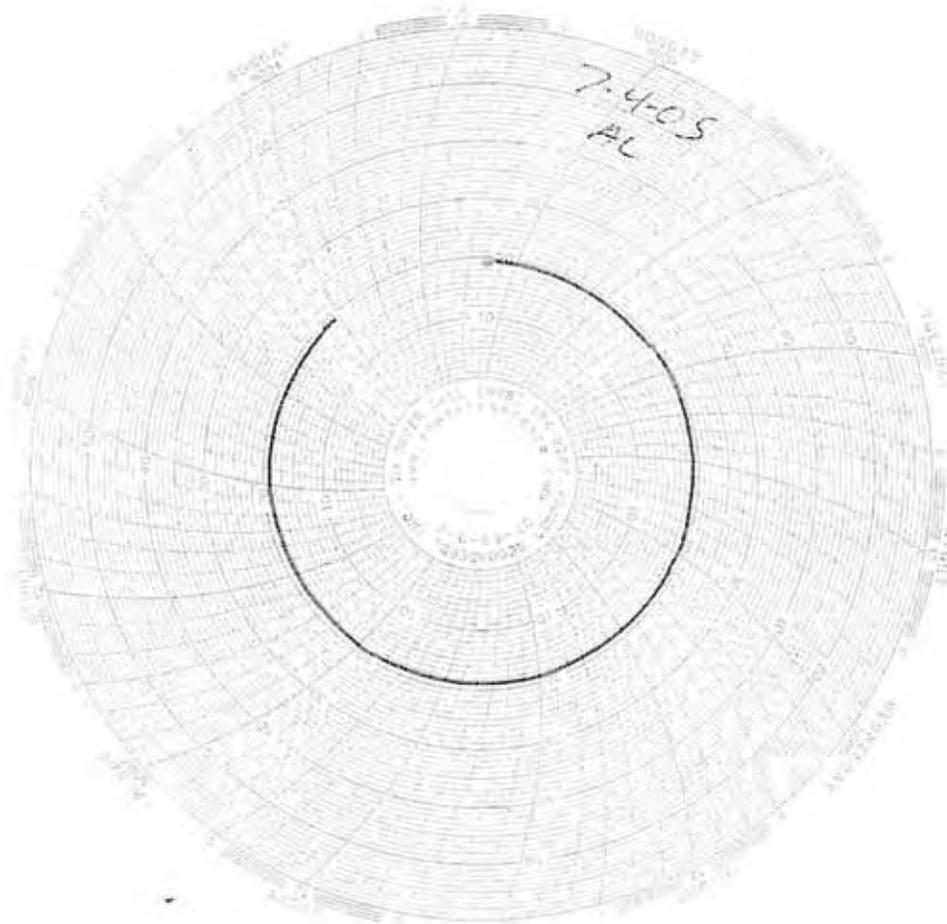
READINGS RECORDED BY:  DATE: 7-10-05

Laboratory Temperature Chart

QA/QC Batch No: RT-050706

Date Tested: 07/06/05 to 07/10/05

Acceptable Range: 20 \pm 1 $^{\circ}$ C





***CHAIN
OF
CUSTODY***

CHAIN OF CUSTODY

Client: City of Morro Bay

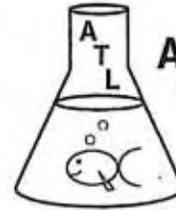
Address: Wastewater Treatment Plant
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Morro Bay, CA 93442

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 *	Number of Containers	Testing Requested
Grab Eff. ARS	7/11/05	0810	E	1 (one gallon)	FHM Acute daily renewal
Comp. Eff.	7/11/05	1030	E	1 (one gallon)	Giant Kelp Chronic

Special Instructions:

* 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)
<i>Bruce Keogh</i>	<i>Fed Ex</i>	7/11/05	1430	—	—
<i>Fed Ex</i>	<i>[Signature]</i>	7-12-15	1002	NR	2°C



***REFERENCE
TOXICANT
DATA***

GIANT KELP GERMINATION AND GROWTH TEST REFERENCE TOXICANT - COPPER



QA/QC Batch No.: RT-050712

Date Tested: 07/12/05 - 07/14/05

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	88.8%		16.25	
10 µg/l	89.4%		16.55	
18 µg/l	88.2%		16.20	
32 µg/l	79.6%	*	14.15	*
56 µg/l	44.0%	*	10.05	*
100 µg/l	22.9%	*	7.65	*
180 µg/l	4.1%	*	5.65	*

