Sediment Evaluation for Maintenance Dredging at Berth D44 Port of Long Beach

Sediment Chemistry and Grain Size Data Report

October 2010

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ACRONYMS AND ABBREVIATIONS

AMD	advanced maintenance dredging
ASTM	American Society for Testing and Materials
BMP	best management practices
Calscience	Calscience Environmental Laboratories, Inc.
Core Lab	Core Lab Reservoir Optimization, Inc.
Eagle Rock	Eagle Rock Aggregates, Inc.
EPA	U.S. Environmental Protection Agency
ERM	effects range median
ERL	effects range low
ft	foot/feet
GC/ECD	gas chromatography/electron capture dissociation
GC/FPD	gas chromatography/flame photometric detection
GC/MS SIM	gas chromatography/mass spectroscopy selective ion monitoring
GFAAS	graphite furnace atomic absorption spectroscopy
hr	hours
ICPMS	inductively coupled plasma mass spectroscopy
ITM	Inland Testing manual
MLLW	mean lower low water
mg	milligram(s)
mm	millimeters
µg	microgram
NA	not applicable/not available
Nautilus	Nautilus Environmental, LLC
ND	not detected above the applicable reporting limit
kg	kilogram
g	gram
L	liter
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
Port	Port of Long Beach
SAP	sampling and analysis plan
TOC	total organic carbon
TRPH	total recoverable petroleum hydrocarbon
USACE	U.S. Army Corps of Engineers

1.0 INTRODUCTION

Polaris Minerals, through its subsidiary Eagle Rock Aggregates (Eagle Rock), is investigating site conditions at Berth D44 for compatibility with a proposed use as an aggregate receiving and storage terminal (similar to the current land use). The site would be accessed by a Panamax Class vessel, and navigation improvements would be necessary for the safe operation of the site. Eagle Rock has been notified by the Port Pilot that a dredge depth of -44 feet mean lower low water (ft MLLW) would be sufficient for safe navigation.

The proposed project would dredge materials using a clam-shell dredge to a permitted depth of -44 ft MLLW (project depth) plus a 2-ft overdredge allowance (-46 ft MLLW) over the majority of the dredge footprint. In addition, it is proposed that advanced maintenance dredging (AMD) of a 2-ft sump be dredged to mitigate future accumulation of sediments, which are likely to accrete once the facility is operational. AMD is prudent due to site-specific conditions (i.e., theprotected nature of the site, which likely contains a high degree of fine sediments susceptible to erosion and redeposition in the area), and may minimize project impacts by reducing the long-term frequency of maintenance dredging operations.

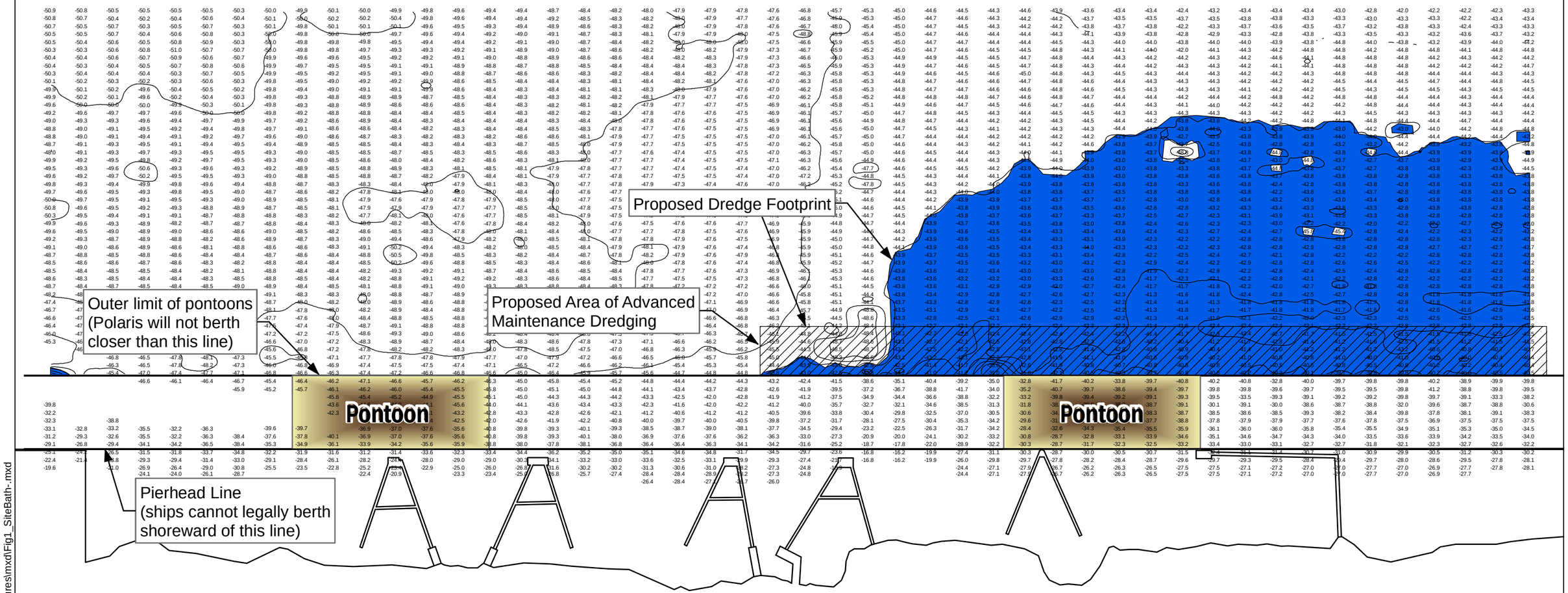
Current bathymetric data (Figure 1) indicates that the area to be dredged varies from approximately -40 ft MLLW to the project depth (-44 ft MLLW), although the vast majority of the area is deeper than -40 ft MLLW. Dredge volumes are included in Table 1. The disposal location of the materials has not been finalized due to both the lack of characterization data and logistical constraints (see discussion below), though the data in this report is intended to provide information to further evaluate disposal options. Eagle Rock anticipates applying for a dredging

Table 1. Volume of Sediment Proposed for Dredging

Dredging Type	Depth Range (ft MLLW)	Volume (cubic yards)
To Project Design Depth	-40 to -44	1,800
Overdredge Allowance (2 ft)	-44 to -46/-48 (varies)	2,700
Advanced Maintenance Dredging[a]	-44 to -46	600
Allowance for Sideslope Sloughing	N/A	900
Total	**-47 to -52**	**6,000**

[a] A trough at the base of the berthing area with dimensions of 400 ft long by 20 ft wide by 2 feet deep.
ft – feet
MLLW – mean lower low water

Total Volume Cut: 1,871 cubic yards
Overdredge Allowance: 2,736 cubic yards



Port of Long Beach Berth D44

Notes:
1 - Advanced Maintenance Dredging Area is 400 feet x 25 feet.
2 - Bathymetry data from Port of Long Beach, 9/6/2007.
3 - Aerial Imagery © 2009, Microsoft Corporation.

N

0 25 50
Scale: Feet

Kennedy/Jenks Consultants

Pier D, Berth D44, Port of Long Beach
Long Beach, California

Project Site Bathymetry
Proposed Dredge Footprint
and Regional Location

April 2010

Figure 1

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permit with the U.S. Army Corps of Engineers (USACE) for ocean, aquatic, or upland disposal as warranted (see below).

Nautilus Environmental (Nautilus) was retained to perform a sediment characterization study at the proposed project site. This report summarizes the methods of sediment core collection; results of geotechnical, bulk sediment, and standard elutriate test analyses; and discusses the results in the context of regulatory guidelines.

1.1 Project Site Information

The project site is a privately held parcel within the Port of Long Beach, located at Pier D, Berth 44. The upland portion of the project site would be used to stockpile aggregates imported to California from British Columbia, Canada. Aggregate materials would be conveyed to land via a 262-foot-long ship-mounted boom, which would transfer materials to a land-based conveyance and distribution system.

The ship (length: 804 ft, beam: 105 ft, draft: 44 ft) would be moored off of two pontoons anchored to existing infrastructure and/or newly constructed pilings; the inshore side of the ship would be offset from the pierhead line by approximately 25 feet.

1.2 Disposal Site Information

Disposal sites potentially under consideration include: 1) the Port of Long Beach Middle Harbor Redevelopment Project fill site (in coordination with the Port of Long Beach); 2) the LA-2 Ocean Dredged Material Disposal Site (Latitude 33°37.06' North, 118°17.24' West); and/or 3) an alternative unidentified aquatic disposal site (e.g., fill site). In addition, depending on the project schedule and logistics, materials may be stockpiled at a Port site prior to final disposal, should a stockpiling site be available. In consideration of these options, the project-specific Sampling and Analysis Plan (SAP) (Nautilus 2010) was drafted to comply with provisions of both *Evaluation of Dredged Material Proposed for Ocean Disposal* (Greenbook) (USACE/U.S. Environmental Protection Agency [EPA] 1991) and the *Evaluation of Dredged Material Proposed For Discharge in Waters of the U.S., Inland Testing Manual* (ITM) (EPA/USACE 1998). The SAP was reviewed by the Contaminated Sediments Task Force, finalized on 8 June 2010, and a USACE Nationwide Permit Authorization granted for survey activities (NWP No. 6) on June 22, 2010.

2.0 TIER I INFORMATION

The ITM (EPA/USACE 1998) describes a Tier I evaluation as a review of existing information pertaining to the proposed dredging site to determine what level of further testing may be required. Tier I is a comprehensive analysis of existing and available information on the

proposed project, including all previously collected physical, chemical, and biological monitoring data and testing for both the source material site and the proposed receiver site. The Tier I process has uncovered limited sediment characterization data for Pier D and the potential disposal locations. Limited sediment characterization data exists for sediments adjacent to Berth 44; however, information has been obtained for sediments offshore of other portions of Pier D.

2.1 Site History

Historical land-side operations include use as a bulk quarry rock transfer facility as part of the Connolly Pacific operations, which transferred granitic rock from Santa Catalina Island to the mainland for several decades. The Los Angeles Breakwater is a prime example of this rock; and any historical spillage of rock at the site would not be expected to result in any acute or chronic toxicological effects. The dredging history is not well documented, though it is known that dredging has not occurred at the site for at least the previous 10 years. Depths observed offshore of the site generally slope from slightly higher bathymetry in the east to deeper water to the west (Figure 1). Based on 1) the site history, 2)the berth's location along a dead-end slip with low tidally driven current velocities, and 3) the bathymetry pattern, it was assumed that the upper strata of sediments have accumulated over the years and that underlying sediments (i.e., at project depth) are likely native which have not been dredged.

It is also known that a wreck occupies the site. The wreck has been at the site for many years and is apparent on the bathymetric chart (Figure 1) as a square-shaped elevated area. The history of the barge and when it sank is not known, though anecdotally it is a wooden vessel that would break apart during recovery.

2.2 Oil & Hazardous Materials Spill History

Berth D44 is not specifically mentioned in the United States Coast Guard National Response Center spill database, with the exception of a spill of an unknown quantity of an unknown material from a vessel docked at the site in 2007. There have however, been approximately 60 reports of visible water pollution along Channel 3 since 1990. The majority of these reports have been of unidentified sheen on the water surface, or spills of unknown volumes of transmission fluid, oils or bilge water. The only spill of known quantity is a 10-gallon spill of oil at Berth C55 (extreme eastern end of Channel 3) in 2004.

2.3 Storm Drain Locations in the Vicinity of the Project Site

The Port's storm drain map was consulted to determine if stormwater discharges had the potential to influence sediment quality. Several storm drains discharge into Channel 3, but none

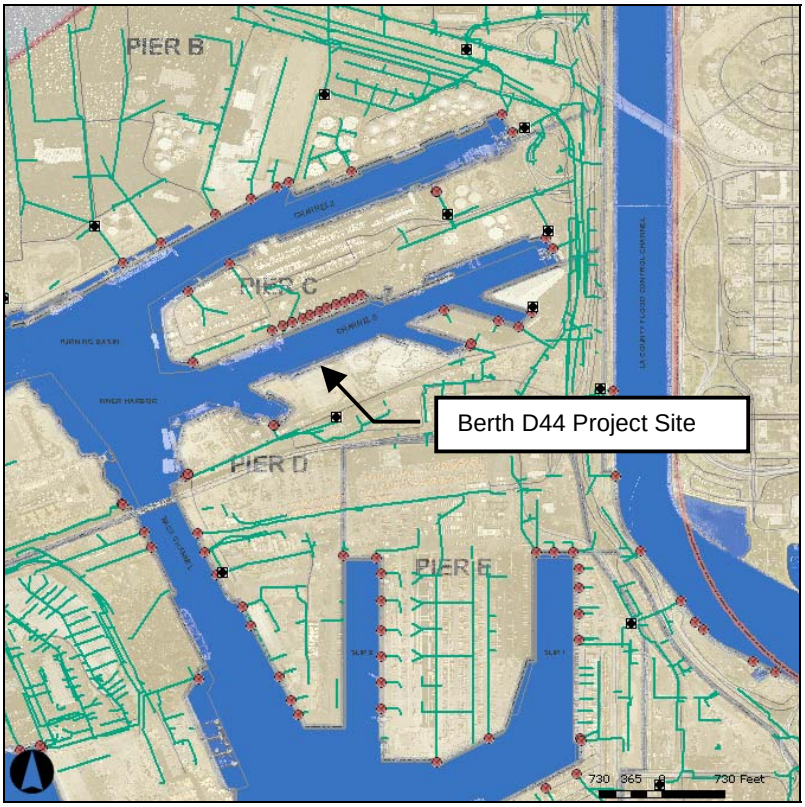

Figure 2. Location of Stormwater Outfalls in the Vicinity of the Project Site. (Discharge locations are depicted by red dots.)

of the drains discharge along the project site shoreline (Figure 2). It appears that minor storm drains enter the harbor at the east end of Channel 3; potential contaminant impacts to sediments at the project site from these storm drain outfalls would be limited (due primarily to the distance) and would likely be distributed evenly across the area proposed for dredging.

2.4 Dredge Site History

No characterization data for sediments offshore of Berth D44 were found in the Contaminated Sediments Task Force (CSTF) database (CSTF 2004). However, sediment samples collected adjacent to Berth D53 and D54 were characterized as part of a maintenance-dredging project in 1998 (Ogden 1998). These samples were collected approximately 500 to 700 meters northeast of Berth D44 adjacent to Pier D (adjacent to the south shoreline at the eastern end of Channel 3). Field crews noted both sediment samples had visible oil sheen, or small oil droplets. Chemistry analyses showed both samples contained concentrations of a range of analytes

above respective Effects Range Low (ERL) and Effects Range Medium (ERM) guidelines (see data summary in Table 2).

A range of metals, pesticides, and total PAHs were above ERL concentrations in D53 sediments, and ERM concentrations in D54 sediments. Materials from D54 in particular, showed evidence of substantial contamination, with copper, total PAHs, and 4,4'-DDT well above ERM concentrations. Physical test results characterized D53 materials as primarily silt (43.17 percent) with a significant proportion of sand (31.89 percent), while D54 materials were primarily sand (55.65 percent), with a significant proportion of silt (29.85 percent).

ERLs & ERMs

Exposure to a chemical constituent detected between ERL and ERM guidelines is expected to result in occasional toxicity to benthic organisms. Exposure to a constituent detected above ERM guidelines is likely to result in toxicity to benthic organisms (Buchman 2008, Long et al. 1995).

Sediments from Channel 3 and the adjacent Turning Basin have been tested in toxicity bioassays as part of several monitoring programs. The Bay Protection and Toxic Cleanup monitoring program examined solid-phase and porewater toxicity of three samples from the Turning Basin. The amphipod *Rhepoxynius abronius* was used in solid-phase tests, while the red abalone *Haliotis rufescens* was exposed to porewater dilutions. None of the samples exhibited toxicity to the amphipod. Development of abalone larvae was, however, impaired on exposure to 50 and 100 percent dilutions of the sediment porewaters.

Solid-phase and sediment-water interface toxicity tests were also performed on a single sediment sample from Channel 3 as part of the Bight '08 monitoring program. Testing included 10-day solid-phase exposures using the amphipod *Eohaustorius estuarius* and 48-hour sediment-water interface tests using larvae of the Mediterranean mussel *Mytilus galloprovincialis*. Mean amphipod survival was 90 percent in test sediments (which increased to 95 percent after adjustment for grain size effects). Control-adjusted normal survival of bivalve larvae was 99 percent. Thus, using the sediment quality objectives (SQO) criteria, both samples were considered non-toxic.

Table 2. Sediment Chemistry from the Channel 3 Vicinity, (Berth D53 [4A] and D54 [4B]) (Ogden 1998).

Analyte	ERL	ERM	4A	4B	Units	RL
General Parameters						
Solids	-	-	50.20	36.00	%	
Gravel	-	-	15.35	5.97	%	-
Sand	-	-	31.89	55.65	%	-
Silt	-	-	43.17	29.85	%	-
Clay	-	-	9.59	8.53	%	-
Metals						
Arsenic	8.2	70	7.96	**36**	mg/kg	0.10
Cadmium	1.2	9.6	0.47	**1.61**	mg/kg	0.10
Chromium	81	370	45	**99**	mg/kg	0.10
Copper	34	270	**140**	***1400***	mg/kg	0.10
Lead	46.7	218	**67**	***600***	mg/kg	0.10
Mercury	0.15	0.71	***0.73***	***2.82***	mg/kg	0.02
Nickel	20.9	51.6	**22**	**41**	mg/kg	0.10
Selenium	-	-	1.95	3.47	mg/kg	0.10
Silver	1	3.7	0.3	0.47	mg/kg	0.10
Zinc	150	410	**260**	***660***	mg/kg	0.10
Total PAHs[a]	4022	44972	**27488**	***54021***	µg/kg	20.00
Total PCBs[b]	22.7	180	ND	ND	µg/kg	20.00
Organochlorine Pesticides						
4,4'-DDD	2	20	**7**	***32***	µg/kg	2.00
4,4'-DDE	2.2	27	**21**	***49***	µg/kg	2.00
4,4'-DDT	1	7	ND	***100***	µg/kg	2.00
Other[c]	-	-	6	3	µg/kg	30.00
Total Phthalates[d]	-	-	754	1318	µg/kg	10.00
Total Phenols	-	-	ND	ND	µg/kg	20.00

[a]Total PAHs is the sum of naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and benzo(g,h,i)perylene.
[b]Total PCBs is the sum of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260.
[c]"Other" organochlorine pesticides is the sum of aldrin, alpha-BHC, alpha-chlordane, beta-BHC, gamma-BHC, delta-BHC, dieldrin, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin ketone, gamma-chlordane, heptachlor, heptachlor epoxide, methoxychlor, and toxaphene (highest reporting limit listed). Anomalies were noted in initial analyses; archived samples were analyzed by an independent laboratory and are reported here.
[d]Total Phthalates is the sum of bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-N-butylphthalate, diethylphthalate, dimethylphthalate, di-N-octylphthalate

ERL – Effects Range Low, ERM – Effects Range Medium, RL – Reporting Limit
µg – microgram, mg – milligram, kg – kilogram, % - percent

3.0 METHODS

3.1 Sediment Collection and Documentation

Eight core samples were collected using a vibracore on 17 July 2010 from the *Early Bird II*. Individual core locations were identified in the field latitude and longitude data generated prior to the field effort. Field collection data is summarized in Table 3. Maps presenting site bathymetry and the actual sampling locations are presented in Figure 3. Cores recovery was within acceptable ranges (i.e., greater than 70 percent). All cores were successfully sampled from the within 0.01 nautical mile of the proposed locations with the exception of Core D1, which was repositioned due to the presence of debris (see Figure 3 and field logs). Copies of the original field logs and photographic documentation of cores are included in Appendices A and B, respectively.

Archive samples of core homogenates were collected for all 8 locations. In addition, special core characteristics were considered on a case-by-case basis as described in the SAP, and additional archives collected for the following:

- Core D1: Archives collected for both Core 1 and Core 2 due to the different handling needed and different consistencies (see field log and photographic documentation).
- Core D2: Archives collected from the top (0 to 3 feet, dark silty material) and middle (3-5 feet, dark silty material with light petroleum odor) strata.
- Core D3: Archives collected from dark gray fine sand at depth (6 to 7 feet).

3.2 Site Water Collection and Documentation

Site water was collected from the area just west of the project site in the middle of the channel, offshore of the eastern end of the wharf (33° 46.154 latitude and 118° 13.035 longitude) (see "E H_2O" field log in Appendix A). The vessel pump system was used to fill two 5-gallon buckets with site water. Prior to filling the buckets, they were double-lined with food-grade polyethylene plastic bags and the pump system allowed to free-flow for one minute. Site water was collected at the end of the day and was placed under ice for temporary storage on board the *Early Bird II*.

3.3 Sample Handling

Samples were handled following provisions of the approved SAP. Composite bulk sediment samples from each of the two sample sites, as well as site water, were delivered by Nautilus staff to the analytical chemistry laboratory on the evening of 17 June 2010 for analyses. Archive samples of individual core homogenates are retained frozen at Nautilus' San Diego laboratory.