* Statistically significantly less than control at P = 0.05 level

CHRONIC TOXICITY

Germination NOEC	18 µg/l
Germination EC25	40.2 µg/l
Germ Tube Growth NOEC	18 µg/l
Germ Tube Growth IC25	42.8 µg/l

QA/QC TEST ACCEPTABILITY

Parameter	Result
Mean control germination ≥ 70%	Yes (88.8%)
Mean control germination tube length > 10 µm	Yes (16.25 µm)
Germination tube growth NOEC < 35 µg/l Copper	Yes (18 µg/l)
%MSD < 20% relative to control (germination & growth)	Yes (germ = 8.1%, growth = 7.5%)

Macrocystis Germination and Growth Test-Proportion Germinated

Start Date: 12 Jul-05 16:00 Test ID: RT-050712k Sample ID: REF-Ref Toxicant
 End Date: 14 Jul-05 16:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: CUCL-Copper chloride
 Sample Date: 12 Jul-05 00:00 Protocol: MBP 90 Test Species: MP-Macrocystis pyrifera
 Comments:

Conc-ug/L	1	2	3	4	5
D-Control	0.9065	0.8835	0.8692	0.8713	0.9083
10	0.8919	0.9135	0.8835	0.9074	0.8738
18	0.8824	0.8559	0.8952	0.9029	0.8738
32	0.8515	0.8333	0.7788	0.7019	0.8165
56	0.3143	0.4667	0.5283	0.5586	0.3333
100	0.1346	0.2333	0.2883	0.2150	0.2745
180	0.0354	0.0935	0.0187	0.0374	0.0187

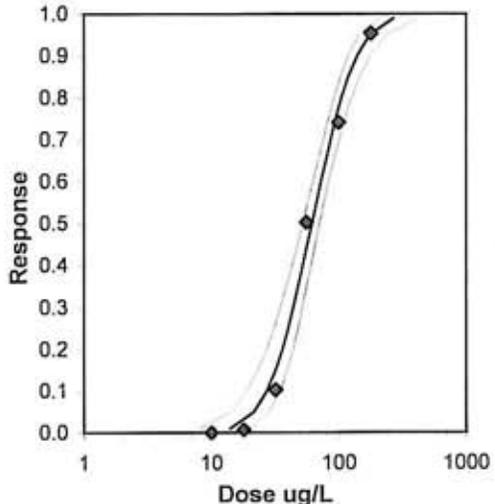
Conc-ug/L	Transform: Arcsin Square Root							t-Stat	1-Tailed Critical	MSD	Number Resp	Total Number
	Mean	N-Mean	Mean	Min	Max	CV%	N					
D-Control	0.8877	1.0000	1.2300	1.2007	1.2631	2.439	5				59	527
10	0.8940	1.0071	1.2399	1.2076	1.2722	2.164	5	-0.234	2.409	0.1017	56	529
18	0.8820	0.9936	1.2210	1.1814	1.2539	2.332	5	0.215	2.409	0.1017	62	524
*32	0.7964	0.8971	1.1056	0.9933	1.1752	6.485	5	2.946	2.409	0.1017	106	520
*56	0.4402	0.4959	0.7241	0.5951	0.8441	15.692	5	11.980	2.409	0.1017	299	535
*100	0.2291	0.2581	0.4960	0.3757	0.5668	15.229	5	17.380	2.409	0.1017	419	544
*180	0.0407	0.0459	0.1938	0.1371	0.3107	36.586	5	24.537	2.409	0.1017	519	541

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.9621	0.91	-0.271	0.19542
Bartlett's Test indicates equal variances (p = 0.04)	12.9914	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		0.07165	0.8846	0.00446	198.385	1.3E-21	6, 28

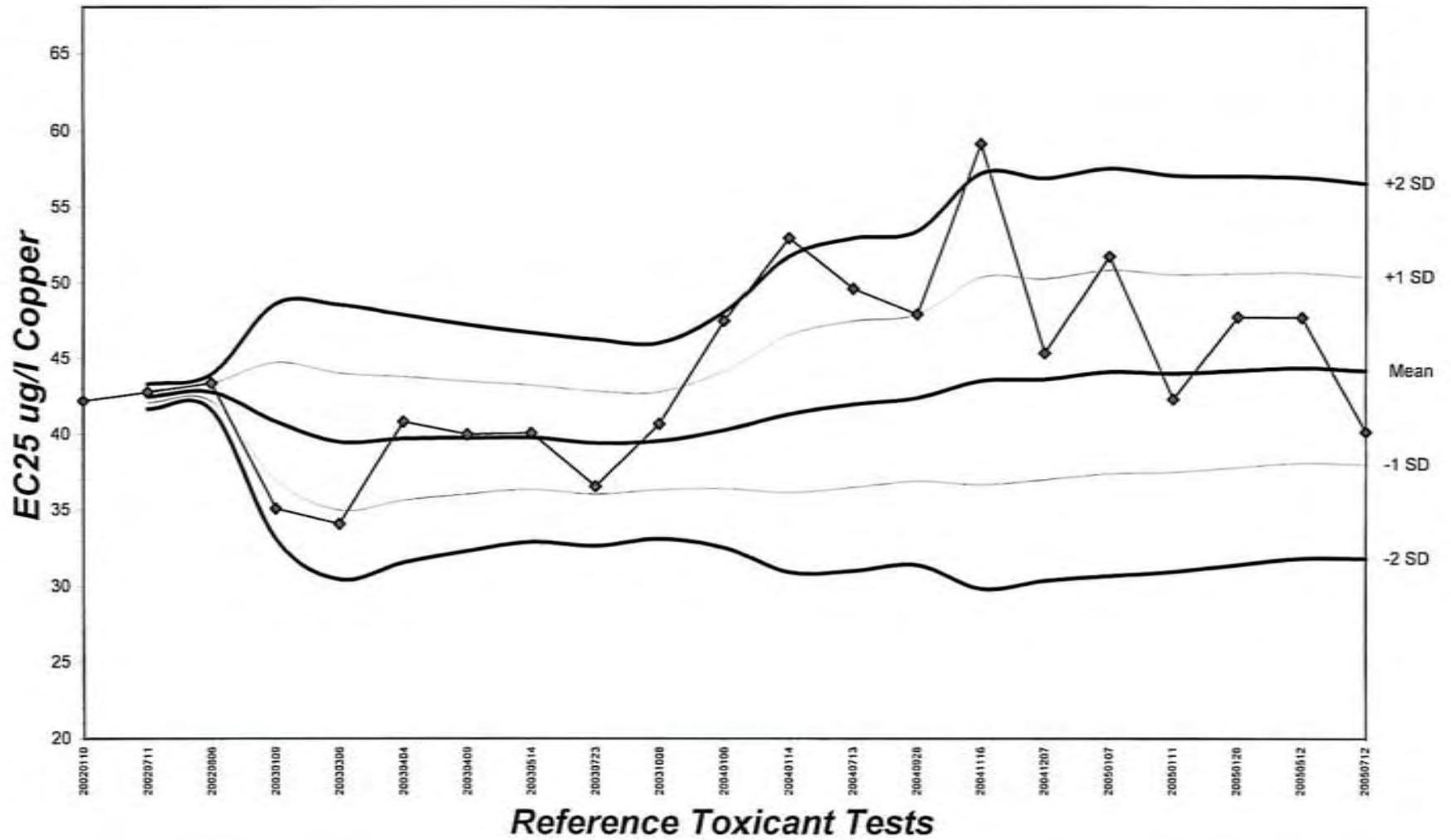
Maximum Likelihood-Probit											
Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	3.61708	0.31058	2.75475	4.4794	0.11195	14.6782	13.2767	5.4E-03	1.79049	0.27647	5
Intercept	-1.4763	0.57916	-3.0843	0.13167							
TSCR	0.1023	0.0166	0.0562	0.1484							

Point	Probits	ug/L	95% Fiducial Limits	
EC01	2.674	14.0389	8.04147	19.9406
EC05	3.355	21.6642	14.1186	28.4978
EC10	3.718	27.3013	19.0218	34.5412
EC15	3.964	31.9117	23.2285	39.3795
EC20	4.158	36.1251	27.1951	43.7531
EC25	4.326	40.1805	31.0995	47.9432
EC40	4.747	52.5349	43.2982	60.8004
EC50	5.000	61.729	52.4153	70.7041
EC60	5.253	72.5323	62.8602	82.9951
EC75	5.674	94.8338	82.8816	111.139
EC80	5.842	105.48	91.7418	125.817
EC85	6.036	119.407	102.824	146.023
EC90	6.282	139.571	118.117	176.972
EC95	6.645	175.888	144.156	236.794
EC99	7.326	271.423	207.319	413.136