Table 3. Core Log Summary Information

Core Identifier (Time)	Latitude	Longitude	Target Recovery (ft)	Attempts	Achieved Recovery (ft)	Core Material Description
Site 1						
D1 (1000 h)	33°46.161	118°12.954	6	1	6	Core 1: gray coarse sand and fine gravel (granite?) [see log]. Core 2: Top is black/gray silt, gradually more compact with depth. Bottom 0.5 ft fine sand, no plug.
D2 (0915 h)	33°46.161	118°12.944	6	2	6	Top 3 ft soft gray/black silt, no odor. Middle (3-5 ft) compacted silt with petroleum odor, gray/black. Bottom foot compacted fine gray sand, no odor; no plug.
D3 (1130 h)	33°46.170	118°12.925	7	2	8.5	Top 6 ft dark gray silt with some clay, gradually more compact with depth. Bottom 1 ft dark gray silt with fine sand lenses. Bottom 1.5 ft dark gray fine sand (discarded). No plug.
D4 (1515 h)	33°46.181	118°12.903	8	1	8	Top 1 ft soft dark gray silt. From 2 to 5 ft; stiff dark gray silt with some lenses of black silt. From 5 to 6 ft transition with lenses of silt and sand with some shell hash lenses. Bottom 3 ft loose dark gray fine sand, no plug.
Site 2						
D5 (0815 h)	33°46.166	118°12.950	4	1	4.5	Uniform gray/black throughout. Top is loose silt moving to compacted silt at bottom. Bottom 1 ft - minor sand grit. Very light petroleum odor bottom 3 ft. Bottom 0.5 ft discarded; no plug.
D6 (1320 h)	33°46.178	118°12.934	3	3	4	Dark gray silty material, slightly more compact at bottom, but generally very consistent texture with depth. Plug present, but discarded with bottom 1 ft.
D7 (1415 h)	33°46.186	118°12.924	3	3	4	Top 3 ft loose silt, gray/black, no odor, similar consistency throughout. Bottom foot generally silty compact material of same color, but some compact lenses (discarded, along with plug).
D8 (1540 h)	33°46.188	118°12.907	4	3	4	Top 3.5 ft gray silt, no odor, no shell hash, with 2.5 to 3.5 ft compacted. Bottom 0.5 foot dark gray fine sand, no odor; no plug.

ft – foot/ feet
hr - hours

Site 2

Site 1

D1

D2

D3

D4

D5

D6

D7

D8

Outer limit of pontoons (Polaris will not berth closer than this line)

Pontoon

Location of Wreck (Approximate)

Pierhead Line

Path: Z:\Projects\EagleRock\Events\20100422_DraftReportFigures\mxd\Fig3_ProjectArea.mxd

Legend

- Proposed Sampling Locations
- Actual Sampling Locations
- Site Boundary
- Approximate Location of the Barge Wreck
- Proposed Dredge Footprint

Notes:
1 - Bathymetry data from Port of Long Beach, 9/6/2007.
2 - Aerial Imagery © 2009, Microsoft Corporation.

N

0 15 30

Scale: Feet

Kennedy/Jenks Consultants

Pier D, Berth D44, Port of Long Beach
Long Beach, California

Berth D44 Project Site Location, Bathymetry Information, and Proposed and Actual Sampling Locations

July 2010

Figure 3

3.4 Geotechnical Analyses

Geotechnical analyses were conducted on both of the site composite samples. Analyses, which include geotechnical properties of interest for the Middle Harbor Redevelopment Project fill site, include particle size distribution, the maximum particle size, Atterberg limits, sand equivalent value, and the percentage of material passing a #200 sieve. Geotechnical analyses were undertaken by Core Lab Reservoir Optimization, Inc. of Bakersfield, California (Core Lab).

3.5 Bulk Sediment and Elutriate Chemistry Analyses

The two site composite samples were tested for bulk sediment chemistry, which included the standard analyses required for aquatic disposal (EPA/USACE 1998). Analytes, the methods and procedures used for testing, and their respective target reporting limits are included in Table 4.

Site composite elutriate samples were prepared using site composite sediments and seawater collected from the immediate vicinity of the project site (See Section 3.2). The elutriate was prepared using the Standard Elutriate Test methodology described in the ITM (EPA/USACE 1998). Elutriate water was analyzed for an abbreviated list of analytes as indicated in Table 4 (with respective target reporting limits).

Analytical chemistry testing was conducted by Calscience Environmental Laboratories, Inc. of Garden Grove, California (Calscience).

4.0 RESULTS

Grain size and geotechnical analyses are described below, as well as bulk sediment and elutriate chemistry results. Detailed laboratory reports provided by Calscience and Core Lab can be found in Appendix C.

4.1 Geotechnical Results

Particle size and other geotechnical analyses were conducted on composite core homogenates from each Site. They are summarized in Tables 5 and 6.

4.2 Bulk Sediment Chemistry Results

Bulk sediment chemistry testing included the suite of inorganic and organic analyses described in Table 4. Results are reported in Tables 7 and 8 below. Analytes detected between the reporting limit and the method detection limit (and therefore qualified as estimated concentrations) were included when summing analytes for total concentration values.

Table 4. Analysis Methods and Target Reporting Limits.

Parameter	Method	Procedure	Sediment Target Reporting Limits[a]	Elutriate Target Reporting Limits[a]	Tissue Target Reporting Limits[a]
Conventional					
Grain Size	ASTM D4464M	Sieve/Optical	0.1 g	NA	NA
Percent Solids	SM 2540B[h]	Gravimetric	0.1 percent	NA	0.1 percent
TOC	USEPA 9060[i]	Combustion	0.1 percent	NA	NA
Total Sulfides	USEPA 376.2M[h]	Titrametric	0.1 mg/kg	NA	NA
Dissolved Sulfides	USEPA 376.2M[h]	Titrametric	0.1 mg/kg	NA	NA
Metals					
Arsenic (As)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.5 mg/kg
Cadmium (Cd)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Chromium (Cr)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.2 mg/kg
Copper (Cu)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.3 mg/kg
Lead (Pb)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Mercury (Hg)	USEPA 7471A[i]	GFAAS	0.02 mg/kg	0.001 mg/L	0.02 mg/kg
Nickel (Ni)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Selenium (Se)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.5 mg/kg
Silver (Ag)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Zinc (Zn)	USEPA 6020[i]	ICP-MS	1.0 mg/kg	0.005 mg/L	2.0 mg/kg
Organics					
TRPH	USEPA 418.1M[h]	IR Spectroscopy	1.0 mg/kg	NA	NA
Pesticides[b]	USEPA 8081A[i]	GC/ECD	2-20 μg/kg	0.1-2 μg/L	5 μg/kg
PCBs[c]	USEPA 8082[i]	GC/ECD	10 μg/kg	1 μg/L	5-10 μg/kg
PAHs[d]	USEPA 8270C[i]	GC/MS SIM	20 μg/kg	1 μg/L	10 μg/kg
Phthalates[e]	USEPA 8270C[i]	GC/MS SIM	20 μg/kg	NA	NA
Phenols[f]	USEPA 8270C[i]	GC/MS SIM	20-100 μg/kg	NA	NA
Organotins[g]	Krone et al. 1989	GC/FPD	1 μg/kg	NA	NA

[a] Target reporting limits provided by Calscience Environmental Laboratories
[b] Includes 2,4- and 4,4- isomers of DDD, DDE, and DDT; α–, β–, δ–, and γ-BHC; chlordane; dieldrin; endosulfan I and II; endosulfan sulfate; endrin and endrin aldehyde; heptachlor and heptachlor epoxide; methoxychlor; and toxaphene.
[c] Includes congeners and Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, and 1262.
[d] Includes Low Molecular Weight PAHs (naphthylene, acenaphthylene, acenaphthene, fluorene, and phenanthrene) and High Molecular Weight PAHs (fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene).
[e] Includes bis-2-ethylhexyl phthalate, butylbenzyl phthalate, di-n-butylbenzyl phthalate, diethyl phthalate, dimethyl phthalate, di-n-octyl phthalate.
[f] Includes 2,4-dimethylphenol, 2,4,6-trichlorophenol, 2-chlorophenol, 2,4-dichlorophenol, 2-nitrophenol, 4-nitrophenol, 4-methylphenol, 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, and pentachlorophenol.
[g] Includes mono-, di-, tri- and tetra-butyltin.
[h] *Standard Methods for the Examination of Water and Wastewater*, 19th Edition (APHA, 1995)
[i] SW-846. Test methods for Evaluating Solid Waste, Physical/Chemical Methods (USEPA 1986-1996)

Mass Units: kg – kilogram, g – gram, mg – milligram, μg – microgram, ng – nanogram
L – liter
ASTM – American Society for Testing & Materials
TOC – total organic carbon
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TRPH – total recoverable petroleum hydrocarbons
NA – not applicable
ICPMS – inductively coupled plasma mass spectroscopy
IR – infrared
GFAAS – graphite furnace atomic absorption spectroscopy
GC/ECD – gas chromatography/electron capture dissociation method
GC/MS SIM – gas chromatography/mass spectroscopy selective ion monitoring method
GC/FPD – gas chromatography/flame photometric detection method

Table 5. Particle Size Distribution of Composite Core Homogenate

Sample	Median Grain Size (mm)	Particle Size Distribution (Percent)								
		Gravel	Sand Size					Silt	Clay	Fines (Silt+Clay)
			Very Coarse	Coarse	Medium	Fine	Very Fine			
Site 1	0.03	0	1.42	3.57	3.84	10.46	14.50	55.20	11.01	66.2
Site 2	0.03	0	0.32	0.98	3.21	11.01	15.81	57.66	11.01	68.7

mm - millimeters

Table 6. Geotechnical Characterization Results

Analyte/Parameter	Site 1	Site 2
Sand Equivalency	5	4
Atterberg Limit – Liquid Limit	41	40
Atterberg Limits – Plastic Limit	23	23
Atterberg Limits – Plasticity Index	18	17
Plasticity Chart Symbol	CL	CL
Maximum Particle Size (mm)	1.68	1.41
#200 Sieve, Percent Passing	70	72

mm – millmeter
TOC – total organic carbon

Table 7. Physical and Inorganic Constituent Analytical Results

Analyte/Parameter	Site 1	Site 2	Maximum Reporting Limit	Units
Total Solids	62.6	60.7	0.100	Percent
TOC	1.6	1.5	0.082	Percent
Dissolved Sulfides	ND	ND	0.82	mg/kg
Total Sulfides	320	170	16	mg/kg

kg – kilogram
ND – not detected above the analyte reporting limit
mg – milligram
TOC – total organic carbon

Table 8. Metal and Organic Compound Analytical Results for the Composite Bulk Sediment Samples

Analyte	ERL	ERM	Site 1	Site 2	Reporting Limit[a]	Units
Metals						
Arsenic	8.2	70	***15.9***	***14.9***	0.165	mg/kg
Cadmium	1.2	9.6	1.12	0.752	0.165	mg/kg
Chromium	81	370	46.2	42.1	0.165	mg/kg
Copper	34	270	***110***	***93***	0.165	mg/kg
Lead	46.7	218	***125***	***81.7***	0.165	mg/kg
Mercury	0.15	0.71	***1.25***	***0.784***	0.0330	mg/kg
Nickel	20.9	51.6	***23.9***	***23.8***	0.165	mg/kg
Selenium	NA	NA	0.438	0.389	0.165	mg/kg
Silver	1	3.7	0.624	0.417	0.165	mg/kg
Zinc	150	410	***376***	***249***	1.65	mg/kg
Organics						
TRPH	NA	NA	170	97	16	mg/kg
Total Pesticides[b,c]	2.2 [c]	27 [c]	***10.3***	***19.2***	33	µg/kg
Total PCBs[d], as Arochlor/Congener	22.7	180	***52 / 156.7***	***50 / 129.4***	16	µg/kg
LPAHs[e]	552	3160	***2,089***	413.9	16	µg/kg
HPAHs[f]	1,700	9,600	***2,960***	***1,944***	16	µg/kg
Total PAHs[e,f]	4,022	44,762	***5,049***	2,357.9	16	µg/kg
Total Phthalates[g]	NA	NA	158	137.7	16	µg/kg
Total Phenols[h]	NA	NA	ND	ND	820	µg/kg
Organotins[i]	NA	NA	71	94	4.9	µg/kg

Bold Italicized results exceed the respective ERL value (Long et al 1995).
Underlined Bold Italicized results exceed the respective ERM value (Long et al 1995).

[a] Reporting limits are maximum values reported for respective analytes for all test samples.
[b] Includes Aldrin, 2,4- and 4,4- isomers of DDD, DDE, and DDT; α–, β–, δ–, and γ-BHC; chlordane (includes α– and γ– chlordane); dieldrin; endosulfan I and II; endosulfan sulfate; endrin, endrin aldehyde and ketone; heptachlor and heptachlor epoxide; methoxychlor; cis- and trans-nonachlor; and toxaphene.
[c] The only analytes detected were 2,4' and 4,4'-DDE; ERL and ERMs presented are for total DDEs.
[d] Includes congeners and Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, and 1262.
[e] Low Molecular Weight PAHs (acenaphthylene; acenaphthene; anthracence; fluorene; 1- and 2-methylnaphthalene; naphthalene; and phenanthrene)
[f] High Molecular Weight PAHs (fluoranthene; pyrene, benzo(a)anthracene; chrysene, benzo(b)fluoranthene; benzo(k)fluoranthene; benzo(a)pyrene; indeno(1,2,3-c,d)pyrene; dibenz(a,h)anthracene; and benzo(g,h,i)perylene).
[g] Includes bis(2-ethylhexyl) phthalate; butyl benzyl phthalate; di-n-butyl phthalate; di-n-octylphthalate; diethyl phthalate; and dimethyl phthalate.
[h] Includes 2,4-dimethylphenol; 2,4,6-trichlorophenol; 2- and 2,4-dichlorophenol, 2- and 4-nitrophenol, 3/4-methylphenol; 4,6-dinitro-2-methylphenol; 2,4-dinitrophenol; and pentachlorophenol.
[i] Includes mono-, di-, tri- and tetra-butyltin.
Mass Units: kg – kilogram**,** mg – milligram, µg – microgram
ERL – Effects Range Low concentration (Long et al 1995)
ERM – Effects Range Median concentration (Long et al 1995)
NA – not applicable
ND – not detected above applicable reporting limit(s)
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TRPH – total recoverable petroleum hydrocarbons

4.3 Standard Elutriate Test Chemistry Results

A Standard Elutriate Test procedure was performed and the resulting elutriate was tested for metals, PAHs, organochlorine pesticides, and PCBs. Elutriate results are summarized in Table 9.

5.0 DISCUSSION

5.1 Field Operations

Field collection efforts, sample handling, and sediment analyses were undertaken as outlined in the approved project SAP (Nautilus Environmental 2010). Core recoveries met or exceeded the target core length at all eight sampling locations (and were discarded below the characterization depth as appropriate).

5.2 Geotechnical Data

Materials consist primarily of silts, with greater than 50 percent of both samples consisting of silt. Fine sediments (silts and clays) made up between 65 and 70 percent of the samples by mass.

5.3 Bulk Sediment Chemistry

Bulk sediment chemistry data indicate that persistent and bioaccumulative pollutants are present in the Berth 44 sediments (Table 8). The pollutant concentrations generally fell within the lower range of historical sediment conditions in Channel 3 (Table 2). Other historical data (e.g., toxicity test data) collected in the vicinity of the project site is therefore of limited applicability to the Berth D44 site, since it is apparent that considerable variability exists within Channel 3.

All 10 metal analytes were detected above respective reporting limits. The metals arsenic, copper, lead, nickel, and zinc exceeded ERL concentrations at both sites. Mercury was found in exceedance of its ERM concentration at both sites.

All classes of organic analytes were also detected, with the exception of phenolic compounds (Table 8). The only pesticides detected were 2,4’ DDE and 4,4’ DDE (both DDT derivatives), the ERL concentration for DDE compounds was exceeded at both sites. PCB compounds were reported as both Arochlors and congeners, and each dataset was used to calculate a Total PCB concentration; both totals exceeded the ERL concentration at both sites. PAHs were detected at both sites. The nearshore Site 1 sediments exceeded ERL values for low molecular weight

Table 9. Metal and Organic Compound Analytical Results for the Composite Standard Elutriate Tests

Analyte	Water Quality Criterion[a]	Site 1	Site 2	Reporting Limit[b]	Units
Metals					
Arsenic	69	12.0	10.1	0.300	µg/L
Cadmium	42	ND	ND	0.0300	µg/L
Chromium	1100 (VI)	0.258	ND	0.200	µg/L
Copper	4.8	0.466	0.381	0.0300	µg/L
Lead	210	0.177	0.184	0.0300	µg/L
Mercury	0.4[a]	ND	ND	0.000500	µg/L
Nickel	74	0.488	0.429	0.0500	µg/L
Selenium	290	0.192	0.230	0.0500	µg/L
Silver	1.9	0.267	0.251	0.0500	µg/L
Zinc	90	9.60	6.93	1.00	µg/L
Organics					
Total Pesticides[c]	NA	ND	ND	2.3	µg/L
Total PCBs[d]	NA	ND	ND	0.57	µg/L
LPAHs[e]	NA	ND	2.25	0.2	µg/L
HPAHs[f]	NA	ND	ND	0.2	µg/L
Total PAHs	NA	ND	2.25	0.2	µg/L

[a] All criteria referenced are California Toxics Rule Saltwater Criterion Maximum Concentrations (CMC) (EPA 2000) with the exception of Ocean Plan instantaneous maximum criterion for mercury (Table B) (State Water Resources Control Board, 2005).
[b] Reporting limits are maximum values reported for respective analytes or classes of analytes for all test samples.
[c] Includes Aldrin, 2,4- and 4,4- isomers of DDD, DDE, and DDT; α–, β–, δ–, and γ-BHC; chlordane (including α– and γ– chlordane) ; dieldrin; endosulfan I and II; endosulfan sulfate; endrin, endrin aldehyde and ketone; heptachlor and heptachlor epoxide; methoxychlor; cis- and trans-nonachlor; and toxaphene.
[d] Includes congeners and Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260
[e] Low Molecular Weight PAHs (acenaphthylene; acenaphthene; anthracence; fluorene; 1- and 2-methylnaphthalene; naphthalene; and phenanthrene)
[f] High Molecular Weight PAHs (fluoranthene; pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene).

L – liter
mg – milligram
µg – microgram
NA – not applicable due to lack of established value
ND – not detected above the respective reporting limit(s)
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl

PAHs, high molecular weight PAHs, and total PAHs. The total PAH concentration at Site 2 was only half that observed at Site 1; only the HPAH ERL concentration was exceeded (Table 8).

The concentrations of these constituents suggest that exposure to these sediments may result in toxicity and/or biological effects, though the complexity of sediment chemistry and bioavailability of potentially toxic components is sufficiently complex to preclude any predictions in terms of whether or not "above-reference toxicity or benthic bioaccumulation of contaminants is likely to be observed" (per ITM guidance, EPA/USACE 1998).

5.4 Elutriate Chemistry

None of the Standard Elutriate Test concentrations were observed above applicable water quality criteria. While impacts from a dredged material dewatering process may result in increases in dissolved metal concentrations, test results indicate that water quality criteria would be met in the absence of other factors.

5.5 Data Validity

Quality assurance compliance information provided by Calscience was reviewed to ensure that characterization data is valid. Summary information is provided here; additional information is included as case narrative statements and quality control data are included within respective reports (Appendix C).

Quality control data for the bulk sediment analyses were reviewed and method blank, laboratory control samples, and surrogate analyses results found to comply with quality assurance control limits. Several matrix spike analyses (several metals, PCB Arochlors, PCB congeners, chlorinated pesticides) were out of acceptable control ranges. Out-of-control matrix spike results were attributed to matrix interference, since laboratory control sample analyses and relative percent difference results were within acceptable ranges. Matrix spike analyses for zinc analyses were also qualified, since sample concentrations were greater than four times the matrix spike concentration; data are considered valid on the basis of laboratory control sample analyses. Maximum achieved reporting limits (Table 8) were slightly higher than the target values (Table 4), but were well below applicable guideline values (e.g., ERL and ERM concentrations). In summary, bulk sediment chemistry data are considered valid.

Elutriate samples were also reviewed for quality assurance purposes. Again, several metal matrix spike results were outside of control limits. However, since laboratory control sample data were within control limits, the data were considered valid by the laboratory and released. Of the 20 analytes included in the pesticide laboratory control sample analyses, Dieldrin results

were just below the control limit recovery criteria. However, since 1) the magnitude of the underreported value was low, 2) the relative percent difference data was within the acceptable range, and 3) this was only one of 20 analytes, the Dieldrin data were qualified as a marginal exceedance by the laboratory and the pesticide data were released. All other method blank, matrix spike, surrogate analyses, and laboratory control sample results were within established quality assurance program limits, and the data are considered representative and valid.

6.0 CONCLUSIONS

Sediments proposed for dredging collected from the vicinity of Berth D44 were dominated by fine sediments, with silts as the predominant particle size. Sediment concentrations of both metals and organics suggest that materials may be toxic or present a risk for bioaccumulation to marine organisms, based on comparisons to ERL and ERM guideline values. Standard Elutriate Test (SET) analyses results did not exceed California Toxics Rule criteria. Based on the data presented herein, bulk sediment chemistry data suggest that materials are inappropriate for unconfined aquatic disposal (without additional ITM tiered testing). However, the SET analyses indicate that dredging and/or disposal operations are unlikely to result in water quality exceedances. When considered together, these results indicate that confined aquatic disposal may be an appropriate option.

7.0 REFERENCES

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Appendix A

Core Field Logs

Nautilus

SEDIMENT COLLECTION FIELD LOG

Client: **Eagle Rock Aggregates**	Project: POLB **Berth D44**	Station ID: D1
Latitude: 33° 46.157 NB 161	Longitude: 118° 12.995 954	Date: 17 JUN
Distance and Bearing from Target: NA 0.03 NM 209°		Arrival Time: 1000
Sampler Type: **Vibracore (TEG)**	Vessel Name: ***Early Bird II***	Depart Time:
Weather: SUN Wind (direction): NE Beaufort[1]: 1		Sampler Initials: NB

Core Description (grain size, color, odor, sheens, shell hash):

TOP

CORE ② ↓

CORE ① plug not present, liner tore, presumably due to sediment, consisted of coarse sand and some fine gravel with associated fines. Had to empty core directly into bucket. Poured off overlying water. Approx. 2.5 - 3 gal. Coarse sand appears to be granite pieces fairly uniform in size

6 — black gray silt, gradually more compact with depth

(A) Archived with 10 grabs throughout length of core

0.5 — f. sand

BOTTOM

PLUG Present? NO

Core Dimensions:

43.2	Lead Line Depth:	40.1
1	Tidal Elevation:	- 0.5
42	MLLW Depth:	= 39.5
48	Project Depth: (Incl. Overdredge)	48
6'	Δ = Target Penetration:	8.5
	Recovery:	

1ST LOCATION Depositional due to debris

[1] Number (state, surface, wind speed): 0 (calm, flat, 0 kts); 1 (light air, ripples, 1-2 kts); 2 (light breeze, wavelets, 3-6 kts); 3 (gentle breeze, wavelets break, 7-10 kts); 4 (moderate breeze, small waves, 11-15 kts); 5 (fresh breeze, whitecaps & spray, 16-20 kts)

Photo Taken: (Yes) / No

Sample Inventory:

8 oz: 2 — comp (A); Core 2 comp (A)

16 oz:

Bulk:

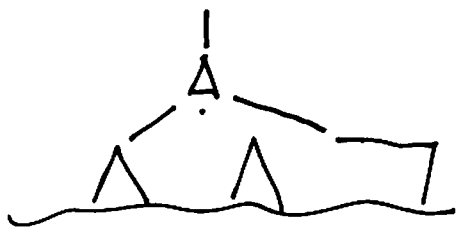
Comments:

1ST Anchoring - hit debris re-set

Position

Core 2 - no odor

Anchoring Diagram:



Nautilus

SEDIMENT COLLECTION FIELD LOG

Client: **Eagle Rock Aggregates**	Project: POLB **Berth D44**	Station ID: D2
Latitude: 33° 46.161	Longitude: 118° 12.944	Date: 17 JUNE 2010
Distance and Bearing from Target: ~~NA~~ 0 97°		Arrival Time: 0915
Sampler Type: **Vibracore (TEG)**	Vessel Name: ***Early Bird II***	Depart Time:
Weather: SUN	Wind (direction): NE Beaufort[1]: 1	Sampler Initials: NS

Core Description (grain size, color, odor, sheens, shell hash):

TOP	
0-3	soft silt, gray black, no odor (A) - archive of 3 mini grabs in stratum - D2T
3-5	compacted silt w/ petroleum odor, gray black (A) - archive of 3 mini grabs in stratum - D2M
5-6	compacted fine gray sand, no odor
BOTTOM	
PLUG	Present? No

Core Dimensions:

Lead Line Depth: 42.2

Tidal Elevation: - 0

MLLW Depth: = 42.2

Project Depth (Incl. Overdredge): 48

Δ = Target Penetration: 6'

Recovery: 6'

[1] Number (state, surface, wind speed): 0 (calm, flat, 0 kts); 1 (light air, ripples, 1-2 kts); 2 (light breeze, wavelets, 3-6 kts); 3 (gentle breeze, wavelets break, 7-10 kts); 4 (moderate breeze, small waves, 11-15 kts); 5 (fresh breeze, whitecaps & spray, 16-20 kts)

Photo Taken: (Yes) No

Sample Inventory:

8 oz: 2 (A)

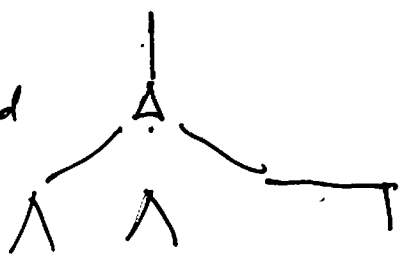
16 oz:

Bulk:

Comments:

Core 2
consistent odor as well
recovery 7' (discarded bottom 1 ft)

Anchoring Diagram:

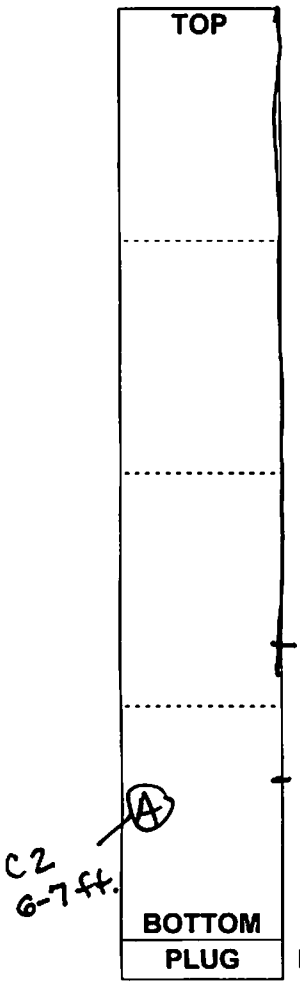


Nautilus

SEDIMENT COLLECTION FIELD LOG

Client: **Eagle Rock Aggregates**	Project: POLB **Berth D44**	Station ID: D3
Latitude: 33° 46.170	Longitude: 118° 12.925	Date: 17 JUNE 2010
Distance and Bearing from Target: ~~NA~~ 0 @ 71°		Arrival Time: 1130
Sampler Type: **Vibracore (TEG)**	Vessel Name: ***Early Bird II***	Depart Time:
Weather: SUN	Wind (direction): SW Beaufort[1]: 1	Sampler Initials: NB

Core Description (grain size, color, odor, sheens, shell hash):



6 dark gray silt with some clay
bottom 0.5 ft light petrol. odor
(gradually more compact w/ depth)

1 dark gray silt w/ f. sand lenses (transition)

Ⓐ C2 6-7 ft.

1.5 dk gray f. sand

Present? No

Core Dimensions:
Lead Line Depth: 42.9
Tidal Elevation: - 2.1
MLLW Depth: = 41
Project Depth: (Incl. Overdredge) 48

Δ = Target Penetration: 7

Recovery: 8.5

[1] Number (state, surface, wind speed): 0 (calm, flat, 0 kts); 1 (light air, ripples, 1-2 kts); 2 (light breeze, wavelets, 3-6 kts); 3 (gentle breeze, wavelets break, 7-10 kts); 4 (moderate breeze, small waves, 11-15 kts); 5 (fresh breeze, whitecaps & spray, 16-20 kts)

Photo Taken: (Yes) / No

Sample Inventory:
8 oz: 2
16 oz:
Bulk: (2)

Comments:
C1 – 4.5 ft – some gravel
C2 – consistent w/ core 1, but no transition
7 ft recovery, retained all
Ⓐ – dk gr. f. sand
no petrol. odor

Anchoring Diagram:

Nautilus

SEDIMENT COLLECTION FIELD LOG

Client: **Eagle Rock Aggregates**	Project: POLB **Berth D44**	Station ID: D4
Latitude: 33° 46.181 *	Longitude: 118° 12.903 *	Date: 17 JUN 10
Distance and Bearing from Target:	NA 0.0 @ 216°	Arrival Time: 1515
Sampler Type: **Vibracore (TEG)**	Vessel Name: ***Early Bird II***	Depart Time:
Weather:	Wind (direction): Beaufort[1]:	Sampler Initials:

Core Description (grain size, color, odor, sheens, shell hash):

TOP

1' soft dk gr silt

3' stiff dk gr / silt with some lenses of black silt

1' transition w/ lenses of silt & sand with some shell hash lenses. (mostly sand

3' loose dk gr fine sand

BOTTOM

PLUG Present? N

Hydrogen sulfide odor when homogenizing

Core Dimensions:

Lead Line Depth:	45.5
Tidal Elevation:	- 4.3
MLLW Depth:	= 40
Project Depth: (Incl. Overdredge)	48
Δ = Target Penetration:	8
Recovery:	8

[1] Number (state, surface, wind speed): 0 (calm, flat, 0 kts); 1 (light air, ripples, 1-2 kts); 2 (light breeze, wavelets, 3-6 kts); 3 (gentle breeze, wavelets break, 7-10 kts); 4 (moderate breeze, small waves, 11-15 kts); 5 (fresh breeze, whitecaps & spray, 16-20 kts)

Photo Taken: (Yes) / No

Sample Inventory:

8 oz: 1

16 oz:

Bulk:

Comments:

Anchoring Diagram:

* position slightly SW of actual (~10ft)

Nautilus

SEDIMENT COLLECTION FIELD LOG

Client: **Eagle Rock Aggregates**	Project: POLB **Berth D44**	Station ID: D5
Latitude: 33° 46.166	Longitude: 118° 12.950	Date: 17 JUN 10
Distance and Bearing from Target: ~~NA~~ 0 @ 119°		Arrival Time: 0815
Sampler Type: **Vibracore (TEG)**	Vessel Name: ***Early Bird II***	Depart Time:
Weather: Light marine	Wind (direction): NE Beaufort[1]: 0/1	Sampler Initials: NB

Core Description (grain size, color, odor, sheens, shell hash):

TOP

Loose Silt

Uniform Gray Black throughout

Slightly Odiferous - Petrol, bottom 3 ft (1-4 ft BSWI)

Compacted/Consolidated Silt

— v. minor sand grit, bottom 1 ft.

— Bottom 0.5 ft Discarded

BOTTOM

PLUG Present? No

Core Dimensions:

Lead Line Depth:	41.9
Tidal Elevation:	- -0.2
MLLW Depth:	= 42.1
Project Depth: (Incl. Overdredge)	46
Δ = Target Penetration:	4
Recovery:	4.5

[1] Number (state, surface, wind speed): 0 (calm, flat, 0 kts); 1 (light air, ripples, 1-2 kts); 2 (light breeze, wavelets, 3-6 kts); 3 (gentle breeze, wavelets break, 7-10 kts); 4 (moderate breeze, small waves, 11-15 kts); 5 (fresh breeze, whitecaps & spray, 16-20 kts)

Photo Taken: (Yes) / No

Sample Inventory:

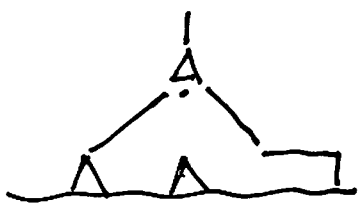
8 oz:

16 oz:

Bulk:

Comments:

Anchoring Diagram:



Nautilus

SEDIMENT COLLECTION FIELD LOG

Client: **Eagle Rock Aggregates**	Project: POLB **Berth D44**	Station ID: D6
Latitude: 33° 46.178	Longitude: 118° 12.934	Date: 17 JUN 10
Distance and Bearing from Target: ~~NA~~ 0 @ 175°		Arrival Time: 1320
Sampler Type: **Vibracore (TEG)**	Vessel Name: ***Early Bird II***	Depart Time:
Weather: SUN	Wind (direction): SW Beaufort[1]: 1	Sampler Initials: NB

Core Description (grain size, color, odor, sheens, shell hash):

TOP

dk gray silty material, slightly more compact at bottom but generally very consistent texture with depth

BOTTOM

PLUG Present? soft, discarded

Core Dimensions:

Lead Line Depth: 46.4

Tidal Elevation: - 3.5

MLLW Depth: = 43

Project Depth: (Incl. Overdredge) 46

Δ = Target Penetration: 3

Recovery: 4

[1] Number (state, surface, wind speed): 0 (calm, flat, 0 kts); 1 (light air, ripples, 1-2 kts); 2 (light breeze, wavelets, 3-6 kts); 3 (gentle breeze, wavelets break, 7-10 kts); 4 (moderate breeze, small waves, 11-15 kts); 5 (fresh breeze, whitecaps & spray, 16-20 kts)

Photo Taken: (Yes) No

Sample Inventory:

8 oz: 1

16 oz:

Bulk:

Comments: C1 - discard bottom 1 ft.

C2, C3 double consistent

Anchoring Diagram:

Nautilus

SEDIMENT COLLECTION FIELD LOG

Client: **Eagle Rock Aggregates**	Project: POLB **Berth D44**	Station ID: D7
Latitude: 33° 46.186	Longitude: 118° 12.924	Date: 17 JUN 10
Distance and Bearing from Target: NA	0 @ 117°	Arrival Time: 1415
Sampler Type: **Vibracore (TEG)**	Vessel Name: ***Early Bird II***	Depart Time:
Weather: SUN	Wind (direction): SW Beaufort[1]: 1	Sampler Initials: MB

Core Description (grain size, color, odor, sheens, shell hash):

TOP

CORE 1

TOP 3 ft - loose silt, gray black, no odor, similar consistency throughout

Bottom 1 ft - generally silty compact material of same color, but some compact lenses, DISCARDED

BOTTOM

PLUG Present? Y (discarded)

Core Dimensions:

Lead Line Depth: 47.2

Tidal Elevation: - 4.3

MLLW Depth: = 43

Project Depth: (Incl. Overdredge) 46

Δ = Target Penetration: 3

Recovery: 4

[1] Number (state, surface, wind speed): 0 (calm, flat, 0 kts); 1 (light air, ripples, 1-2 kts); 2 (light breeze, wavelets, 3-6 kts); 3 (gentle breeze, wavelets break, 7-10 kts); 4 (moderate breeze, small waves, 11-15 kts); 5 (fresh breeze, whitecaps & spray, 16-20 kts)

Photo Taken: (Yes) / No

Sample Inventory:

8 oz:

16 oz:

Bulk:

Comments:

Cores 2 & 3 (double) consistent w/ C1 upper 3 ft.

Anchoring Diagram:

Nautilus

SEDIMENT COLLECTION FIELD LOG

Client: **Eagle Rock Aggregates**	Project: POLB **Berth D44**	Station ID: D8
Latitude: 33° 46.188	Longitude: 118° 12.907	Date: 17 JUN 10
Distance and Bearing from Target: NA	0.01 NM @ 185	Arrival Time: 1540
Sampler Type: **Vibracore (TEG)**	Vessel Name: ***Early Bird II***	Depart Time:
Weather: SUN	Wind (direction): SW Beaufort[1]: 1	Sampler Initials: NB

Core Description (grain size, color, odor, sheens, shell hash):

TOP

C1

3.5 gr. silt, no odor, no shell hash
bottom 1ft compacted

0.5 dk gr f. sand, no odor

BOTTOM

PLUG Present? NO

Core Dimensions:

Lead Line Depth: 46.5
Tidal Elevation: - 4.3
MLLW Depth: = 42
Project Depth: (Incl. Overdredge) 46
Δ = Target Penetration: 4
Recovery: 4

[1] Number (state, surface, wind speed): 0 (calm, flat, 0 kts); 1 (light air, ripples, 1-2 kts); 2 (light breeze, wavelets, 3-6 kts); 3 (gentle breeze, wavelets break, 7-10 kts); 4 (moderate breeze, small waves, 11-15 kts); 5 (fresh breeze, whitecaps & spray, 16-20 kts)

Photo Taken: (Yes) / No

Sample Inventory:

8 oz: 1

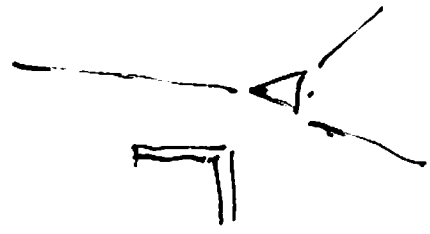
16 oz:

Bulk:

Comments: position off red fuel (?) tank

C2, C3 - consistent w/ C1; double

Anchoring Diagram:



Nautilus

SEDIMENT COLLECTION FIELD LOG

Client: **Eagle Rock Aggregates**	Project: POLB **Berth D44**	Station ID: E H_2O
Latitude: 33° 46.154	Longitude: 118° 13.035	Date: 17 JUN 10
Distance and Bearing from Target: NA		Arrival Time: 1615
Sampler Type: **Vibracore (TEG)**	Vessel Name: ***Early Bird II***	Depart Time:
Weather:	Wind (direction): Beaufort[1]:	Sampler Initials:

Core Description (grain size, color, odor, sheens, shell hash):

TOP

BOTTOM

PLUG **Present?**

Elutriate Water
just West of Project Site
in Middle of Channel
offshore of Eastern
end of wharf to West
of Project Site.
Water - green blue, no debris observed

Core Dimensions:
Lead Line Depth:
Tidal Elevation: -
MLLW Depth: =
Project Depth:
(Incl. Overdredge)
Δ = Target Penetration:
Recovery:

Reference Sediment Collection
33°33.200 118°10.800
0915 16 JUN 10
fine gray sand; Astropecten, brittlestars, Lovenia

[1] Number (state, surface, wind speed): 0 (calm, flat, 0 kts); 1 (light air, ripples, 1-2 kts); 2 (light breeze, wavelets, 3-6 kts); 3 (gentle breeze, wavelets break, 7-10 kts); 4 (moderate breeze, small waves, 11-15 kts); 5 (fresh breeze, whitecaps & spray, 16-20 kts)

Photo Taken: Yes / No
Sample Inventory: Comments: Anchoring Diagram:

8 oz:

16 oz:

Bulk:

Appendix B

Photographic Documentation

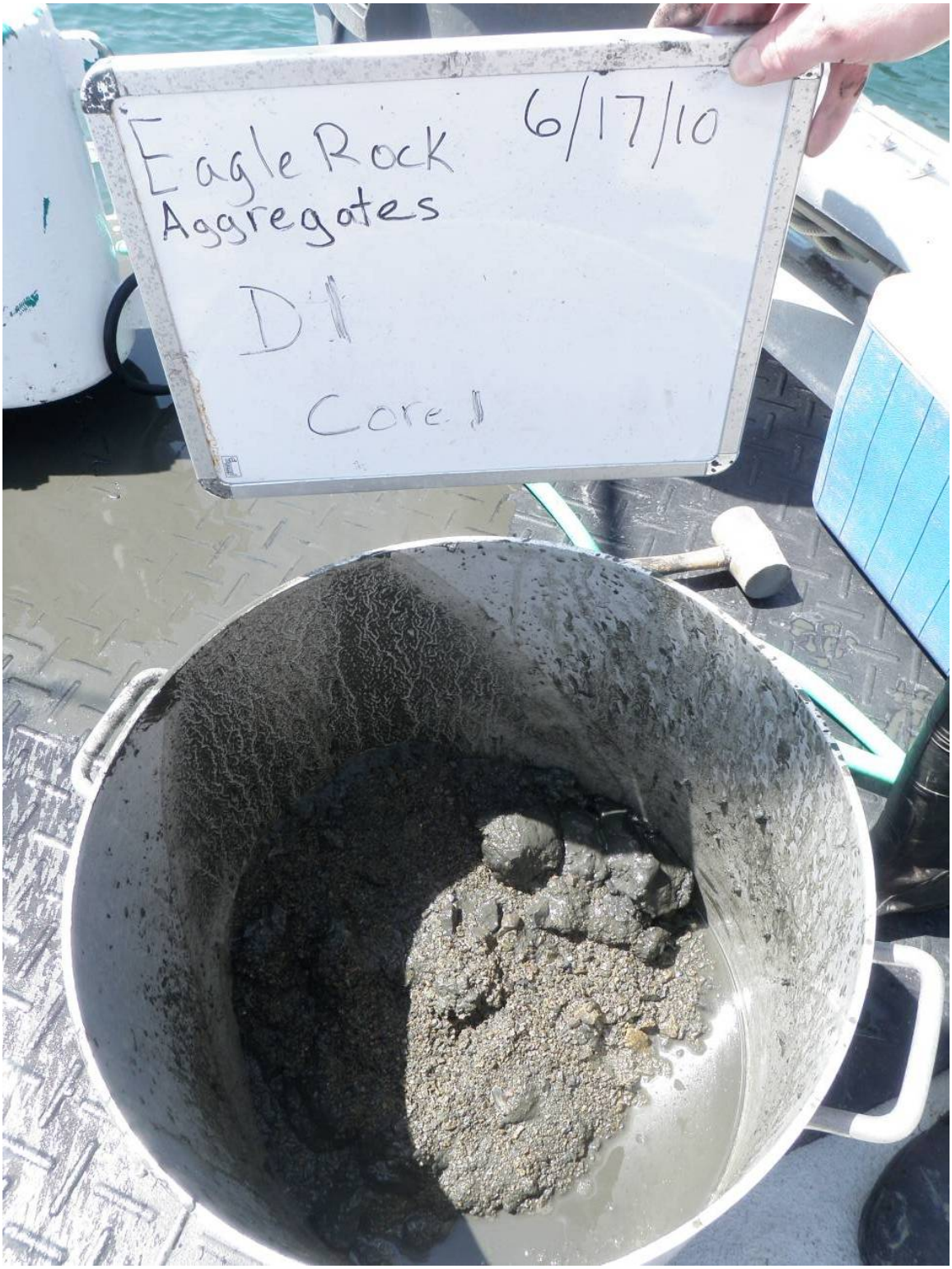


Figure A-1. Core D1 Attempt 1 Following Extrusion of Core into Homogenization Pot.

Figure A-2. Core D1, Core 2 following successful extrusion.

Figure A-3. Core D2.

Figure A-4. Core D3.

Figure A-5. Core D4.