Giant Kelp Germination Laboratory Control Chart

CV% = 14.0



Macrocyctis Germination and Growth Test-Growth-Length

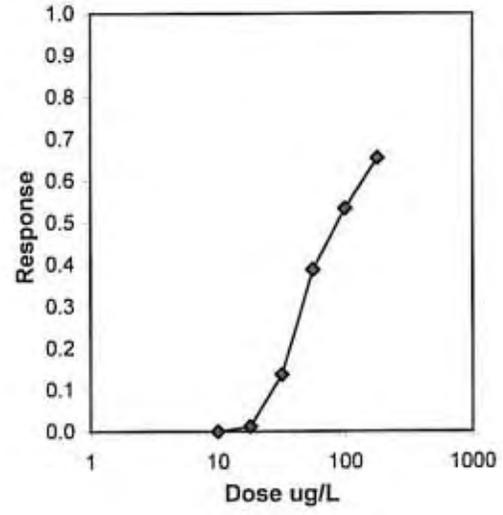
Start Date: 12 Jul-05 16:00 Test ID: RT-050712k Sample ID: REF-Ref Toxicant
 End Date: 14 Jul-05 16:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: CUCL-Copper chloride
 Sample Date: 12 Jul-05 00:00 Protocol: MBP 90 Test Species: MP-Macrocyctis pyrifera
 Comments:

Conc-ug/L	1	2	3	4	5
D-Control	16.000	16.250	16.500	15.750	16.750
10	16.750	16.500	16.750	16.500	16.250
18	15.750	16.500	16.500	15.750	16.500
32	14.750	13.000	14.250	14.500	14.250
56	9.750	13.000	9.250	8.000	10.250
100	7.750	7.250	7.500	7.750	8.000
180	5.500	6.000	5.500	5.250	6.000

Conc-ug/L	Mean	N-Mean	Transform: Untransformed					Rank Sum	1-Tailed Critical	Isotonic	
			Mean	Min	Max	CV%	N			Mean	N-Mean
D-Control	16.250	1.0000	16.250	15.750	16.750	2.433	5			16.400	1.0000
10	16.550	1.0185	16.550	16.250	16.750	1.264	5	33.50	16.00	16.400	1.0000
18	16.200	0.9969	16.200	15.750	16.500	2.536	5	26.50	16.00	16.200	0.9878
*32	14.150	0.8708	14.150	13.000	14.750	4.774	5	15.00	16.00	14.150	0.8628
*56	10.050	0.6185	10.050	8.000	13.000	18.398	5	15.00	16.00	10.050	0.6128
*100	7.650	0.4708	7.650	7.250	8.000	3.726	5	15.00	16.00	7.650	0.4665
*180	5.650	0.3477	5.650	5.250	6.000	5.936	5	15.00	16.00	5.650	0.3445