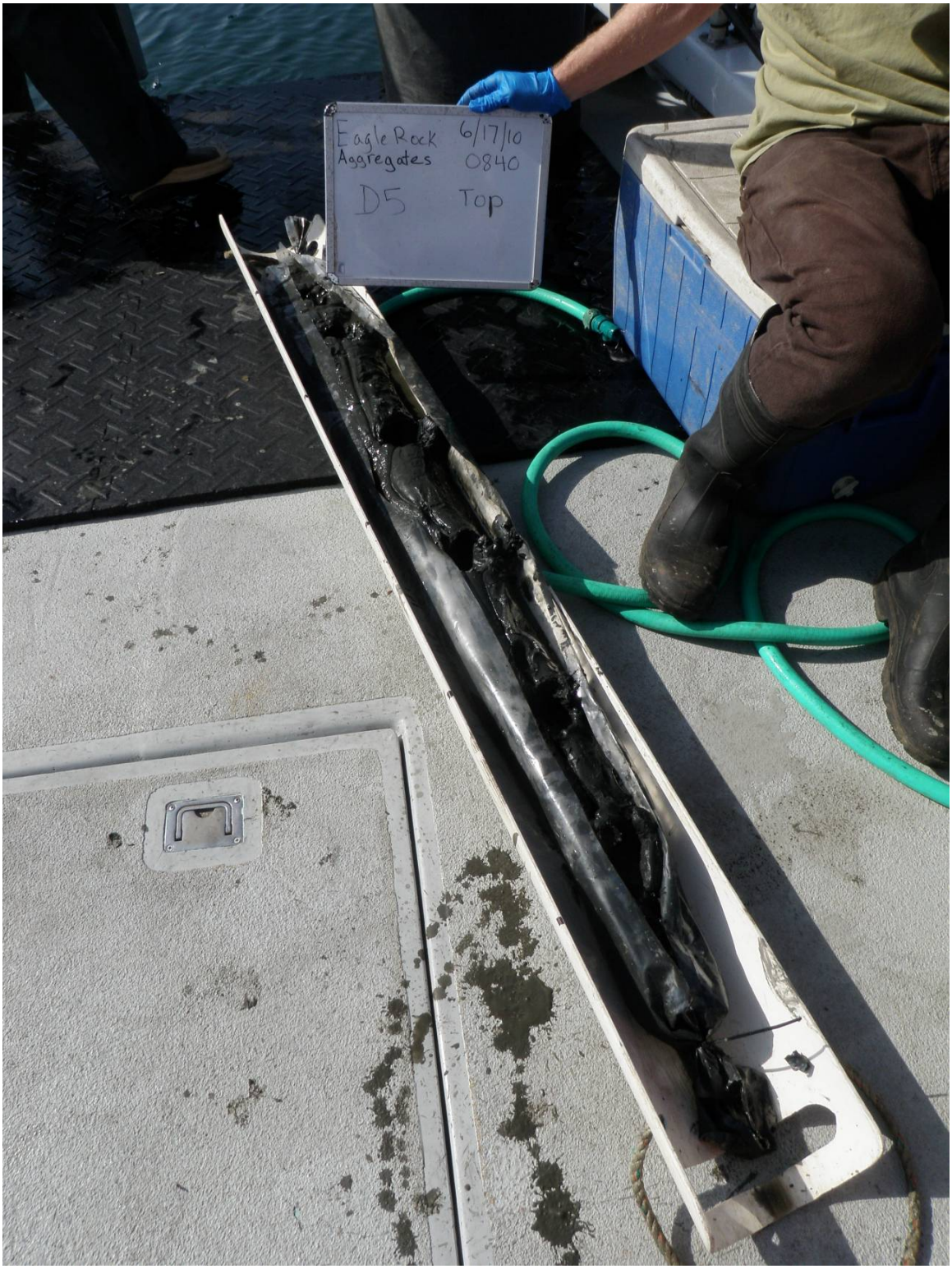


Figure A-6. Core D5.

Figure A-7. Core D6.

Figure A-8. Core D7.

Figure A-9. Core D8.

Appendix C

Analytical and Geotechnical Reports

1. Calscience Environmental Laboratories (Bulk Sediment Chemistry Report)
2. Calscience Environmental Laboratories (Elutriate Chemistry Report)
3. Core Lab Reservoir Optimization (Geotechnical Report)

Calscience Environmental Laboratories, Inc.

July 02, 2010

Nick Buhbe
Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Subject: **Calscience Work Order No.: 10-06-1502**
Client Reference: EAGLE D44

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 6/17/2010 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Danielle Gonsman
Project Manager

Calscience Environmental Laboratories, Inc.

ACCREDITED IN ACCORDANCE WITH nelac

CASE NARRATIVE

Project ID: EAGLE D44
Calscience Work Order No.: 10-06-1502

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the marine sediment samples.

Sample Condition on Receipt

One seawater sample and two sediment samples were received for this project on June 17, 2010. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 13.2°C. The samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and stored in refrigeration units pending chemistry testing.

The seawater sample was used in the preparation of the Elutriate samples, and the results are presented in Calscience Work Order Number 10-06-1649.

No sample anomalies were noted.

Tests Performed

Dissolved Sulfide by EPA 376.2M
Total Sulfide by EPA 376.2M
Trace Metals by EPA 6020
Mercury by EPA 7471A
Organochlorine Pesticides by EPA 8081A
PCB Aroclors by EPA 8082
PCB Congeners by EPA 8270C SIM
PAHs, Phenols and Phthalates by EPA 8270C SIM
Organotins by Krone et. al.
Total Organic Carbon by EPA 9060A
Total Solids by SM 2540B

The Particle Size, Sand Equivalent, Atterberg Limits and Percent Passing #200 Sieve analyses were performed by Core Laboratories in Bakersfield, CA. The results will follow in a supplemental report.

Data Summary

All samples were homogenized prior to analysis.

All sample results and reporting limits have been dry weight corrected.

Holding times

All holding time requirements were met.

Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

Reporting Limits

The Method Detection Limits were met.

Blanks

Concentrations of target analytes in the method blanks were found to be below reporting limits/method detection limits for all analyses.

Laboratory Control Samples

Laboratory Control Sample (LCS) analyses were performed at the required frequencies and all parameters were within the accepted control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable analysis. Matrix spiking was performed on project sample D44 SITE2, and all parameters were within the established control limits for each method with the following exceptions.

Several of the MS and/or MSD recoveries for the metals (by EPA 6020) were out of the acceptance ranges due to matrix interference. However, since the associated LCS and LCSD recoveries were in control, the data are released with no further action.

The matrix spike recoveries and/or RPDs for PCB Aroclor 1016 and PCB Aroclor 1260 (by EPA 8082) were outside the established control limits. Yet the results are released with no further clarification since the corresponding LCS/LCSD recoveries and RPD values were in control.

For the Chlorinated Pesticides, the MS/MSD recoveries and/or RPD values for three analytes were outside the established control limits due to matrix interference. However, since the corresponding LCS/LCSD recoveries and RPDs were within the established control limits, the data are released with no further qualification.

Many of the PCB Congeners matrix spike duplicate recoveries fell above the control limits, but the results are released since the MS, LCS and LCSD recoveries were within the acceptance ranges.

Surrogates

Surrogate recoveries for all applicable tests and samples were within acceptable control limits for all applicable analyses.

Acronyms

LCS/LCSD- Laboratory Control Sample/Laboratory Control Sample Duplicate
MS/MSD- Matrix Spike/Matrix Spike Duplicate
PDS/PDSD- Post Digestion Spike/ Post Digestion Spike Duplicate
RPD- Relative Percent Difference
ME- Marginal Exceedance

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	Nautilus Environmental	Work Order:	10-06-1502
	5550 Morehouse Drive, Suite 150	Project name:	EAGLE D44
	San Diego, CA 92121-4798	Received:	06/17/10 18:47
Attn:	Nick Buhbe		

DETECTIONS SUMMARY

Client Sample ID Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
D44 SITE1						
Arsenic	**15.9**		0.160	mg/kg	EPA 6020	EPA 3050B
Cadmium	**1.12**		0.160	mg/kg	EPA 6020	EPA 3050B
Chromium	**46.2**		0.160	mg/kg	EPA 6020	EPA 3050B
Copper	**110**		0.160	mg/kg	EPA 6020	EPA 3050B
Lead	**125**		0.160	mg/kg	EPA 6020	EPA 3050B
Nickel	**23.9**		0.160	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.438**		0.160	mg/kg	EPA 6020	EPA 3050B
Silver	**0.624**		0.160	mg/kg	EPA 6020	EPA 3050B
Zinc	**376**		1.60	mg/kg	EPA 6020	EPA 3050B
Sulfide, Total	**320**		16	mg/kg	EPA 376.2M	N/A
Carbon, Total Organic	**1.6**		0.080	%	EPA 9060A	N/A
Solids, Total	**62.6**		0.100	%	SM 2540 B	N/A
TRPH	**170**		16	mg/kg	EPA 418.1M	Extraction
Mercury	**1.25**		0.0320	mg/kg	EPA 7471A	EPA 7471A Total
Dibutyltin	**44**		4.8	ug/kg	Organotins by Krone e	EPA 3545
Tributyltin	**27**		4.8	ug/kg	Organotins by Krone e	EPA 3545
1-Methylnaphthalene	**66**		16	ug/kg	EPA 8270C SIM	EPA 3545
2-Methylnaphthalene	**74**		16	ug/kg	EPA 8270C SIM	EPA 3545
Acenaphthene	**280**		16	ug/kg	EPA 8270C SIM	EPA 3545
Acenaphthylene	**38**		16	ug/kg	EPA 8270C SIM	EPA 3545
Anthracene	**160**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (a) Anthracene	**170**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (a) Pyrene	**360**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (b) Fluoranthene	**340**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (g,h,i) Perylene	**170**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (k) Fluoranthene	**330**		16	ug/kg	EPA 8270C SIM	EPA 3545
Bis(2-Ethylhexyl) Phthalate	**55**		16	ug/kg	EPA 8270C SIM	EPA 3545
Butyl Benzyl Phthalate	**16**		16	ug/kg	EPA 8270C SIM	EPA 3545
Chrysene	**240**		16	ug/kg	EPA 8270C SIM	EPA 3545
Di-n-Butyl Phthalate	**19**		16	ug/kg	EPA 8270C SIM	EPA 3545
Di-n-Octyl Phthalate	**29**		16	ug/kg	EPA 8270C SIM	EPA 3545
Diethyl Phthalate	**34**		16	ug/kg	EPA 8270C SIM	EPA 3545
Dimethyl Phthalate	**5.0**	J	2.8*	ug/kg	EPA 8270C SIM	EPA 3545
Fluoranthene	**640**		16	ug/kg	EPA 8270C SIM	EPA 3545
Fluorene	**180**		16	ug/kg	EPA 8270C SIM	EPA 3545
Indeno (1,2,3-c,d) Pyrene	**160**		16	ug/kg	EPA 8270C SIM	EPA 3545
Naphthalene	**91**		16	ug/kg	EPA 8270C SIM	EPA 3545
Phenanthrene	**1200**		16	ug/kg	EPA 8270C SIM	EPA 3545
Pyrene	**550**		16	ug/kg	EPA 8270C SIM	EPA 3545
Aroclor-1254	**52**		16	ug/kg	EPA 8082	EPA 3545

*MDL is shown.

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	Nautilus Environmental 5550 Morehouse Drive, Suite 150 San Diego, CA 92121-4798	Work Order:	10-06-1502
		Project name:	EAGLE D44
		Received:	06/17/10 18:47
Attn:	Nick Buhbe		

DETECTIONS SUMMARY

Client Sample ID

Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
D44 SITE1						
2,4'-DDE	**1.9**		1.6	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	**8.4**		1.6	ug/kg	EPA 8081A	EPA 3545
PCB052	**6.5**	J	3.3*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB049	**12**		8.0	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB044	**6.3**	J	2.8*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB070	**4.1**	J	3.0*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB101	**9.6**		8.0	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB087	**4.1**	J	2.9*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB110	**7.2**	J	2.6*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB151	**4.6**	J	2.7*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB149	**5.0**	J	2.7*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB118	**5.5**	J	2.9*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB153	**6.9**	J	2.7*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB105	**4.4**	J	3.1*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB138/158	**6.7**	J	5.6*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB126	**13**		8.0	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB157	**4.4**	J	2.9*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB180	**4.4**	J	2.8*	ug/kg	EPA 8270C SIM PC	EPA 3545

*MDL is shown.

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	Nautilus Environmental	Work Order:	10-06-1502
	5550 Morehouse Drive, Suite 150	Project name:	EAGLE D44
	San Diego, CA 92121-4798	Received:	06/17/10 18:47
Attn:	Nick Buhbe		

DETECTIONS SUMMARY

Client Sample ID Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
D44 SITE2						
Arsenic	**14.9**		0.165	mg/kg	EPA 6020	EPA 3050B
Cadmium	**0.752**		0.165	mg/kg	EPA 6020	EPA 3050B
Chromium	**42.1**		0.165	mg/kg	EPA 6020	EPA 3050B
Copper	**93.0**		0.165	mg/kg	EPA 6020	EPA 3050B
Lead	**81.7**		0.165	mg/kg	EPA 6020	EPA 3050B
Nickel	**23.8**		0.165	mg/kg	EPA 6020	EPA 3050B
Selenium	**0.389**		0.165	mg/kg	EPA 6020	EPA 3050B
Silver	**0.417**		0.165	mg/kg	EPA 6020	EPA 3050B
Zinc	**249**		1.65	mg/kg	EPA 6020	EPA 3050B
Sulfide, Total	**170**		8.2	mg/kg	EPA 376.2M	N/A
Carbon, Total Organic	**1.5**		0.082	%	EPA 9060A	N/A
Solids, Total	**60.7**		0.100	%	SM 2540 B	N/A
TRPH	**97**		16	mg/kg	EPA 418.1M	Extraction
Mercury	**0.784**		0.0330	mg/kg	EPA 7471A	EPA 7471A Total
Dibutyltin	**56**		4.9	ug/kg	Organotins by Krone e	EPA 3545
Tributyltin	**38**		4.9	ug/kg	Organotins by Krone e	EPA 3545
1-Methylnaphthalene	**7.9**	J	3.0*	ug/kg	EPA 8270C SIM	EPA 3545
2-Methylnaphthalene	**12**	J	2.9*	ug/kg	EPA 8270C SIM	EPA 3545
Acenaphthene	**23**		16	ug/kg	EPA 8270C SIM	EPA 3545
Acenaphthylene	**42**		16	ug/kg	EPA 8270C SIM	EPA 3545
Anthracene	**140**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (a) Anthracene	**94**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (a) Pyrene	**350**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (b) Fluoranthene	**350**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (g,h,i) Perylene	**170**		16	ug/kg	EPA 8270C SIM	EPA 3545
Benzo (k) Fluoranthene	**330**		16	ug/kg	EPA 8270C SIM	EPA 3545
Bis(2-Ethylhexyl) Phthalate	**54**		16	ug/kg	EPA 8270C SIM	EPA 3545
Butyl Benzyl Phthalate	**31**		16	ug/kg	EPA 8270C SIM	EPA 3545
Chrysene	**210**		16	ug/kg	EPA 8270C SIM	EPA 3545
Di-n-Butyl Phthalate	**9.8**	J	3.5*	ug/kg	EPA 8270C SIM	EPA 3545
Di-n-Octyl Phthalate	**7.0**	J	4.8*	ug/kg	EPA 8270C SIM	EPA 3545
Diethyl Phthalate	**29**		16	ug/kg	EPA 8270C SIM	EPA 3545
Dimethyl Phthalate	**6.9**	J	2.9*	ug/kg	EPA 8270C SIM	EPA 3545
Fluoranthene	**140**		16	ug/kg	EPA 8270C SIM	EPA 3545
Fluorene	**43**		16	ug/kg	EPA 8270C SIM	EPA 3545
Indeno (1,2,3-c,d) Pyrene	**170**		16	ug/kg	EPA 8270C SIM	EPA 3545
Naphthalene	**26**		16	ug/kg	EPA 8270C SIM	EPA 3545
Phenanthrene	**120**		16	ug/kg	EPA 8270C SIM	EPA 3545
Pyrene	**130**		16	ug/kg	EPA 8270C SIM	EPA 3545
Aroclor-1254	**50**		16	ug/kg	EPA 8082	EPA 3545

*MDL is shown.

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	Nautilus Environmental	Work Order:	10-06-1502
	5550 Morehouse Drive, Suite 150	Project name:	EAGLE D44
	San Diego, CA 92121-4798	Received:	06/17/10 18:47
Attn:	Nick Buhbe		

DETECTIONS SUMMARY

Client Sample ID Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
D44 SITE2						
2,4'-DDE	**3.2**		1.6	ug/kg	EPA 8081A	EPA 3545
4,4'-DDE	**16**		3.3	ug/kg	EPA 8081A	EPA 3545
PCB028	**6.7**	J	2.9*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB049	**9.0**		8.2	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB044	**4.6**	J	2.9*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB070	**3.3**	J	3.1*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB101	**6.8**	J	3.1*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB087	**3.3**	J	2.9*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB110	**7.5**	J	2.7*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB151	**4.0**	J	2.8*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB149	**5.5**	J	2.8*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB118	**6.0**	J	3.0*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB153	**6.8**	J	2.7*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB138/158	**7.5**	J	5.8*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB157	**3.6**	J	3.0*	ug/kg	EPA 8270C SIM PC	EPA 3545
PCB180	**4.8**	J	2.9*	ug/kg	EPA 8270C SIM PC	EPA 3545

Subcontracted analyses, if any, are not included in this summary.

*MDL is shown.

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental	Date Received:	06/17/10
5550 Morehouse Drive, Suite 150	Work Order No:	10-06-1502
San Diego, CA 92121-4798	Preparation:	Extraction
	Method:	EPA 418.1M

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE1	**10-06-1502-2-A**	**06/17/10 17:00**	**Sediment**	**IR #1**	**06/18/10**	**06/18/10 17:12**	**100618L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	170	16	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE2	**10-06-1502-3-A**	**06/17/10 17:15**	**Sediment**	**IR #1**	**06/18/10**	**06/18/10 17:12**	**100618L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	97	16	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-07-015-1,671**	**N/A**	**Solid**	**IR #1**	**06/18/10**	**06/18/10 17:12**	**100618L02**

Parameter	Result	RL	DF	Qual	Units
TRPH	ND	10	1		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Project: EAGLE D44

Date Received:	06/17/10
Work Order No:	10-06-1502
Preparation:	EPA 3545
Method:	Organotins by Krone et al.
Units:	ug/kg
	Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE1	**10-06-1502-2-C**	**06/17/10 17:00**	**Sediment**	**GC/MS Y**	**06/21/10**	**06/23/10 14:16**	**100621L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	44	4.8	0.96	1		Tetrabutyltin	ND	4.8	0.57	1	
Monobutyltin	ND	4.8	1.6	1		Tributyltin	27	4.8	0.53	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	88	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE2	**10-06-1502-3-C**	**06/17/10 17:15**	**Sediment**	**GC/MS Y**	**06/21/10**	**06/23/10 14:49**	**100621L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	56	4.9	0.99	1		Tetrabutyltin	ND	4.9	0.59	1	
Monobutyltin	ND	4.9	1.6	1		Tributyltin	38	4.9	0.55	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	76	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-07-016-758**	**N/A**	**Solid**	**GC/MS Y**	**06/21/10**	**06/24/10 09:29**	**100621L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	3.0	0.60	1		Tetrabutyltin	ND	3.0	0.36	1	
Monobutyltin	ND	3.0	0.97	1		Tributyltin	ND	3.0	0.33	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	115	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental		Date Received:	06/17/10
5550 Morehouse Drive, Suite 150		Work Order No:	10-06-1502
San Diego, CA 92121-4798		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: EAGLE D44			Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE1	**10-06-1502-2-A**	**06/17/10 17:00**	**Sediment**	**GC/MS MM**	**06/22/10**	**06/25/10 12:49**	**100622L07**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1-Methylnaphthalene	66	16	2.9	1		Benzo (b) Fluoranthene	340	16	2.9	1	
2,4,5-Trichlorophenol	ND	16	2.8	1		Benzo (g,h,i) Perylene	170	16	3.0	1	
2,4,6-Trichlorophenol	ND	16	2.1	1		Benzo (k) Fluoranthene	330	16	4.0	1	
2,4-Dichlorophenol	ND	16	2.2	1		Bis(2-Ethylhexyl) Phthalate	55	16	5.0	1	
2,4-Dimethylphenol	ND	16	2.6	1		Butyl Benzyl Phthalate	16	16	5.0	1	
2,4-Dinitrophenol	ND	800	86	1		Chrysene	240	16	3.3	1	
2-Chlorophenol	ND	16	2.6	1		Di-n-Butyl Phthalate	19	16	3.4	1	
2-Methylnaphthalene	74	16	2.8	1		Di-n-Octyl Phthalate	29	16	4.6	1	
2-Methylphenol	ND	16	2.6	1		Dibenz (a,h) Anthracene	ND	16	3.1	1	
2-Nitrophenol	ND	16	2.4	1		Diethyl Phthalate	34	16	3.2	1	
3/4-Methylphenol	ND	16	2.6	1		Dimethyl Phthalate	5.0	16	2.8	1	J
4,6-Dinitro-2-Methylphenol	ND	800	110	1		Fluoranthene	640	16	3.0	1	
4-Chloro-3-Methylphenol	ND	16	2.2	1		Fluorene	180	16	2.8	1	
4-Nitrophenol	ND	800	100	1		Indeno (1,2,3-c,d) Pyrene	160	16	2.9	1	
Acenaphthene	280	16	3.0	1		Naphthalene	91	16	3.0	1	
Acenaphthylene	38	16	2.6	1		Pentachlorophenol	ND	800	86	1	
Anthracene	160	16	2.9	1		Phenanthrene	1200	16	3.0	1	
Benzo (a) Anthracene	170	16	3.4	1		Phenol	ND	16	2.9	1	
Benzo (a) Pyrene	360	16	2.8	1		Pyrene	550	16	4.0	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	60	32-143		2-Fluorobiphenyl	58	14-146	
2-Fluorophenol	59	15-138		Nitrobenzene-d5	60	18-162	
p-Terphenyl-d14	65	34-148		Phenol-d6	55	17-141	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE2	**10-06-1502-3-A**	**06/17/10 17:15**	**Sediment**	**GC/MS MM**	**06/22/10**	**06/25/10 13:14**	**100622L07**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1-Methylnaphthalene	7.9	16	3.0	1	J	Benzo (b) Fluoranthene	350	16	3.0	1	
2,4,5-Trichlorophenol	ND	16	2.9	1		Benzo (g,h,i) Perylene	170	16	3.0	1	
2,4,6-Trichlorophenol	ND	16	2.1	1		Benzo (k) Fluoranthene	330	16	4.1	1	
2,4-Dichlorophenol	ND	16	2.2	1		Bis(2-Ethylhexyl) Phthalate	54	16	5.1	1	
2,4-Dimethylphenol	ND	16	2.7	1		Butyl Benzyl Phthalate	31	16	5.2	1	
2,4-Dinitrophenol	ND	820	89	1		Chrysene	210	16	3.4	1	
2-Chlorophenol	ND	16	2.7	1		Di-n-Butyl Phthalate	9.8	16	3.5	1	J
2-Methylnaphthalene	12	16	2.9	1	J	Di-n-Octyl Phthalate	7.0	16	4.8	1	J
2-Methylphenol	ND	16	2.6	1		Dibenz (a,h) Anthracene	ND	16	3.2	1	
2-Nitrophenol	ND	16	2.5	1		Diethyl Phthalate	29	16	3.3	1	
3/4-Methylphenol	ND	16	2.6	1		Dimethyl Phthalate	6.9	16	2.9	1	J
4,6-Dinitro-2-Methylphenol	ND	820	110	1		Fluoranthene	140	16	3.1	1	
4-Chloro-3-Methylphenol	ND	16	2.3	1		Fluorene	43	16	2.9	1	
4-Nitrophenol	ND	820	110	1		Indeno (1,2,3-c,d) Pyrene	170	16	3.0	1	
Acenaphthene	23	16	3.0	1		Naphthalene	26	16	3.0	1	
Acenaphthylene	42	16	2.7	1		Pentachlorophenol	ND	820	89	1	
Anthracene	140	16	3.0	1		Phenanthrene	120	16	3.1	1	
Benzo (a) Anthracene	94	16	3.5	1		Phenol	ND	16	3.0	1	
Benzo (a) Pyrene	350	16	2.9	1		Pyrene	130	16	4.1	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	55	32-143		2-Fluorobiphenyl	55	14-146	
2-Fluorophenol	64	15-138		Nitrobenzene-d5	61	18-162	
p-Terphenyl-d14	63	34-148		Phenol-d6	63	17-141	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8270C SIM
Units: ug/kg

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-413-279**	**N/A**	**Solid**	**GC/MS MM**	**06/22/10**	**06/25/10 16:40**	**100622L07**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1-Methylnaphthalene	ND	10	1.8	1		Benzo (b) Fluoranthene	ND	10	1.8	1	
2,4,5-Trichlorophenol	ND	10	1.8	1		Benzo (g,h,i) Perylene	ND	10	1.8	1	
2,4,6-Trichlorophenol	ND	10	1.3	1		Benzo (k) Fluoranthene	ND	10	2.5	1	
2,4-Dichlorophenol	ND	10	1.4	1		Bis(2-Ethylhexyl) Phthalate	ND	10	3.1	1	
2,4-Dimethylphenol	ND	10	1.6	1		Butyl Benzyl Phthalate	ND	10	3.2	1	
2,4-Dinitrophenol	ND	500	54	1		Chrysene	ND	10	2.0	1	
2-Chlorophenol	ND	10	1.6	1		Di-n-Butyl Phthalate	ND	10	2.1	1	
2-Methylnaphthalene	ND	10	1.8	1		Di-n-Octyl Phthalate	ND	10	2.9	1	
2-Methylphenol	ND	10	1.6	1		Dibenz (a,h) Anthracene	ND	10	2.0	1	
2-Nitrophenol	ND	10	1.5	1		Diethyl Phthalate	ND	10	2.0	1	
3/4-Methylphenol	ND	10	1.6	1		Dimethyl Phthalate	ND	10	1.8	1	
4,6-Dinitro-2-Methylphenol	ND	500	69	1		Fluoranthene	ND	10	1.9	1	
4-Chloro-3-Methylphenol	ND	10	1.4	1		Fluorene	ND	10	1.8	1	
4-Nitrophenol	ND	500	64	1		Indeno (1,2,3-c,d) Pyrene	ND	10	1.8	1	
Acenaphthene	ND	10	1.8	1		Naphthalene	ND	10	1.8	1	
Acenaphthylene	ND	10	1.6	1		Pentachlorophenol	ND	500	54	1	
Anthracene	ND	10	1.8	1		Phenanthrene	ND	10	1.9	1	
Benzo (a) Anthracene	ND	10	2.2	1		Phenol	ND	10	1.8	1	
Benzo (a) Pyrene	ND	10	1.8	1		Pyrene	ND	10	2.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	82	32-143		2-Fluorobiphenyl	91	14-146	
2-Fluorophenol	95	15-138		Nitrobenzene-d5	101	18-162	
p-Terphenyl-d14	86	34-148		Phenol-d6	95	17-141	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8082
Units: ug/kg

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE1	**10-06-1502-2-C**	**06/17/10 17:00**	**Sediment**	**GC 58**	**06/21/10**	**06/29/10 12:10**	**100621L17**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	16	1		Aroclor-1248	ND	16	1	
Aroclor-1221	ND	16	1		Aroclor-1254	52	16	1	
Aroclor-1232	ND	16	1		Aroclor-1260	ND	16	1	
Aroclor-1242	ND	16	1		Aroclor-1262	ND	16	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	130	50-130			Decachlorobiphenyl	121	50-130		

D44 SITE2	**10-06-1502-3-C**	**06/17/10 17:15**	**Sediment**	**GC 58**	**06/21/10**	**06/29/10 11:38**	**100621L17**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	16	1		Aroclor-1248	ND	16	1	
Aroclor-1221	ND	16	1		Aroclor-1254	50	16	1	
Aroclor-1232	ND	16	1		Aroclor-1260	ND	16	1	
Aroclor-1242	ND	16	1		Aroclor-1262	ND	16	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	80	50-130			Decachlorobiphenyl	83	50-130		

Method Blank	**099-12-565-151**	**N/A**	**Solid**	**GC 58**	**06/21/10**	**06/25/10 17:38**	**100621L17**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Total PCB Aroclors	ND	10	1		Aroclor-1262	ND	10	1	
Aroclor-1248	ND	10	1		Aroclor-1016	ND	10	1	
Aroclor-1254	ND	10	1		Aroclor-1221	ND	10	1	
Aroclor-1260	ND	10	1		Aroclor-1232	ND	10	1	
Aroclor-1242	ND	10	1						
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	86	50-130			Decachlorobiphenyl	74	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental		Date Received:	06/17/10
5550 Morehouse Drive, Suite 150		Work Order No:	10-06-1502
San Diego, CA 92121-4798		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE1	**10-06-1502-2-C**	**06/17/10 17:00**	**Sediment**	**GC 51**	**06/21/10**	**06/27/10 15:58**	**100621L16**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.6	1		Endosulfan I	ND	1.6	1	
Alpha-BHC	ND	1.6	1		Endosulfan II	ND	1.6	1	
Beta-BHC	ND	1.6	1		Endosulfan Sulfate	ND	1.6	1	
Delta-BHC	ND	1.6	1		Endrin	ND	1.6	1	
Gamma-BHC	ND	1.6	1		Endrin Aldehyde	ND	1.6	1	
Chlordane	ND	16	1		Endrin Ketone	ND	1.6	1	
Dieldrin	ND	1.6	1		Heptachlor	ND	1.6	1	
Trans-nonachlor	ND	1.6	1		Heptachlor Epoxide	ND	1.6	1	
2,4'-DDD	ND	1.6	1		Methoxychlor	ND	1.6	1	
2,4'-DDE	1.9	1.6	1		Toxaphene	ND	32	1	
2,4'-DDT	ND	1.6	1		Alpha Chlordane	ND	1.6	1	
4,4'-DDD	ND	1.6	1		Gamma Chlordane	ND	1.6	1	
4,4'-DDE	8.4	1.6	1		Cis-nonachlor	ND	1.6	1	
4,4'-DDT	ND	1.6	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	94	50-130		Decachlorobiphenyl	91	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE2	**10-06-1502-3-C**	**06/17/10 17:15**	**Sediment**	**GC 51**	**06/21/10**	**06/27/10 16:25**	**100621L16**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.6	1		Endosulfan I	ND	1.6	1	
Alpha-BHC	ND	1.6	1		Endosulfan II	ND	1.6	1	
Beta-BHC	ND	1.6	1		Endosulfan Sulfate	ND	1.6	1	
Delta-BHC	ND	1.6	1		Endrin	ND	1.6	1	
Gamma-BHC	ND	1.6	1		Endrin Aldehyde	ND	1.6	1	
Chlordane	ND	16	1		Endrin Ketone	ND	1.6	1	
Dieldrin	ND	1.6	1		Heptachlor	ND	1.6	1	
Trans-nonachlor	ND	1.6	1		Heptachlor Epoxide	ND	1.6	1	
2,4'-DDD	ND	1.6	1		Methoxychlor	ND	1.6	1	
2,4'-DDE	3.2	1.6	1		Toxaphene	ND	33	1	
2,4'-DDT	ND	1.6	1		Alpha Chlordane	ND	1.6	1	
4,4'-DDD	ND	1.6	1		Gamma Chlordane	ND	1.6	1	
4,4'-DDE	16	3.3	2		Cis-nonachlor	ND	1.6	1	
4,4'-DDT	ND	1.6	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	91	50-130		Decachlorobiphenyl	99	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental	Date Received:	06/17/10
5550 Morehouse Drive, Suite 150	Work Order No:	10-06-1502
San Diego, CA 92121-4798	Preparation:	EPA 3545
	Method:	EPA 8081A
	Units:	ug/kg

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-858-67**	**N/A**	**Solid**	**GC 51**	**06/21/10**	**06/27/10 13:41**	**100621L16**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.0	1		Endosulfan II	ND	1.0	1	
Alpha-BHC	ND	1.0	1		Endosulfan Sulfate	ND	1.0	1	
Beta-BHC	ND	1.0	1		Endrin	ND	1.0	1	
Delta-BHC	ND	1.0	1		Endrin Aldehyde	ND	1.0	1	
Gamma-BHC	ND	1.0	1		Endrin Ketone	ND	1.0	1	
Chlordane	ND	10	1		Heptachlor	ND	1.0	1	
Dieldrin	ND	1.0	1		Heptachlor Epoxide	ND	1.0	1	
4,4'-DDD	ND	1.0	1		Methoxychlor	ND	1.0	1	
4,4'-DDE	ND	1.0	1		Toxaphene	ND	20	1	
4,4'-DDT	ND	1.0	1		Alpha Chlordane	ND	1.0	1	
Endosulfan I	ND	1.0	1		Gamma Chlordane	ND	1.0	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	87	50-130			Decachlorobiphenyl	84	50-130		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE1	**10-06-1502-2-A**	**06/17/10 17:00**	**Sediment**	**GC/MS N**	**06/25/10**	**06/29/10 20:43**	**100625L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
PCB008	ND	8.0	2.9	1		PCB184	ND	8.0	2.7	1	
PCB018	ND	8.0	2.8	1		PCB153	6.9	8.0	2.7	1	J
PCB028	ND	8.0	2.8	1		PCB168	ND	8.0	2.5	1	
PCB052	6.5	8.0	3.3	1	J	PCB105	4.4	8.0	3.1	1	J
PCB049	12	8.0	2.8	1		PCB138/158	6.7	8.0	5.6	1	J
PCB044	6.3	8.0	2.8	1	J	PCB187	ND	8.0	2.8	1	
PCB037	ND	8.0	2.8	1		PCB183	ND	8.0	2.7	1	
PCB074	ND	8.0	2.8	1		PCB126	13	8.0	2.6	1	
PCB070	4.1	8.0	3.0	1	J	PCB128	ND	8.0	2.6	1	
PCB066	ND	8.0	2.8	1		PCB167	ND	8.0	2.8	1	
PCB101	9.6	8.0	3.0	1		PCB177	ND	8.0	2.8	1	
PCB099	ND	8.0	2.8	1		PCB156	ND	8.0	3.0	1	
PCB119	ND	8.0	2.8	1		PCB157	4.4	8.0	2.9	1	J
PCB087	4.1	8.0	2.9	1	J	PCB180	4.4	8.0	2.8	1	J
PCB081	ND	8.0	2.8	1		PCB170	ND	8.0	2.3	1	
PCB110	7.2	8.0	2.6	1	J	PCB201	ND	8.0	5.2	1	
PCB151	4.6	8.0	2.7	1	J	PCB169	ND	8.0	2.5	1	
PCB077	ND	8.0	2.8	1		PCB189	ND	8.0	2.7	1	
PCB149	5.0	8.0	2.7	1	J	PCB195	ND	8.0	2.5	1	
PCB123	ND	8.0	2.7	1		PCB194	ND	8.0	2.2	1	
PCB118	5.5	8.0	2.9	1	J	PCB206	ND	8.0	3.0	1	
PCB114	ND	8.0	2.7	1		PCB209	ND	8.0	2.8	1	

Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	80	50-125	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE2	**10-06-1502-3-A**	**06/17/10 17:15**	**Sediment**	**GC/MS N**	**06/25/10**	**06/29/10 21:17**	**100625L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
PCB008	ND	8.2	3.0	1		PCB184	ND	8.2	2.8	1	
PCB018	ND	8.2	2.9	1		PCB153	6.8	8.2	2.7	1	J
PCB028	6.7	8.2	2.9	1	J	PCB168	ND	8.2	2.6	1	
PCB052	ND	8.2	3.4	1		PCB105	ND	8.2	3.2	1	
PCB049	9.0	8.2	2.9	1		PCB138/158	7.5	8.2	5.8	1	J
PCB044	4.6	8.2	2.9	1	J	PCB187	ND	8.2	2.8	1	
PCB037	ND	8.2	2.9	1		PCB183	ND	8.2	2.8	1	
PCB074	ND	8.2	2.9	1		PCB126	ND	8.2	2.7	1	
PCB070	3.3	8.2	3.1	1	J	PCB128	ND	8.2	2.7	1	
PCB066	ND	8.2	2.9	1		PCB167	ND	8.2	2.8	1	
PCB101	6.8	8.2	3.1	1	J	PCB177	ND	8.2	2.8	1	
PCB099	ND	8.2	2.9	1		PCB156	ND	8.2	3.1	1	
PCB119	ND	8.2	2.8	1		PCB157	3.6	8.2	3.0	1	J
PCB087	3.3	8.2	2.9	1	J	PCB180	4.8	8.2	2.9	1	J
PCB081	ND	8.2	2.9	1		PCB170	ND	8.2	2.4	1	
PCB110	7.5	8.2	2.7	1	J	PCB201	ND	8.2	5.4	1	
PCB151	4.0	8.2	2.8	1	J	PCB169	ND	8.2	2.6	1	
PCB077	ND	8.2	2.9	1		PCB189	ND	8.2	2.7	1	
PCB149	5.5	8.2	2.8	1	J	PCB195	ND	8.2	2.6	1	
PCB123	ND	8.2	2.7	1		PCB194	ND	8.2	2.2	1	
PCB118	6.0	8.2	3.0	1	J	PCB206	ND	8.2	3.1	1	
PCB114	ND	8.2	2.8	1		PCB209	ND	8.2	2.9	1	

Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	103	50-125	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-13-017-118**	**N/A**	**Sediment**	**GC/MS N**	**06/25/10**	**06/29/10 18:59**	**100625L06**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
PCB008	ND	5.0	1.8	1		PCB184	ND	5.0	1.7	1	
PCB018	ND	5.0	1.7	1		PCB153	ND	5.0	1.7	1	
PCB028	ND	5.0	1.7	1		PCB168	ND	5.0	1.6	1	
PCB052	ND	5.0	2.0	1		PCB105	ND	5.0	1.9	1	
PCB049	ND	5.0	1.7	1		PCB138/158	ND	5.0	3.5	1	
PCB044	ND	5.0	1.8	1		PCB187	ND	5.0	1.7	1	
PCB037	ND	5.0	1.8	1		PCB183	ND	5.0	1.7	1	
PCB074	ND	5.0	1.8	1		PCB126	ND	5.0	1.6	1	
PCB070	ND	5.0	1.9	1		PCB128	ND	5.0	1.7	1	
PCB066	ND	5.0	1.7	1		PCB167	ND	5.0	1.7	1	
PCB101	ND	5.0	1.9	1		PCB177	ND	5.0	1.7	1	
PCB099	ND	5.0	1.8	1		PCB156	ND	5.0	1.9	1	
PCB119	ND	5.0	1.7	1		PCB157	ND	5.0	1.8	1	
PCB087	ND	5.0	1.8	1		PCB180	ND	5.0	1.7	1	
PCB081	ND	5.0	1.8	1		PCB170	ND	5.0	1.5	1	
PCB110	ND	5.0	1.7	1		PCB201	ND	5.0	3.3	1	
PCB151	ND	5.0	1.7	1		PCB169	ND	5.0	1.6	1	
PCB077	ND	5.0	1.7	1		PCB189	ND	5.0	1.7	1	
PCB149	ND	5.0	1.7	1		PCB195	ND	5.0	1.6	1	
PCB123	ND	5.0	1.7	1		PCB194	ND	5.0	1.4	1	
PCB118	ND	5.0	1.8	1		PCB206	ND	5.0	1.9	1	
PCB114	ND	5.0	1.7	1		PCB209	ND	5.0	1.8	1	

Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	82	50-125	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Project: EAGLE D44

Date Received:	06/17/10
Work Order No:	10-06-1502
Preparation:	EPA 3050B
Method:	EPA 6020
Units:	mg/kg
	Page 1 of 1

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE1	**10-06-1502-2-A**	**06/17/10 17:00**	**Sediment**	**ICP/MS 03**	**06/21/10**	**06/22/10 18:09**	**100621L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	15.9	0.160	1		Nickel	23.9	0.160	1	
Cadmium	1.12	0.160	1		Selenium	0.438	0.160	1	
Chromium	46.2	0.160	1		Silver	0.624	0.160	1	
Copper	110	0.160	1		Zinc	376	1.60	1	
Lead	125	0.160	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE2	**10-06-1502-3-A**	**06/17/10 17:15**	**Sediment**	**ICP/MS 03**	**06/21/10**	**06/22/10 17:47**	**100621L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	14.9	0.165	1		Nickel	23.8	0.165	1	
Cadmium	0.752	0.165	1		Selenium	0.389	0.165	1	
Chromium	42.1	0.165	1		Silver	0.417	0.165	1	
Copper	93.0	0.165	1		Zinc	249	1.65	1	
Lead	81.7	0.165	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**096-10-002-1,765**	**N/A**	**Solid**	**ICP/MS 03**	**06/21/10**	**06/22/10 17:10**	**100621L05**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.100	1		Nickel	ND	0.100	1	
Cadmium	ND	0.100	1		Selenium	ND	0.100	1	
Chromium	ND	0.100	1		Silver	ND	0.100	1	
Copper	ND	0.100	1		Zinc	ND	1.00	1	
Lead	ND	0.100	1						

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE1	**10-06-1502-2-C**	**06/17/10 17:00**	**Sediment**	**Mercury**	**06/21/10**	**06/22/10 11:24**	**100621L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	1.25	0.0320	1		mg/kg

D44 SITE2	**10-06-1502-3-C**	**06/17/10 17:15**	**Sediment**	**Mercury**	**06/21/10**	**06/22/10 11:27**	**100621L07**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.784	0.0330	1		mg/kg

Method Blank	**099-12-452-132**	**N/A**	**Solid**	**Mercury**	**06/21/10**	**06/21/10 13:01**	**100621L07**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0200	1		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date Collected	Matrix
D44 SITE1	**10-06-1502-2**	**06/17/10**	**Sediment**

Comment(s): (9) Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	320	16	20		mg/kg	06/23/10	06/23/10	EPA 376.2M
Sulfide, Dissolved (9)	ND	0.16	0.2		mg/kg	06/18/10	06/18/10	EPA 376.2M
Carbon, Total Organic (9)	1.6	0.080	1		%	N/A	06/22/10	EPA 9060A
Solids, Total	62.6	0.100	1		%	06/22/10	06/22/10	SM 2540 B

D44 SITE2	**10-06-1502-3**	**06/17/10**	**Sediment**

Comment(s): (9) Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	170	8.2	10		mg/kg	06/23/10	06/23/10	EPA 376.2M
Sulfide, Dissolved (9)	ND	0.82	1		mg/kg	06/18/10	06/18/10	EPA 376.2M
Carbon, Total Organic (9)	1.5	0.082	1		%	N/A	06/22/10	EPA 9060A
Solids, Total	60.7	0.100	1		%	06/22/10	06/22/10	SM 2540 B

Method Blank	**N/A**	**Solid**

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total	ND	0.10	0.2		mg/kg	06/23/10	06/23/10	EPA 376.2M
Sulfide, Dissolved	ND	0.10	0.2		mg/kg	06/18/10	06/18/10	EPA 376.2M
Carbon, Total Organic	ND	0.050	1		%	N/A	06/22/10	EPA 9060A
Solids, Total	ND	0.100	1		%	06/22/10	06/22/10	SM 2540 B

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3050B
Method: EPA 6020

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
D44 SITE2	**Sediment**	**ICP/MS 03**	**06/21/10**	**06/22/10**	**100621S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	100	103	80-120	2	0-20	
Cadmium	96	96	80-120	0	0-20	
Chromium	79	94	80-120	8	0-20	3
Copper	68	69	80-120	0	0-20	3
Lead	139	212	80-120	20	0-20	3
Nickel	81	80	80-120	1	0-20	
Selenium	97	101	80-120	4	0-20	
Silver	97	96	80-120	1	0-20	
Zinc	4X	4X	80-120	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

ACCREDITED IN ACCORDANCE WITH nelac

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3050B
Method: EPA 6020

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
D44 SITE2	**Sediment**	**ICP/MS 03**	**06/21/10**	**06/22/10**	**100621S05**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	101	106	75-125	3	0-20	
Cadmium	96	96	75-125	0	0-20	
Chromium	80	83	75-125	2	0-20	
Copper	73	77	75-125	1	0-20	5
Lead	100	103	75-125	1	0-20	
Nickel	79	82	75-125	2	0-20	
Selenium	98	101	75-125	2	0-20	
Silver	85	86	75-125	1	0-20	
Zinc	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: Extraction
Method: EPA 418.1M

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
D44 SITE1	**Sediment**	**IR #1**	**06/18/10**	**06/18/10**	**100618S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TRPH	122	128	55-135	3	0-30	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 7471A Total
Method: EPA 7471A

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-06-1627-1	**Solid**	**Mercury**	**06/21/10**	**06/21/10**	**100621S07**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	90	90	71-137	0	0-14	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: Organotins by Krone et al.