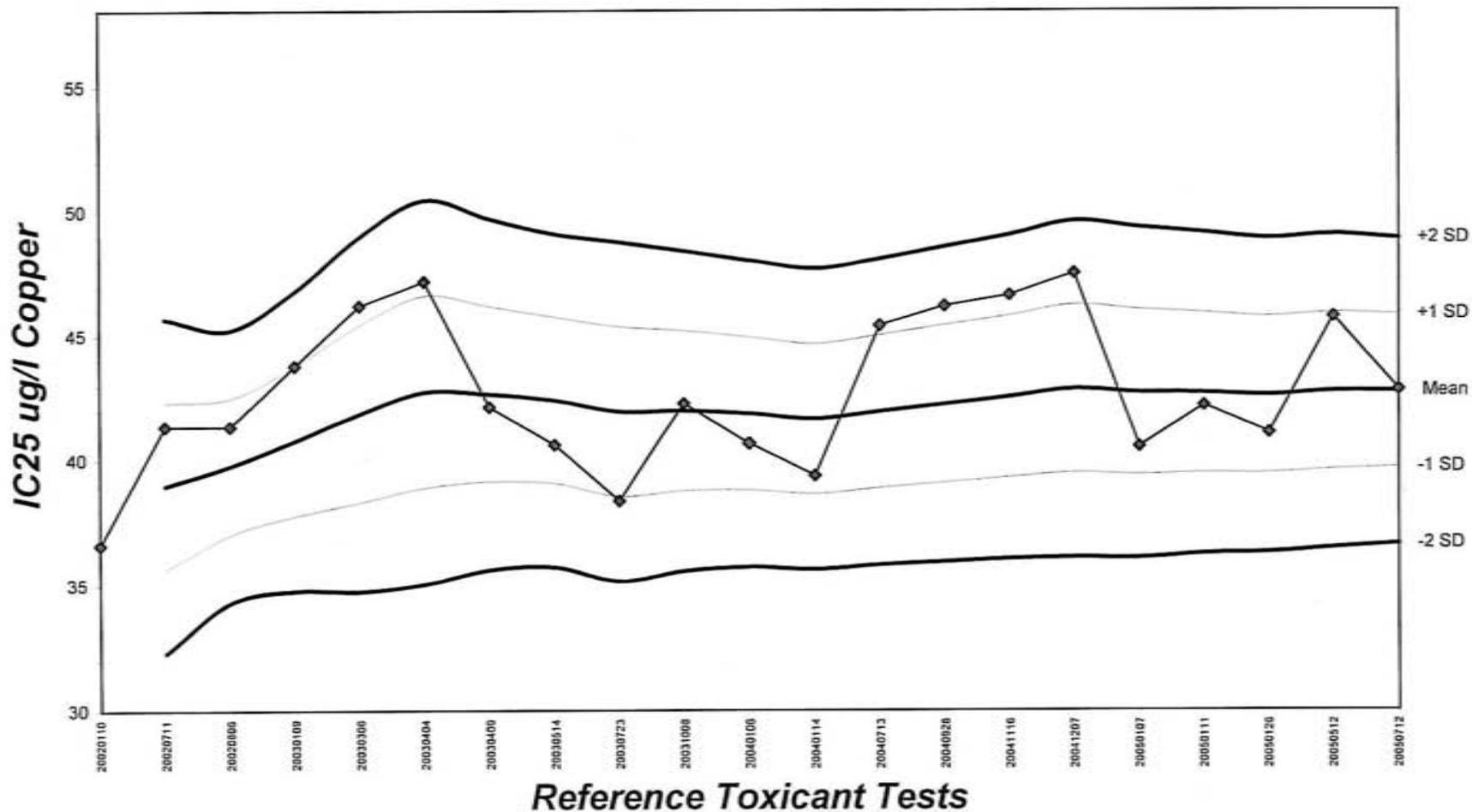
Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.80363	0.91	1.25257	9.0843
Bartlett's Test indicates unequal variances (p = 7.31E-05)	28.5769	16.8119		
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	18	32	24	

Linear Interpolation (80 Resamples)					
Point	ug/L	SE	95% CL(Exp)		Skew
IC05	22.234	1.168	18.543	25.329	-0.4087
IC10	27.834	1.592	23.442	32.268	-0.1902
IC15	33.229	1.740	28.116	37.719	-0.4109
IC20	38.029	1.871	32.985	43.991	0.3966
IC25	42.829	2.512	38.803	52.081	0.9473
IC40	59.850	7.669	44.820	82.786	0.4236
IC50	89.917	6.880	46.496	96.658	-3.3848