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
D44 SITE2	**Sediment**	**GC/MS Y**	**06/21/10**	**06/23/10**	**100621S18**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	108	116	50-130	7	0-20	
Tributyltin	100	106	50-130	4	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8270C SIM

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
D44 SITE2	**Sediment**	**GC/MS MM**	**06/22/10**	**06/25/10**	**100622S07A**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	85	88	40-160	3	0-20	
2,4-Dichlorophenol	78	82	40-160	5	0-20	
2-Methylphenol	76	77	40-160	2	0-20	
2-Nitrophenol	49	48	40-160	2	0-20	
4-Chloro-3-Methylphenol	84	83	40-160	1	0-20	
Acenaphthene	77	78	40-106	1	0-20	
Benzo (a) Pyrene	92	92	17-163	0	0-20	
Chrysene	86	87	17-168	1	0-20	
Di-n-Butyl Phthalate	63	64	40-160	2	0-20	
Dimethyl Phthalate	73	74	40-160	2	0-20	
Fluoranthene	74	75	26-137	1	0-20	
Fluorene	84	84	59-121	1	0-20	
Naphthalene	67	67	21-133	0	0-20	
Phenanthrene	81	81	54-120	0	0-20	
Phenol	81	82	40-160	1	0-20	
Pyrene	76	76	6-156	0	0-46	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8082

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
D44 SITE2	**Sediment**	**GC 58**	**06/21/10**	**06/26/10**	**100621L17A**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	145	156	50-135	8	0-25	3
Aroclor-1260	186	120	50-135	43	0-25	3,4

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8081A

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
D44 SITE2	**Sediment**	**GC 51**	**06/21/10**	**06/27/10**	**100621S16**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aldrin	57	67	50-135	16	0-25	
Alpha-BHC	68	60	50-135	12	0-25	
Beta-BHC	80	81	50-135	1	0-25	
Delta-BHC	68	72	50-135	5	0-25	
Gamma-BHC	62	63	50-135	1	0-25	
Dieldrin	54	56	50-135	2	0-25	
4,4'-DDD	72	79	50-135	9	0-25	
4,4'-DDE	0	0	50-135	9	0-25	3
4,4'-DDT	95	72	50-135	28	0-25	4
Endosulfan I	48	49	50-135	1	0-25	3
Endosulfan II	56	51	50-135	9	0-25	
Endosulfan Sulfate	64	67	50-135	5	0-25	
Endrin	63	64	50-135	2	0-25	
Endrin Aldehyde	52	58	50-135	11	0-25	
Endrin Ketone	67	67	50-135	0	0-25	
Heptachlor	59	63	50-135	7	0-25	
Heptachlor Epoxide	69	69	50-135	0	0-25	
Methoxychlor	77	77	50-135	1	0-25	
Alpha Chlordane	63	64	50-135	2	0-25	
Gamma Chlordane	63	59	50-135	6	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/17/10
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
D44 SITE2	**Sediment**	**GC/MS N**	**06/25/10**	**06/29/10**	**100625S06**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
PCB008	100	112	50-125	11	0-30	
PCB018	107	121	50-125	12	0-30	
PCB028	112	127	50-125	13	0-30	3
PCB052	113	127	50-125	11	0-30	3
PCB044	109	126	50-125	14	0-30	3
PCB066	122	136	50-125	11	0-30	3
PCB101	117	134	50-125	13	0-30	3
PCB077	114	126	50-125	10	0-30	3
PCB118	123	140	50-125	13	0-30	3
PCB153	120	136	50-125	12	0-30	3
PCB105	117	133	50-125	13	0-30	3
PCB187	119	135	50-125	13	0-30	3
PCB126	113	122	50-125	8	0-30	
PCB128	118	132	50-125	11	0-30	3
PCB180	125	143	50-125	13	0-30	3
PCB170	104	114	50-125	9	0-30	
PCB195	108	119	50-125	10	0-30	
PCB206	116	129	50-125	11	0-30	3
PCB209	110	121	50-125	9	0-30	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502

Project: EAGLE D44

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	EPA 9060A	D44 SITE1	06/22/10	N/A	99	100	75-125	0	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502

Project: EAGLE D44

Matrix: Aqueous or Solid

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Total	EPA 376.2M	D44 SITE1	06/23/10	320	340	5	0-25	
Sulfide, Dissolved	EPA 376.2M	D44 SITE1	06/18/10	ND	ND	NA	0-25	
Solids, Total	SM 2540 B	10-06-1221-23	06/22/10	52.6	53.6	2	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502
Preparation: EPA 3050B
Method: EPA 6020

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-1,765	**Solid**	**ICP/MS 03**	**06/21/10**	**06/22/10**	**100621L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	103	105	80-120	1	0-20	
Cadmium	103	103	80-120	1	0-20	
Chromium	99	117	80-120	17	0-20	
Copper	107	106	80-120	1	0-20	
Lead	99	100	80-120	1	0-20	
Nickel	104	105	80-120	1	0-20	
Selenium	109	110	80-120	1	0-20	
Silver	96	98	80-120	1	0-20	
Zinc	103	103	80-120	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502
Preparation: Extraction
Method: EPA 418.1M

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-015-1,671	**Solid**	**IR #1**	**06/18/10**	**06/18/10**	**100618L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TRPH	110	106	70-130	4	0-30	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-452-132	**Solid**	**Mercury**	**06/21/10**	**06/21/10**	**100621L07**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	95	94	82-124	0	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

Nautilus Environmental		Date Received:	N/A
5550 Morehouse Drive, Suite 150		Work Order No:	10-06-1502
San Diego, CA 92121-4798		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-07-016-758	**Solid**	**GC/MS Y**	**06/24/10**	**24JUN002.rr**	**100621L18**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Tetrabutyltin	100	103	103	50-130	
Tributyltin	100	103	103	50-130	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8270C SIM

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-413-279	**Solid**	**GC/MS MM**	**06/22/10**	**06/24/10**	**100622L07**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	78	77	40-160	20-180	1	0-20	
2,4-Dichlorophenol	76	72	40-160	20-180	6	0-20	
2-Methylphenol	77	75	40-160	20-180	2	0-20	
2-Nitrophenol	67	60	40-160	20-180	11	0-20	
4-Chloro-3-Methylphenol	80	80	40-160	20-180	0	0-20	
Acenaphthene	79	76	48-108	38-118	4	0-11	
Benzo (a) Pyrene	84	81	17-163	0-187	4	0-20	
Chrysene	80	78	17-168	0-193	3	0-20	
Di-n-Butyl Phthalate	73	71	40-160	20-180	3	0-20	
Dimethyl Phthalate	76	74	40-160	20-180	2	0-20	
Fluoranthene	73	71	26-137	8-156	3	0-20	
Fluorene	80	78	59-121	49-131	2	0-20	
Naphthalene	84	78	21-133	2-152	8	0-20	
Phenanthrene	78	75	54-120	43-131	4	0-20	
Phenol	81	76	40-160	20-180	7	0-20	
Pyrene	77	76	28-106	15-119	1	0-16	

Total number of LCS compounds : 16
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8082

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-565-151	**Solid**	**GC 58**	**06/21/10**	**06/25/10**	**100621L17**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	86	82	50-135	4	0-25	
Aroclor-1260	72	74	50-135	2	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8081A

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-858-67	**Solid**	**GC 51**	**06/21/10**	**06/27/10**	**100621L16**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Aldrin	98	98	50-135	36-149	0	0-25	
Alpha-BHC	92	92	50-135	36-149	0	0-25	
Beta-BHC	94	94	50-135	36-149	0	0-25	
Delta-BHC	53	53	50-135	36-149	0	0-25	
Gamma-BHC	97	98	50-135	36-149	0	0-25	
Dieldrin	95	90	50-135	36-149	5	0-25	
4,4'-DDD	85	86	50-135	36-149	1	0-25	
4,4'-DDE	100	100	50-135	36-149	0	0-25	
4,4'-DDT	122	122	50-135	36-149	0	0-25	
Endosulfan I	98	98	50-135	36-149	0	0-25	
Endosulfan II	90	89	50-135	36-149	1	0-25	
Endosulfan Sulfate	81	81	50-135	36-149	0	0-25	
Endrin	95	95	50-135	36-149	0	0-25	
Endrin Aldehyde	87	88	50-135	36-149	1	0-25	
Endrin Ketone	91	90	50-135	36-149	1	0-25	
Heptachlor	101	101	50-135	36-149	0	0-25	
Heptachlor Epoxide	84	86	50-135	36-149	2	0-25	
Methoxychlor	102	102	50-135	36-149	0	0-25	
Alpha Chlordane	99	99	50-135	36-149	0	0-25	
Gamma Chlordane	99	99	50-135	36-149	0	0-25	

Total number of LCS compounds : 20
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-017-118	**Sediment**	**GC/MS N**	**06/25/10**	**06/30/10**	**100625L06**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
PCB008	96	97	50-125	38-138	0	0-30	
PCB018	102	102	50-125	38-138	0	0-30	
PCB028	108	108	50-125	38-138	0	0-30	
PCB052	103	104	50-125	38-138	1	0-30	
PCB044	109	109	50-125	38-138	1	0-30	
PCB066	116	117	50-125	38-138	1	0-30	
PCB101	110	111	50-125	38-138	1	0-30	
PCB077	113	113	50-125	38-138	0	0-30	
PCB118	115	115	50-125	38-138	0	0-30	
PCB153	108	110	50-125	38-138	1	0-30	
PCB105	110	111	50-125	38-138	1	0-30	
PCB187	110	110	50-125	38-138	1	0-30	
PCB126	109	108	50-125	38-138	1	0-30	
PCB128	108	108	50-125	38-138	0	0-30	
PCB180	114	114	50-125	38-138	0	0-30	
PCB170	104	104	50-125	38-138	0	0-30	
PCB195	108	111	50-125	38-138	2	0-30	
PCB206	114	116	50-125	38-138	1	0-30	
PCB209	107	109	50-125	38-138	2	0-30	

Total number of LCS compounds : 19
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

ACCREDITED IN ACCORDANCE WITH nelac

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1502

Project: EAGLE D44

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Carbon, Total Organic	EPA 9060A	099-06-013-499	06/22/10	N/A	0.6	0.661	110	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 10-06-1502

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
E	Concentration exceeds the calibration range.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture.

Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

Date 17 JUN 2010

Page 1 of 1

LABORATORY CLIENT: NAUTILUS ENVIRONMENTAL

ADDRESS: 5550 MOREHOUSE DRIVE

CITY: SAN DIEGO STATE: CA ZIP: 92121

TEL: 619-985-9111 E-MAIL: nick@nautilusenvironmental.com

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD 10-DAY

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING FORMS ☐ COELT EDF ☐ _____

SPECIAL INSTRUCTIONS:
⊛ - for SET preparation
Analyses referenced here are for bulk sediment.
Standard Elutriate Test also requested w/ analyses of metals, PAHs, PCBs, and Pesticides (see attached)

CLIENT PROJECT NAME / NUMBER: EAGLE D44

P.O. NO.:

PROJECT CONTACT: NICK BUTLER

LAB USE ONLY: 06-1502

SAMPLER(S): (PRINT) NICK BUTLER

COELT LOG CODE: ☐☐☐☐

COOLER RECEIPT TEMP= _____ °C

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	FIELD POINT NAME (FOR COELT EDF)	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH(g) TRPH	TPH (d) or (C6-C36) or (C6-C44)	TPHT % SOLIDS, TOC	BTEX / MTBE (8260B) or (____)	VOCs (8260B)	Oxygenates (8260B)	Encore Prep (5035)	SVOCs (8270C) PAHs, PAHtabs	Pesticides (8081A)	PCBs (8082)	PNAs (8310) or (8270C)	~~TTLC~~ Metals (~~6010B/7471A~~) see attached	Cr(VI) [7196A or 7199 or 218.6]	VOCs (TO-14A) or (TO-15)	TPH (g) [TO-3]+ ____	Geotech. (see attached)	Organotins	Total/Dissolved Sulfides
1	EH2O ⊛		17JUN10	1615	SEA H2O	2																		
2	D44SITE1		17JUN10	1700	SED	4	X		X					X	X	X	X						X	X	X
3	D44SITE2		17JUN10	1715	SED	4	X		X					X	X	X	X						X	X	X

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 6/17/10	Time: 1847
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

05/01/07 Revision

Q&Q Graphic 714-898-9702

1502

GeoTechnical Analyses

plus Sand Equivalent, Atterberg limits, max Particle Size, and % passing #200 sieve

Table 6. Sample Analysis Methods and Target Reporting Limits.

Parameter	Method	Procedure	Sediment Target Reporting Limits[a]	Elutriate Target Reporting Limits[a]	Tissue Target Reporting Limits[a]
Conventional					
Grain Size	ASTM D4464M	Sieve/Optical	0.1 g	NA	NA
Percent Solids	SM 2540B[h]	Gravimetric	0.1 percent	NA	0.1 percent
TOC	USEPA 9060[i]	Combustion	0.1 percent	NA	NA
Total Sulfides	USEPA 376.2M[h]	Titrametric	0.1 mg/kg	NA	NA
Dissolved Sulfides	USEPA 376.2M[h]	Titrametric	0.1 mg/kg	NA	NA
Metals					
Arsenic (As)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.5 mg/kg
Cadmium (Cd)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Chromium (Cr)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.2 mg/kg
Copper (Cu)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.3 mg/kg
Lead (Pb)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Mercury (Hg)	USEPA 7471A[i]	GFAAS	0.02 mg/kg	0.001 mg/L	0.02 mg/kg
Nickel (Ni)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Selenium (Se)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.5 mg/kg
Silver (Ag)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Zinc (Zn)	USEPA 6020[i]	ICP-MS	1.0 mg/kg	0.005 mg/L	2.0 mg/kg
Organics					
TRPH	USEPA 418.1M[h]	IR Spectroscopy	1.0 mg/kg	NA	NA
Pesticides[b]	USEPA 8081A[i]	GC/ECD	2-20 µg/kg	0.1-2 µg/L	5 µg/kg
PCBs[c]	USEPA 8082[i]	GC/ECD	10 µg/kg	1 µg/L	5-10 µg/kg
PAHs[d]	USEPA 8270C[i]	GC/MS SIM	20 µg/kg	1 µg/L	10 µg/kg
Phthalates[e]	USEPA 8270C[i]	GC/MS SIM	20 µg/kg	NA	NA
Phenols[f]	USEPA 8270C[i]	GC/MS SIM	20-100 µg/kg	NA	NA
Organotins[g]	Krone et al. 1989	GC/FPD	1 µg/kg	NA	NA

[a] Target reporting limits provided by Calscience Environmental Laboratories
[b] Includes 2,4- and 4,4- isomers of DDD, DDE, and DDT; α–, β–, δ–, and γ-BHC; chlordane; dieldrin; endosulfan I and II; endosulfan sulfate; endrin and endrin aldehyde; heptachlor and heptachlor epoxide; methoxychlor; and toxaphene.
[c] Includes congeners and Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, and 1262.
[d] Includes Low Molecular Weight PAHs (naphthylene, acenaphthylene, acenaphthene, fluorine, and phenanthrene) and High Molecular Weight PAHs (fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene).
[e] Includes 2,4-dimethylphenol, 2,4,6-trichlorophenol, 2-chlorophenol, 2,4-dichlorophenol, 2-nitrophenol, 4-nitrophenol, 4-methylphenol, 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, and pentachlorophenol.
[f] Includes bis-2-ethylhexyl phthalate, butylbenzyl phthalate, di-n-butylbenzyl phthalate, diethyl phthalate, dimethyl phthalate, di-n-octyl phthalate.
[g] Includes mono-, di-, tri- and tetra-butyltin.
[h] *Standard Methods for the Examination of Water and Wastewater*, 19th Edition (APHA, 1995)
[i] SW-846. Test methods for Evaluating Solid Waste, Physical/Chemical Methods (USEPA 1986-1996)
Mass Units: kg – kilogram, g – gram, mg – milligram, µg – microgram, ng – nanogram
L – liter
ASTM – American Society for Testing & Materials
TOC – total organic carbon
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TRPH – total recoverable petroleum hydrocarbons
NA – not applicable
ICPMS – inductively coupled plasma mass spectroscopy
IR – infrared
GFAAS – graphite furnace atomic absorption spectroscopy
GC/ECD – gas chromatography/electron capture dissociation method
GC/MS SIM – gas chromatography/mass spectroscopy selective ion monitoring method
GC/FPD – gas chromatography/flame photometric detection method

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-06-1502

SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: NAUTILUS ENV'L DATE: 06/17/10

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 12.7 °C + 0.5 °C (CF) = 13.2 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☑ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs Only Initial: PS

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: PS

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: [illegible]

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☑ 6/19/10	☐
Analyses received within holding time	☑	☐	☐
pH / Residual Chlorine / Dissolved Sulfide received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑ Z

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s** ☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na** ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☑5 gal cube ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** [illegible]

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** [illegible]

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** [illegible]

Calscience Environmental Laboratories, Inc.

July 02, 2010

Nick Buhbe
Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Subject: **Calscience Work Order No.: 10-06-1649**
Client Reference: EAGLE D44

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 6/21/2010 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Danielle Gonsman
Project Manager

Calscience Environmental Laboratories, Inc.

ACCREDITED IN ACCORDANCE WITH nelac

CASE NARRATIVE

Project ID: EAGLE D44
Calscience Work Order No.: 10-06-1649

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the elutriate samples.

Sample Condition on Receipt

One seawater sample and two sediment samples were received for this project on June 17, 2010 (under CEL #10-06-1502). The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 13.2°C. The samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and stored in refrigeration units pending elutriate preparation.

Elutriate Preparation

The elutriate samples were prepared in accordance with the Standard Elutriate Testing protocol (Inland Testing Manual, 2006), as follows.

Prior to use, all labware was thoroughly cleaned in accordance with standard laboratory operating procedures (detergent wash, acid bath, and rinse with D.I. water). Approximately eight liters of site water were placed a commercial grade stainless steel mixing bowl. Using volumetric displacement, approximately two liters of sediment were added to the bowl, and, at room temperature, the mixture was stirred vigorously for 30 minutes. After mixing, the elutriate sample was allowed to settle for approximately one hour. The supernatant was then siphoned off and collected in clean glass containers. Approximately 6.0 to 7.0 liters of clear supernatant were decanted from the settled mixture.

For metals determination, a portion of the elutriate sample was filtered (using a 0.45 micron filter) into clean HDPE containers preserved with nitric acid. The remaining elutriate sample was centrifuged (for all hydrocarbon determinations) and transferred to new 1L amber glass containers. The samples were then logged into LIMS given laboratory identification numbers, and stored in refrigeration units pending chemistry analysis.

Tests Performed

Trace Metals by EPA 1640
Mercury by EPA 7470A
Chlorinated Pesticides by EPA 8081A
PCB Aroclors by EPA 8082
PCB Congeners by EPA 8270C SIM
PAHs by EPA 8270C SIM

Data Summary

Holding times

All holding time requirements were met.

Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the method blanks were found to be below reporting limits for all tests.

Laboratory Control Samples

Laboratory Control Sample (LCS/LCSD) analyses were performed for each applicable method at the required frequencies, and all parameters were within the established control limits for each method.

Matrix Spikes

Due to sample volume limitations, matrix spikes could not be performed for all analyses. Matrix spiking was performed for EPA 1640 Trace Metals on sample D44 SITE2 Elutriate, and three metals fell outside the established control limits. However, the results are released with no further action since the corresponding LCS and LCSD recoveries were within the established control limits.

Surrogates

Surrogate recoveries for all applicable tests and samples were within acceptable control limits.

Acronyms

LCS/LCSD- Laboratory Control Sample/Laboratory Control Sample Duplicate
MS/MSD- Matrix Spike/Matrix Spike Duplicate
RPD- Relative Percent Difference

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The difference is service

Client:	Nautilus Environmental	Work order:	10-06-1649
	5550 Morehouse Drive, Suite 150	Project name:	EAGLE D44
	San Diego, CA 92121-4798	Received:	06/21/10 11:30
Attn:	Nick Buhbe		

DETECTIONS SUMMARY

Client Sample ID Analyte	Result	Reporting Limit	Qualifiers	Units	Method	Extraction
D44 SITE 1 (Elutriate)						
Arsenic	**12.0**	0.300		ug/L	EPA 1640	EPA 3005A Total
Chromium	**0.258**	0.200		ug/L	EPA 1640	EPA 3005A Total
Copper	**0.466**	0.0300		ug/L	EPA 1640	EPA 3005A Total
Lead	**0.177**	0.0300		ug/L	EPA 1640	EPA 3005A Total
Nickel	**0.488**	0.0500		ug/L	EPA 1640	EPA 3005A Total
Selenium	**0.192**	0.0500		ug/L	EPA 1640	EPA 3005A Total
Silver	**0.267**	0.0500		ug/L	EPA 1640	EPA 3005A Total
Zinc	**9.60**	1.00		ug/L	EPA 1640	EPA 3005A Total
D44 SITE 2 (Elutriate)						
Arsenic	**10.1**	0.300		ug/L	EPA 1640	EPA 3005A Total
Copper	**0.381**	0.0300		ug/L	EPA 1640	EPA 3005A Total
Lead	**0.184**	0.0300		ug/L	EPA 1640	EPA 3005A Total
Nickel	**0.429**	0.0500		ug/L	EPA 1640	EPA 3005A Total
Selenium	**0.230**	0.0500		ug/L	EPA 1640	EPA 3005A Total
Silver	**0.251**	0.0500		ug/L	EPA 1640	EPA 3005A Total
Zinc	**6.93**	1.00		ug/L	EPA 1640	EPA 3005A Total
Naphthalene	**1.1**	0.20		ug/L	EPA 8270C SIM PAHs	EPA 3510C
1-Methylnaphthalene	**0.22**	0.20		ug/L	EPA 8270C SIM PAHs	EPA 3510C
Acenaphthene	**0.47**	0.20		ug/L	EPA 8270C SIM PAHs	EPA 3510C
Fluorene	**0.22**	0.20		ug/L	EPA 8270C SIM PAHs	EPA 3510C
Phenanthrene	**0.24**	0.20		ug/L	EPA 8270C SIM PAHs	EPA 3510C

Subcontracted analyses, if any, are not included in this summary.

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Analytical Report

Nautilus Environmental		Date Received:	06/21/10
5550 Morehouse Drive, Suite 150		Work Order No:	10-06-1649
San Diego, CA 92121-4798		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs
		Units:	ug/L

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE 1 (Elutriate)	**10-06-1649-1-B**	**06/19/10 12:35**	**Aqueous**	**GC/MS AAA**	**06/22/10**	**06/26/10 18:52**	**100622L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	0.20	1		Pyrene	ND	0.20	1	
2-Methylnaphthalene	ND	0.20	1		Benzo (a) Anthracene	ND	0.20	1	
1-Methylnaphthalene	ND	0.20	1		Chrysene	ND	0.20	1	
Acenaphthylene	ND	0.20	1		Benzo (k) Fluoranthene	ND	0.20	1	
Acenaphthene	ND	0.20	1		Benzo (b) Fluoranthene	ND	0.20	1	
Fluorene	ND	0.20	1		Benzo (a) Pyrene	ND	0.20	1	
Phenanthrene	ND	0.20	1		Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Anthracene	ND	0.20	1		Dibenz (a,h) Anthracene	ND	0.20	1	
Fluoranthene	ND	0.20	1		Benzo (g,h,i) Perylene	ND	0.20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	96	28-139			2-Fluorobiphenyl	93	33-144		
p-Terphenyl-d14	102	23-160							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE 2 (Elutriate)	**10-06-1649-2-B**	**06/19/10 13:10**	**Aqueous**	**GC/MS AAA**	**06/22/10**	**06/26/10 19:14**	**100622L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	1.1	0.20	1		Pyrene	ND	0.20	1	
2-Methylnaphthalene	ND	0.20	1		Benzo (a) Anthracene	ND	0.20	1	
1-Methylnaphthalene	0.22	0.20	1		Chrysene	ND	0.20	1	
Acenaphthylene	ND	0.20	1		Benzo (k) Fluoranthene	ND	0.20	1	
Acenaphthene	0.47	0.20	1		Benzo (b) Fluoranthene	ND	0.20	1	
Fluorene	0.22	0.20	1		Benzo (a) Pyrene	ND	0.20	1	
Phenanthrene	0.24	0.20	1		Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Anthracene	ND	0.20	1		Dibenz (a,h) Anthracene	ND	0.20	1	
Fluoranthene	ND	0.20	1		Benzo (g,h,i) Perylene	ND	0.20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	97	28-139			2-Fluorobiphenyl	86	33-144		
p-Terphenyl-d14	89	23-160							

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

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Analytical Report

Nautilus Environmental		Date Received:	06/21/10
5550 Morehouse Drive, Suite 150		Work Order No:	10-06-1649
San Diego, CA 92121-4798		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs
		Units:	ug/L

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-06-008-288**	**N/A**	**Aqueous**	**GC/MS AAA**	**06/22/10**	**06/23/10 20:59**	**100622L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	0.20	1		Pyrene	ND	0.20	1	
2-Methylnaphthalene	ND	0.20	1		Benzo (a) Anthracene	ND	0.20	1	
1-Methylnaphthalene	ND	0.20	1		Chrysene	ND	0.20	1	
Acenaphthylene	ND	0.20	1		Benzo (k) Fluoranthene	ND	0.20	1	
Acenaphthene	ND	0.20	1		Benzo (b) Fluoranthene	ND	0.20	1	
Fluorene	ND	0.20	1		Benzo (a) Pyrene	ND	0.20	1	
Phenanthrene	ND	0.20	1		Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Anthracene	ND	0.20	1		Dibenz (a,h) Anthracene	ND	0.20	1	
Fluoranthene	ND	0.20	1		Benzo (g,h,i) Perylene	ND	0.20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	69	28-139			2-Fluorobiphenyl	58	33-144		
p-Terphenyl-d14	68	23-160							

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

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Analytical Report

Nautilus Environmental		Date Received:	06/21/10
5550 Morehouse Drive, Suite 150		Work Order No:	10-06-1649
San Diego, CA 92121-4798		Preparation:	EPA 3510C
		Method:	EPA 8082
		Units:	ug/L

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE 1 (Elutriate)	**10-06-1649-1-A**	**06/19/10 12:35**	**Aqueous**	**GC 58**	**06/21/10**	**06/25/10 00:06**	**100621L11**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	0.57	1.14		Aroclor-1248	ND	0.57	1.14	
Aroclor-1221	ND	0.57	1.14		Aroclor-1254	ND	0.57	1.14	
Aroclor-1232	ND	0.57	1.14		Aroclor-1260	ND	0.57	1.14	
Aroclor-1242	ND	0.57	1.14						
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Decachlorobiphenyl	73	50-135			2,4,5,6-Tetrachloro-m-Xylene	90	50-135		

D44 SITE 2 (Elutriate)	**10-06-1649-2-A**	**06/19/10 13:10**	**Aqueous**	**GC 58**	**06/21/10**	**06/25/10 00:24**	**100621L11**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	0.50	1		Aroclor-1248	ND	0.50	1	
Aroclor-1221	ND	0.50	1		Aroclor-1254	ND	0.50	1	
Aroclor-1232	ND	0.50	1		Aroclor-1260	ND	0.50	1	
Aroclor-1242	ND	0.50	1						
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Decachlorobiphenyl	82	50-135			2,4,5,6-Tetrachloro-m-Xylene	106	50-135		

Method Blank	**099-12-527-185**	**N/A**	**Aqueous**	**GC 58**	**06/21/10**	**06/24/10 20:48**	**100621L11**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aroclor-1016	ND	0.50	1		Aroclor-1248	ND	0.50	1	
Aroclor-1221	ND	0.50	1		Aroclor-1254	ND	0.50	1	
Aroclor-1232	ND	0.50	1		Aroclor-1260	ND	0.50	1	
Aroclor-1242	ND	0.50	1						
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Decachlorobiphenyl	85	50-135			2,4,5,6-Tetrachloro-m-Xylene	103	50-135		

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

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Analytical Report

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Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/21/10
Work Order No: 10-06-1649
Preparation: EPA 3510C
Method: EPA 8081A
Units: ug/L

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE 1 (Elutriate)	**10-06-1649-1-A**	**06/19/10 12:35**	**Aqueous**	**GC 51**	**06/21/10**	**06/24/10 17:16**	**100621S09**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	0.057	1.14		4,4'-DDT	ND	0.057	1.14	
Gamma-BHC	ND	0.057	1.14		Endosulfan Sulfate	ND	0.057	1.14	
Beta-BHC	ND	0.057	1.14		Methoxychlor	ND	0.057	1.14	
Heptachlor	ND	0.057	1.14		Chlordane	ND	0.57	1.14	
Delta-BHC	ND	0.057	1.14		Toxaphene	ND	2.3	1.14	
Aldrin	ND	0.057	1.14		Endrin Ketone	ND	0.057	1.14	
Heptachlor Epoxide	ND	0.057	1.14		Alpha Chlordane	ND	0.057	1.14	
Endosulfan I	ND	0.057	1.14		Gamma Chlordane	ND	0.057	1.14	
Dieldrin	ND	0.057	1.14		2,4'-DDD	ND	0.057	1.14	
4,4'-DDE	ND	0.057	1.14		Trans-nonachlor	ND	0.057	1.14	
Endrin	ND	0.057	1.14		Cis-nonachlor	ND	0.057	1.14	
Endrin Aldehyde	ND	0.057	1.14		2,4'-DDE	ND	0.057	1.14	
4,4'-DDD	ND	0.057	1.14		2,4'-DDT	ND	0.057	1.14	
Endosulfan II	ND	0.057	1.14						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	50	50-135		2,4,5,6-Tetrachloro-m-Xylene	57	50-135	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE 2 (Elutriate)	**10-06-1649-2-A**	**06/19/10 13:10**	**Aqueous**	**GC 51**	**06/21/10**	**06/24/10 17:43**	**100621S09**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	0.050	1		4,4'-DDT	ND	0.050	1	
Gamma-BHC	ND	0.050	1		Endosulfan Sulfate	ND	0.050	1	
Beta-BHC	ND	0.050	1		Methoxychlor	ND	0.050	1	
Heptachlor	ND	0.050	1		Chlordane	ND	0.50	1	
Delta-BHC	ND	0.050	1		Toxaphene	ND	2.0	1	
Aldrin	ND	0.050	1		Endrin Ketone	ND	0.050	1	
Heptachlor Epoxide	ND	0.050	1		Alpha Chlordane	ND	0.050	1	
Endosulfan I	ND	0.050	1		Gamma Chlordane	ND	0.050	1	
Dieldrin	ND	0.050	1		2,4'-DDD	ND	0.050	1	
4,4'-DDE	ND	0.050	1		Trans-nonachlor	ND	0.050	1	
Endrin	ND	0.050	1		Cis-nonachlor	ND	0.050	1	
Endrin Aldehyde	ND	0.050	1		2,4'-DDE	ND	0.050	1	
4,4'-DDD	ND	0.050	1		2,4'-DDT	ND	0.050	1	
Endosulfan II	ND	0.050	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	67	50-135		2,4,5,6-Tetrachloro-m-Xylene	80	50-135	

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

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Analytical Report

Nautilus Environmental		Date Received:	06/21/10
5550 Morehouse Drive, Suite 150		Work Order No:	10-06-1649
San Diego, CA 92121-4798		Preparation:	EPA 3510C
		Method:	EPA 8081A
		Units:	ug/L

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-830-41**	**N/A**	**Aqueous**	**GC 51**	**06/21/10**	**06/24/10 16:49**	**100621S09**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	0.050	1		4,4'-DDT	ND	0.050	1	
Gamma-BHC	ND	0.050	1		Endosulfan Sulfate	0.096	0.050	1	
Beta-BHC	ND	0.050	1		Methoxychlor	0.17	0.050	1	
Heptachlor	ND	0.050	1		Chlordane	ND	0.50	1	
Delta-BHC	ND	0.050	1		Toxaphene	ND	2.0	1	
Aldrin	ND	0.050	1		Endrin Ketone	ND	0.050	1	
Heptachlor Epoxide	ND	0.050	1		Alpha Chlordane	ND	0.050	1	
Endosulfan I	ND	0.050	1		Gamma Chlordane	ND	0.050	1	
Dieldrin	ND	0.050	1		2,4'-DDD	ND	0.050	1	
4,4'-DDE	ND	0.050	1		Trans-nonachlor	ND	0.050	1	
Endrin	ND	0.050	1		Cis-nonachlor	ND	0.050	1	
Endrin Aldehyde	ND	0.050	1		2,4'-DDE	ND	0.050	1	
4,4'-DDD	ND	0.050	1		2,4'-DDT	ND	0.050	1	
Endosulfan II	ND	0.050	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	61	50-135		2,4,5,6-Tetrachloro-m-Xylene	74	50-135	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental		Date Received:	06/21/10
5550 Morehouse Drive, Suite 150		Work Order No:	10-06-1649
San Diego, CA 92121-4798		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/L

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE 1 (Elutriate)	**10-06-1649-1-C**	**06/19/10 12:35**	**Aqueous**	**GC/MS N**	**06/25/10**	**06/26/10 17:58**	**100625L14**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	0.20	1		PCB110	ND	0.20	1	
PCB195	ND	0.20	1		PCB114	ND	0.20	1	
PCB184	ND	0.20	1		PCB118	ND	0.20	1	
PCB167	ND	0.20	1		PCB119	ND	0.20	1	
PCB138/158	ND	0.40	1		PCB123	ND	0.20	1	
PCB128	ND	0.20	1		PCB126	ND	0.20	1	
PCB209	ND	0.20	1		PCB149	ND	0.20	1	
PCB018	ND	0.20	1		PCB151	ND	0.20	1	
PCB028	ND	0.20	1		PCB153	ND	0.20	1	
PCB037	ND	0.20	1		PCB156	ND	0.20	1	
PCB044	ND	0.20	1		PCB157	ND	0.20	1	
PCB049	ND	0.20	1		PCB168	ND	0.20	1	
PCB052	ND	0.20	1		PCB169	ND	0.20	1	
PCB066	ND	0.20	1		PCB170	ND	0.20	1	
PCB070	ND	0.20	1		PCB177	ND	0.20	1	
PCB074	ND	0.20	1		PCB180	ND	0.20	1	
PCB077	ND	0.20	1		PCB183	ND	0.20	1	
PCB081	ND	0.20	1		PCB187	ND	0.20	1	
PCB087	ND	0.20	1		PCB189	ND	0.20	1	
PCB099	ND	0.20	1		PCB194	ND	0.20	1	
PCB101	ND	0.20	1		PCB201	ND	0.20	1	
PCB105	ND	0.20	1		PCB206	ND	0.20	1	

Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	94	30-160	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental	Date Received:	06/21/10
5550 Morehouse Drive, Suite 150	Work Order No:	10-06-1649
San Diego, CA 92121-4798	Preparation:	EPA 3510C
	Method:	EPA 8270C SIM PCB Congeners
	Units:	ug/L

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE 2 (Elutriate)	**10-06-1649-2-C**	**06/19/10 13:10**	**Aqueous**	**GC/MS N**	**06/25/10**	**06/26/10 18:34**	**100625L14**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB128	ND	0.20	1		PCB110	ND	0.20	1	
PCB184	ND	0.20	1		PCB114	ND	0.20	1	
PCB008	ND	0.20	1		PCB118	ND	0.20	1	
PCB138/158	ND	0.40	1		PCB119	ND	0.20	1	
PCB167	ND	0.20	1		PCB123	ND	0.20	1	
PCB209	ND	0.20	1		PCB126	ND	0.20	1	
PCB195	ND	0.20	1		PCB149	ND	0.20	1	
PCB018	ND	0.20	1		PCB151	ND	0.20	1	
PCB028	ND	0.20	1		PCB153	ND	0.20	1	
PCB037	ND	0.20	1		PCB156	ND	0.20	1	
PCB044	ND	0.20	1		PCB157	ND	0.20	1	
PCB049	ND	0.20	1		PCB168	ND	0.20	1	
PCB052	ND	0.20	1		PCB169	ND	0.20	1	
PCB066	ND	0.20	1		PCB170	ND	0.20	1	
PCB070	ND	0.20	1		PCB177	ND	0.20	1	
PCB074	ND	0.20	1		PCB180	ND	0.20	1	
PCB077	ND	0.20	1		PCB183	ND	0.20	1	
PCB081	ND	0.20	1		PCB187	ND	0.20	1	
PCB087	ND	0.20	1		PCB189	ND	0.20	1	
PCB099	ND	0.20	1		PCB194	ND	0.20	1	
PCB101	ND	0.20	1		PCB201	ND	0.20	1	
PCB105	ND	0.20	1		PCB206	ND	0.20	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	99	30-160					

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/21/10
Work Order No: 10-06-1649
Preparation: EPA 3510C
Method: EPA 8270C SIM PCB Congeners
Units: ug/L

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-935-2**	**N/A**	**Aqueous**	**GC/MS N**	**06/25/10**	**06/26/10 17:22**	**100625L14**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB184	ND	0.20	1		PCB110	ND	0.20	1	
PCB008	ND	0.20	1		PCB114	ND	0.20	1	
PCB128	ND	0.20	1		PCB118	ND	0.20	1	
PCB138/158	ND	0.40	1		PCB119	ND	0.20	1	
PCB167	ND	0.20	1		PCB123	ND	0.20	1	
PCB195	ND	0.20	1		PCB126	ND	0.20	1	
PCB209	ND	0.20	1		PCB149	ND	0.20	1	
PCB018	ND	0.20	1		PCB151	ND	0.20	1	
PCB028	ND	0.20	1		PCB153	ND	0.20	1	
PCB037	ND	0.20	1		PCB156	ND	0.20	1	
PCB044	ND	0.20	1		PCB157	ND	0.20	1	
PCB049	ND	0.20	1		PCB168	ND	0.20	1	
PCB052	ND	0.20	1		PCB169	ND	0.20	1	
PCB066	ND	0.20	1		PCB170	ND	0.20	1	
PCB070	ND	0.20	1		PCB177	ND	0.20	1	
PCB074	ND	0.20	1		PCB180	ND	0.20	1	
PCB077	ND	0.20	1		PCB183	ND	0.20	1	
PCB081	ND	0.20	1		PCB187	ND	0.20	1	
PCB087	ND	0.20	1		PCB189	ND	0.20	1	
PCB099	ND	0.20	1		PCB194	ND	0.20	1	
PCB101	ND	0.20	1		PCB201	ND	0.20	1	
PCB105	ND	0.20	1		PCB206	ND	0.20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2,4,5,6-Tetrachloro-m-Xylene	93	30-160							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Nautilus Environmental	Date Received:	06/21/10
5550 Morehouse Drive, Suite 150	Work Order No:	10-06-1649
San Diego, CA 92121-4798	Preparation:	EPA 3005A Total / EPA 7470A Total
	Method:	EPA 1640 / EPA 7470A
	Units:	ug/L

Project: EAGLE D44

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
D44 SITE 1 (Elutriate)	**10-06-1649-1-F**	**06/19/10 12:35**	**Aqueous**	**ICP/MS 03**	**06/25/10**	**06/25/10 19:53**	**100625L03**

Comment(s): -Mercury analysis was performed on 06/22/10 16:58 with batch 100622L03.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.0	0.300	10		Mercury	ND	0.000500	1	
Cadmium	ND	0.0300	1		Nickel	0.488	0.0500	1	
Chromium	0.258	0.200	1		Selenium	0.192	0.0500	1	
Copper	0.466	0.0300	1		Silver	0.267	0.0500	1	
Lead	0.177	0.0300	1		Zinc	9.60	1.00	1	

D44 SITE 2 (Elutriate)	**10-06-1649-2-F**	**06/19/10 13:10**	**Aqueous**	**ICP/MS 03**	**06/25/10**	**06/25/10 20:04**	**100625L03**

Comment(s): -Mercury analysis was performed on 06/22/10 17:00 with batch 100622L03.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	10.1	0.300	10		Mercury	ND	0.000500	1	
Cadmium	ND	0.0300	1		Nickel	0.429	0.0500	1	
Chromium	ND	0.200	1		Selenium	0.230	0.0500	1	
Copper	0.381	0.0300	1		Silver	0.251	0.0500	1	
Lead	0.184	0.0300	1		Zinc	6.93	1.00	1	

Method Blank	**099-13-067-9**	**N/A**	**Aqueous**	**ICP/MS 03**	**06/25/10**	**06/25/10 17:58**	**100625L03**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.0300	1		Nickel	ND	0.0500	1	
Cadmium	ND	0.0300	1		Selenium	ND	0.0500	1	
Chromium	ND	0.200	1		Silver	ND	0.0500	1	
Copper	ND	0.0300	1		Zinc	ND	1.00	1	
Lead	ND	0.0300	1						

Method Blank	**099-04-008-4,815**	**N/A**	**Aqueous**	**Mercury**	**06/22/10**	**06/22/10 16:23**	**100622L03**

Comment(s): -Preparation/analysis for Mercury was performed by EPA 7470A.