Giant Kelp Germ Tube Growth Laboratory Control Chart

CV% = 7.2



GIANT KELP GERMINATION AND GROWTH
SHORT-TERM TOXICITY TEST



Lab No.: RT-050712

TEST DATA

Petri Dish No.	Test Sample Conc.	Total Number Counted	Number of Germin.	Number Non-Germin.	Germ Tube Lengths (micrometer units)									
					1	2	3	4	5	6	7	8	9	10
1	56	106	56	50	4	2	3	4	5	5	4	3	3	4
2	C	107	93	14	6	7	6	5	7	7	7	8	7	6
3	32	101	86	15	6	7	5	5	7	6	6	7	5	5
4	18	105	94	11	7	7	6	5	7	6	8	7	7	6
5	100	104	14	90	3	2	5	4	2	2	3	3	4	3
6	10	111	99	12	7	6	7	7	7	5	8	7	6	7
7	180	107	4	103	2	2	2	2	2	2	2	3	2	2
8	18	103	93	10	6	7	7	5	7	6	4	7	7	7
9	56	111	62	49	3	5	4	2	2	4	3	3	2	4
10	C	101	88	13	5	7	6	7	7	8	7	5	4	7
11	32	102	85	17	6	4	5	7	4	4	5	6	6	5
12	10	104	95	9	7	6	7	8	7	6	5	5	8	7
13	180	107	2	105	3	2	2	2	4	2	2	2	3	2
14	100	120	28	92	2	3	2	4	2	3	4	3	3	3
15	56	108	36	72	6	5	4	4	3	6	2	2	5	4
16	C	109	99	10	7	8	7	6	7	7	6	5	7	7
17	32	104	81	23	6	7	5	4	6	6	5	6	5	7
18	18	103	90	13	7	6	7	7	8	7	6	7	7	4
19	100	111	32	79	3	2	3	4	5	3	2	2	2	4
20	10	103	91	12	7	7	6	7	5	7	7	6	8	7

Comments:

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

Analyst: 

Date: 7-14-05

SHORT-TERM TOXICITY TEST



Lab No.: RT-050712

TEST DATA

Petri Dish No.	Test Sample Conc.	Total Number Counted	Number of Germin.	Number Non-Germin.	Germ Tube Lengths (micrometer units)									
					1	2	3	4	5	6	7	8	9	10
21	32	104	73	31	6	7	7	6	5	4	7	6	5	5
22	56	105	33	72	6	2	4	2	2	3	4	5	6	5
23	18	102	90	12	7	6	7	5	6	7	7	5	8	5
24	100	107	23	84	3	2	4	4	2	3	3	5	2	3
25	10	108	98	10	7	7	6	4	7	5	7	8	8	7
26	180	113	4	109	3	2	2	2	2	2	2	2	3	2
27	C	107	97	10	7	6	7	5	5	7	7	6	7	7
28	180	107	10	97	3	2	4	2	2	2	2	3	2	2
29	32	109	89	20	5	6	6	4	5	6	7	7	5	6
30	180	107	2	105	3	2	2	2	2	2	2	2	2	3
31	18	111	95	16	6	7	5	7	7	8	7	6	7	6
32	C	103	91	12	4	8	7	6	7	7	5	6	7	8
33	56	105	49	56	5	6	7	4	4	3	6	6	5	6
34	100	102	28	74	4	3	2	2	4	5	3	3	4	2
35	10	103	90	13	7	5	7	6	6	5	7	7	8	7
36														
37														
38														
39														
40														

Comments:

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

Analyst: *JM*

Date: 7-14-05

GIANT KELP GERMINATION AND GROWTH
SHORT-TERM TOXICITY TEST



REFERENCE TOXICANT - COPPER SULFATE

QA/QC No.: RT-050712

PHYSICAL/CHEMICAL MEASUREMENTS

Nominal Concentration	Initial				Final			
	Temp. (°C)	DO (mg/l)	pH	Salinity (o/oo)	Temp. (°C)	DO (mg/l)	pH	Salinity (o/oo)
Control	15.4	2.7	8.7	34	14.2	2.6	8.2	34
10 ug/l Cu	15.6	2.8	8.2	34	14.2	2.8	8.2	34
18 ug/l Cu	15.1	2.8	8.2	34	14.5	2.7	8.2	34
32 ug/l Cu	15.4	2.7	8.2	34	14.6	2.8	8.2	34
56 ug/l Cu	15.3	2.8	8.2	34	14.3	2.7	8.2	34
100 ug/l Cu	15.5	2.8	8.2	34	14.3	2.8	8.2	34
180 ug/l Cu	15.4	2.7	8.2	34	14.8	2.7	8.2	34
Brine Control								

COMMENTS:

All dilutions made with reference lab seawater

Illumination at top of test chambers ($50 \pm 10 \mu\text{E}/\text{m}^2/\text{s}$) at 5 locations (four corners and center): 47, 52, 47, 51, 48 $\mu\text{E}/\text{m}^2/\text{s}$.

Initial test readings: Analyst: [Signature]

Date/Time: 7-12-05 1600

Final test readings: Analyst: [Signature]

Date/Time: 7-14-05 1600

Laboratory Temperature Chart

QA/QC Batch No: RT-050711

Date Tested: 07/12/05 to 07/14/05

Acceptable Range: 15 \pm 1 $^{\circ}$ C