Parameter	Result	RL	DF	Qual
Mercury	ND	0.000500	1	

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/21/10
Work Order No: 10-06-1649
Preparation: EPA 3005A Total
Method: EPA 1640

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
D44 SITE 2 (Elutriate)	**Aqueous**	**ICP/MS 03**	**06/25/10**	**06/25/10**	**100625S03**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	4X	4X	50-150	4X	0-20	Q
Cadmium	0	0	50-150	0	0-20	3
Chromium	112	110	50-150	1	0-20	
Copper	121	129	50-150	4	0-20	
Lead	108	115	50-150	5	0-20	
Nickel	99	101	50-150	1	0-20	
Selenium	101	103	50-150	1	0-20	
Silver	101	95	50-150	3	0-20	
Zinc	154	164	50-150	3	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: 06/21/10
Work Order No: 10-06-1649
Preparation: EPA 7470A Total
Method: EPA 7470A

Project EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-06-1674-3	**Aqueous**	**Mercury**	**06/22/10**	**06/22/10**	**100622S03**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	96	96	57-141	0	0-10	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1649
Preparation: EPA 3005A Total
Method: EPA 1640

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-067-9	**Aqueous**	**ICP/MS 03**	**06/25/10**	**06/25/10**	**100625L03**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	114	116	70-130	3	0-20	
Cadmium	98	98	70-130	0	0-20	
Chromium	99	100	70-130	1	0-20	
Copper	104	105	70-130	1	0-20	
Lead	102	100	70-130	2	0-20	
Nickel	95	95	70-130	0	0-20	
Selenium	98	99	70-130	1	0-20	
Silver	94	93	70-130	1	0-20	
Zinc	101	101	70-130	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1649
Preparation: EPA 7470A Total
Method: EPA 7470A

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-008-4,815	**Aqueous**	**Mercury**	**06/22/10**	**06/22/10**	**100622L03**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	99	99	85-121	0	0-10	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1649
Preparation: EPA 3510C
Method: EPA 8270C SIM PAHs

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-008-288	**Aqueous**	**GC/MS AAA**	**06/22/10**	**06/23/10**	**100622L08**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Naphthalene	68	64	21-133	2-152	6	0-25	
2-Methylnaphthalene	66	62	21-140	1-160	7	0-25	
1-Methylnaphthalene	62	59	20-140	0-160	6	0-25	
Acenaphthylene	68	53	33-145	14-164	24	0-25	
Acenaphthene	68	65	55-121	44-132	6	0-25	
Fluorene	72	68	59-121	49-131	7	0-25	
Phenanthrene	69	66	54-120	43-131	5	0-25	
Anthracene	62	52	27-133	9-151	17	0-25	
Fluoranthene	71	68	26-137	8-156	5	0-25	
Pyrene	76	71	45-129	31-143	6	0-25	
Benzo (a) Anthracene	76	69	33-143	15-161	9	0-25	
Chrysene	73	71	17-168	0-193	3	0-25	
Benzo (k) Fluoranthene	75	69	24-159	2-182	8	0-25	
Benzo (b) Fluoranthene	70	67	24-159	2-182	5	0-25	
Benzo (a) Pyrene	82	65	17-163	0-187	23	0-25	
Indeno (1,2,3-c,d) Pyrene	60	56	0-171	0-200	8	0-25	
Dibenz (a,h) Anthracene	81	76	0-219	0-256	6	0-25	
Benzo (g,h,i) Perylene	72	69	0-227	0-265	5	0-25	

Total number of LCS compounds : 18
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1649
Preparation: EPA 3510C
Method: EPA 8082

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-527-185	**Aqueous**	**GC 58**	**06/21/10**	**06/25/10**	**100621L11**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1260	110	103	50-135	6	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1649
Preparation: EPA 3510C
Method: EPA 8081A

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-830-41	**Aqueous**	**GC 51**	**06/21/10**	**06/24/10**	**100621S09**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Alpha-BHC	68	67	50-135	36-149	2	0-25	
Gamma-BHC	72	73	50-135	36-149	2	0-25	
Beta-BHC	65	70	50-135	36-149	8	0-25	
Heptachlor	70	71	50-135	36-149	2	0-25	
Delta-BHC	68	74	50-135	36-149	9	0-25	
Aldrin	65	68	50-135	36-149	3	0-25	
Heptachlor Epoxide	69	70	50-135	36-149	2	0-25	
Endosulfan I	68	70	50-135	36-149	2	0-25	
Dieldrin	48	49	50-135	36-149	1	0-25	ME
4,4'-DDE	65	70	50-135	36-149	6	0-25	
Endrin	67	69	50-135	36-149	3	0-25	
Endrin Aldehyde	62	63	50-135	36-149	2	0-25	
4,4'-DDD	57	60	50-135	36-149	4	0-25	
Endosulfan II	64	65	50-135	36-149	2	0-25	
4,4'-DDT	82	85	50-135	36-149	4	0-25	
Endosulfan Sulfate	63	64	50-135	36-149	1	0-25	
Methoxychlor	73	75	50-135	36-149	2	0-25	
Endrin Ketone	66	62	50-135	36-149	7	0-25	
Alpha Chlordane	68	71	50-135	36-149	4	0-25	
Gamma Chlordane	68	70	50-135	36-149	4	0-25	

Total number of LCS compounds : 20
Total number of ME compounds : 1
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Date Received: N/A
Work Order No: 10-06-1649
Preparation: EPA 3510C
Method: EPA 8270C SIM PCB Congeners

Project: EAGLE D44

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-935-2	**Aqueous**	**GC/MS N**	**06/25/10**	**06/26/10**	**100625L14**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
PCB008	106	115	30-160	8-182	8	0-50	
PCB195	69	82	30-160	8-182	18	0-50	
PCB128	81	90	30-160	8-182	10	0-50	
PCB209	59	74	30-160	8-182	22	0-50	
PCB018	108	115	30-160	8-182	7	0-50	
PCB028	109	118	30-160	8-182	8	0-50	
PCB044	105	112	30-160	8-182	7	0-50	
PCB052	101	109	30-160	8-182	7	0-50	
PCB066	107	113	30-160	8-182	6	0-50	
PCB077	97	102	30-160	8-182	5	0-50	
PCB101	98	107	30-160	8-182	8	0-50	
PCB105	89	96	30-160	8-182	7	0-50	
PCB118	94	100	30-160	8-182	6	0-50	
PCB126	85	91	30-160	8-182	7	0-50	
PCB153	82	91	30-160	8-182	11	0-50	
PCB170	72	85	30-160	8-182	15	0-50	
PCB180	70	82	30-160	8-182	15	0-50	
PCB187	72	83	30-160	8-182	14	0-50	
PCB206	63	78	30-160	8-182	22	0-50	

Total number of LCS compounds : 19
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 10-06-1649

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
E	Concentration exceeds the calibration range.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture.

Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 · FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 6/19/2010

PAGE: 1 OF 2

LABORATORY CLIENT: Nautilus Environmental

ADDRESS: 5550 Morehouse Drive

CITY: San Diegoc CA 92121

TEL: 619-985-9111

E-MAIL: nick@nautilusenvironmental.com

CLIENT PROJECT NAME / NUMBER: EAGLE D44

PROJECT CONTACT: Nick Buhbe

SAMPLER(S): (Print) Nick Buhbe

P.O. NO.:

Temp Blank.:

LAB USE ONLY: 06-1649

TURNAROUND TIME

[ ] SAME DAY [ ] 24 HR [ ] 48HR [ ] 72 HR [x] Standard

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

[ ] RWQCB REPORTING [ ] ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MAT-RIX	NO. OF CONT.	See Attached Elutriate Analyses	COMMENTS
1	D44 SITE 1	Elutriate	6/19/2010	12:35	sw	6	x	
2	D44 SITE 2	Elutriate	6/19/2010	13:10	sw	6	x	

Relinquished by: (Signature) Danielle CEL	Received by: (Signature)	Date: 6/21/10	Time: 11:30
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

→ plus Sand Equivalent, Atterberg limits, max Particle Size, and % passing #200 sieve

Table 6. Sample Analysis Methods and Target Reporting Limits.

Parameter	Method	Procedure	Sediment Target Reporting Limits[a]	Elutriate Target Reporting Limits[a]	Tissue Target Reporting Limits[a]
Conventional					
Grain Size	ASTM D4464M	Sieve/Optical	0.1 g	NA	NA
Percent Solids	SM 2540B[h]	Gravimetric	0.1 percent	NA	0.1 percent
TOC	USEPA 9060[i]	Combustion	0.1 percent	NA	NA
Total Sulfides	USEPA 376.2M[h]	Titrametric	0.1 mg/kg	NA	NA
Dissolved Sulfides	USEPA 376.2M[h]	Titrametric	0.1 mg/kg	NA	NA
Metals					
Arsenic (As)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.5 mg/kg
Cadmium (Cd)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Chromium (Cr)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.2 mg/kg
Copper (Cu)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.3 mg/kg
Lead (Pb)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Mercury (Hg)	USEPA 7471A[i]	GFAAS	0.02 mg/kg	0.001 mg/L	0.02 mg/kg
Nickel (Ni)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Selenium (Se)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.5 mg/kg
Silver (Ag)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Zinc (Zn)	USEPA 6020[i]	ICP-MS	1.0 mg/kg	0.005 mg/L	2.0 mg/kg
Organics					
TRPH	USEPA 418.1M[h]	IR Spectroscopy	1.0 mg/kg	NA	NA
Pesticides[b]	USEPA 8081A[i]	GC/ECD	2-20 µg/kg	0.1-2 µg/L	5 µg/kg
PCBs[c]	USEPA 8082[i]	GC/ECD	10 µg/kg	1 µg/L	5-10 µg/kg
PAHs[d]	USEPA 8270C[i]	GC/MS SIM	20 µg/kg	1 µg/L	10 µg/kg
Phthalates[e]	USEPA 8270C[i]	GC/MS SIM	20 µg/kg	NA	NA
Phenols[f]	USEPA 8270C[i]	GC/MS SIM	20-100 µg/kg	NA	NA
Organotins[g]	Krone et al. 1989	GC/FPD	1 µg/kg	NA	NA

[a] Target reporting limits provided by Calscience Environmental Laboratories
[b] Includes 2,4- and 4,4- isomers of DDD, DDE, and DDT; α-, β-, δ-, and γ-BHC; chlordane; dieldrin; endosulfan I and II; endosulfan sulfate; endrin and endrin aldehyde; heptachlor and heptachlor epoxide; methoxychlor; and toxaphene.
[c] Includes congeners and Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, and 1262.
[d] Includes Low Molecular Weight PAHs (naphthylene, acenaphthylene, acenaphthene, fluorine, and phenanthrene) and High Molecular Weight PAHs (fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene).
[e] Includes 2,4-dimethylphenol, 2,4,6-trichlorophenol, 2-chlorophenol, 2,4-dichlorophenol, 2-nitrophenol, 4-nitrophenol, 4-methylphenol, 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, and pentachlorophenol.
[f] Includes bis-2-ethylhexyl phthalate, butylbenzyl phthalate, di-n-butylbenzyl phthalate, diethyl phthalate, dimethyl phthalate, di-n-octyl phthalate.
[g] Includes mono-, di-, tri- and tetra-butyltin.
[h] *Standard Methods for the Examination of Water and Wastewater*, 19th Edition (APHA, 1995)
[i] SW-846. Test methods for Evaluating Solid Waste, Physical/Chemical Methods (USEPA 1986-1996)

Mass Units: kg – kilogram, g – gram, mg – milligram, µg – microgram, ng – nanogram
L – liter
ASTM – American Society for Testing & Materials
TOC – total organic carbon
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TRPH – total recoverable petroleum hydrocarbons
NA – not applicable
ICPMS – inductively coupled plasma mass spectroscopy
IR – infrared
GFAAS – graphite furnace atomic absorption spectroscopy
GC/ECD – gas chromatography/electron capture dissociation method
GC/MS SIM – gas chromatography/mass spectroscopy selective ion monitoring method
GC/FPD – gas chromatography/flame photometric detection method

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-06-1649

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Nautilus Environmental DATE: 06/21/10

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 3.3 °C + 0.5 °C (CF) = 3.8 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs Only Initial: D.L

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: D.L

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: D.L

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Residual Chlorine / Dissolved Sulfide received within 24 hours	☑ DS 6/21/10	☐	☑
Proper preservation noted on COC or sample container	☑ DS 6/21/10	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB[4] ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☑250PB[2] ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** D.L

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** DS

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** D.L

Calscience
Environmental
Laboratories, Inc.

Supplemental Report 1

July 14, 2010

Subcontract analyses are reported as a stand-alone report.

Nick Buhbe
Nautilus Environmental
5550 Morehouse Drive, Suite 150
San Diego, CA 92121-4798

Subject: **Calscience Work Order No.: 10-06-1502**
Client Reference: EAGLE D44

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 6/17/2010 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Danielle Gonsman
Project Manager

Petroleum Services Division
3437 Landco Dr.
Bakersfield, California 93308
Tel: 661-325-5657
Fax: 661-325-5808
www.corelab.com

Core Lab
RESERVOIR OPTIMIZATION

March 24, 2010

Danielle Gonsman
CalScience Environmental Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92641-1432

Re: Physical Properties Analyses
Project: 10-06-1502
CL File No: 410056EN

Dear Ms. Gonsman:

Enclosed are final Physical Properties results for samples submitted from your Project # 10-06-1502. An electronic version of the report has previously been sent to your attention.

Appropriate ASTM, EPA or API methodologies were used for this project and SOP's are available on request. The sample was used up during the course of the testing.

We appreciate the opportunity to be of service to CalScience Environmental Laboratories, Inc. and trust these data will prove beneficial in the development of this project. Please do not hesitate to contact us (661-325-5657) if you have any questions regarding these results, or if we can be of any additional service.

Sincerely,
Core Laboratories

Larry Kunkel
Area Manager

Encl.

Core Lab
RESERVOIR OPTIMIZATION

PASS #200 SCREEN DATA

(Methodology: ASTM D1140)

PETROLEUM SERVICES

Calscience Environmental Laboratories, Inc. Core Lab File No: 410056EN

Project Name: N/A
Project No: 10-06-1502

Sample ID.	Depth ft.	Pass #200 Mesh percent
D44 Site1	N/A	70
D44 Site2	N/A	72

Core Lab
RESERVOIR OPTIMIZATION

ATTERBERG LIMITS DATA

(Fine Fraction <#40 Sieve)

PETROLEUM SERVICES

Calscience Environmental Laboratories, Inc. Core Lab File No: 410056EN

Project Name: N/A
Project No: 10-06-1502

Sample ID.	Depth ft.	Atterberg Limits - ASTM D4318			USCS / Plasticity Chart Symbol (Fines: <#40 Sieve)
		Liquid Limit	Plastic Limit	Plasticity Index	
D44 Site1	N/A	41	23	18	CL
D44 Site2	N/A	40	23	17	CL

Core Lab
RESERVOIR OPTIMIZATION

SAND EQUIVALENT DATA

(Methodology: CT 217, ASTM D2419)

PETROLEUM SERVICES

Calscience Environmental Laboratories, Inc. Core Lab File No: 410056EN

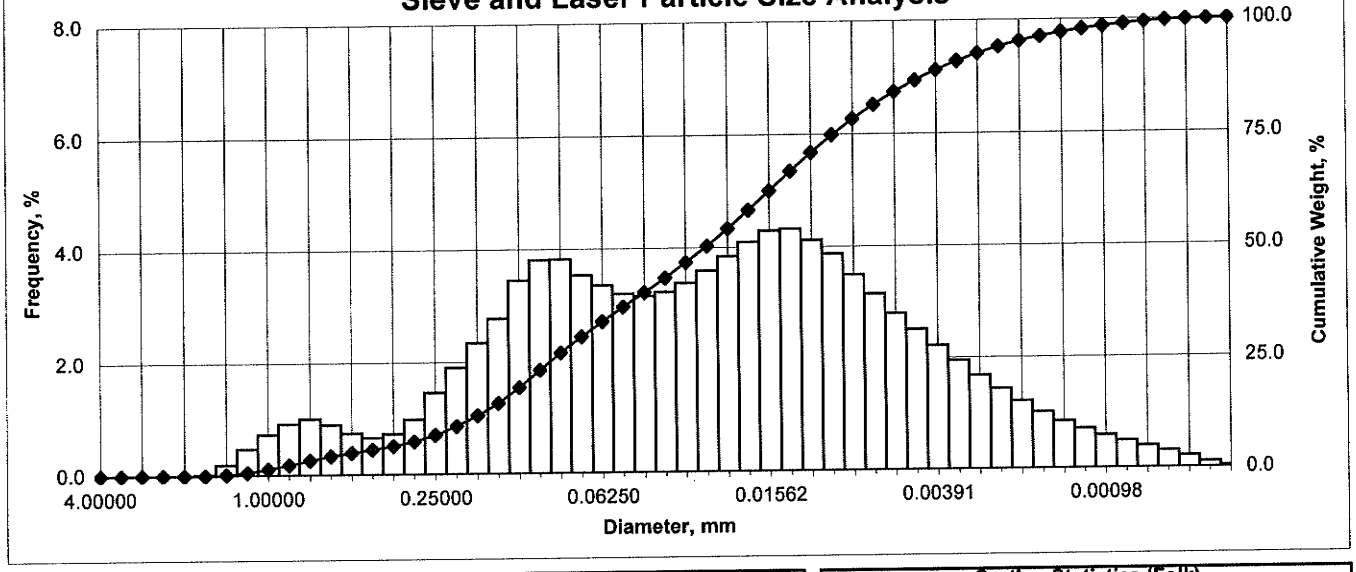
Project Name: N/A
Project No: 10-06-1502

Sample ID.	Depth ft.	Sand Equivalent, percent
D44 Site1	N/A	5
D44 Site2	N/A	4

Company : Calscience Environmental Laboratories, Inc.
Proj. No. : 10-06-1502

CL File No. : 57111-410056EN
Sample ID : D44 Site1

Sieve and Laser Particle Size Analysis



Particle Size Distribution	Diameter				Weight %	
	[US Mesh]	[in.]	[mm]	[ϕ]	[Incl.]	[Cum.]
Granule	5	0.157480	4.00000	-2.00	0.000	0.00
	6	0.132425	3.36359	-1.75	0.000	0.00
	7	0.111355	2.82843	-1.50	0.000	0.00
	8	0.093638	2.37841	-1.25	0.000	0.00
	10	0.078740	2.00000	-1.00	0.000	0.00
V Crse Sand	12	0.066212	1.68179	-0.75	0.016	0.02
	14	0.055678	1.41421	-0.50	0.193	0.21
	16	0.046819	1.18921	-0.25	0.476	0.68
	18	0.039370	1.00000	0.00	0.732	1.42
Coarse Sand	20	0.033106	0.84090	0.25	0.920	2.34
	25	0.027839	0.70711	0.50	1.008	3.35
	30	0.023410	0.59460	0.75	0.900	4.25
	35	0.019685	0.50000	1.00	0.747	4.99
Medium Sand	40	0.016553	0.42045	1.25	0.662	5.65
	45	0.013919	0.35355	1.50	0.730	6.38
	50	0.011705	0.29730	1.75	0.986	7.37
	60	0.009843	0.25000	2.00	1.460	8.83
Fine Sand	70	0.008277	0.21022	2.25	1.902	10.73
	80	0.006960	0.17678	2.50	2.344	13.08
	100	0.005852	0.14865	2.75	2.773	15.85
	120	0.004921	0.12500	3.00	3.446	19.29
V. Fine Sand	140	0.004138	0.10511	3.25	3.806	23.10
	170	0.003480	0.08839	3.50	3.817	26.92
	200	0.002926	0.07433	3.75	3.529	30.44
Silt	230	0.002461	0.06250	4.00	3.347	33.79
	270	0.002069	0.05256	4.25	3.191	36.98
	325	0.001740	0.04419	4.50	3.146	40.13
	400	0.001463	0.03716	4.75	3.215	43.34
	450	0.001230	0.03125	5.00	3.375	46.72
	500	0.001035	0.02628	5.25	3.587	50.31
	635	0.000870	0.02210	5.50	3.841	54.15
		0.000732	0.01858	5.75	4.091	58.24
		0.000615	0.01562	6.00	4.289	62.53
		0.000517	0.01314	6.25	4.317	66.85
		0.000435	0.01105	6.50	4.116	70.96
		0.000366	0.00929	6.75	3.865	74.83
		0.000308	0.00781	7.00	3.492	78.32
		0.000259	0.00657	7.25	3.148	81.47
		0.000217	0.00552	7.50	2.797	84.26
		0.000183	0.00465	7.75	2.510	86.77
		0.000154	0.00391	8.00	2.217	88.99
Clay		0.000129	0.00328	8.25	1.946	90.94
		0.000109	0.00276	8.50	1.680	92.62
		0.000091	0.00232	8.75	1.438	94.05
		0.000077	0.00195	9.00	1.215	95.27
		0.000065	0.00164	9.25	1.017	96.29
		0.000054	0.00138	9.50	0.849	97.14
		0.000046	0.00116	9.75	0.711	97.85
		0.000038	0.00098	10.00	0.593	98.44
		0.000032	0.00082	10.25	0.495	98.93
		0.000027	0.00069	10.50	0.401	99.34
		0.000023	0.00058	10.75	0.309	99.64
		0.000019	0.00049	11.00	0.214	99.86
		0.000016	0.00041	11.25	0.108	99.97
		0.000015	0.00038	11.50	0.034	100.00

Sorting Statistics (Folk)			
Parameter	Trask	Inman	Folk
Median	Silt sized		
(in)	0.0010	0.0010	0.0010
(mm)	0.0266	0.0266	0.0266
Mean	Silt sized		
(in)	0.0021	0.0011	0.0011
(mm)	0.0528	0.0288	0.0280
Sorting	V. Poor		
	3.234	0.195	2.380
Skewness	Near symmetrical		
	1.119	-0.110	-0.056
Kurtosis	Mesokurtic		
	0.199	0.684	0.960

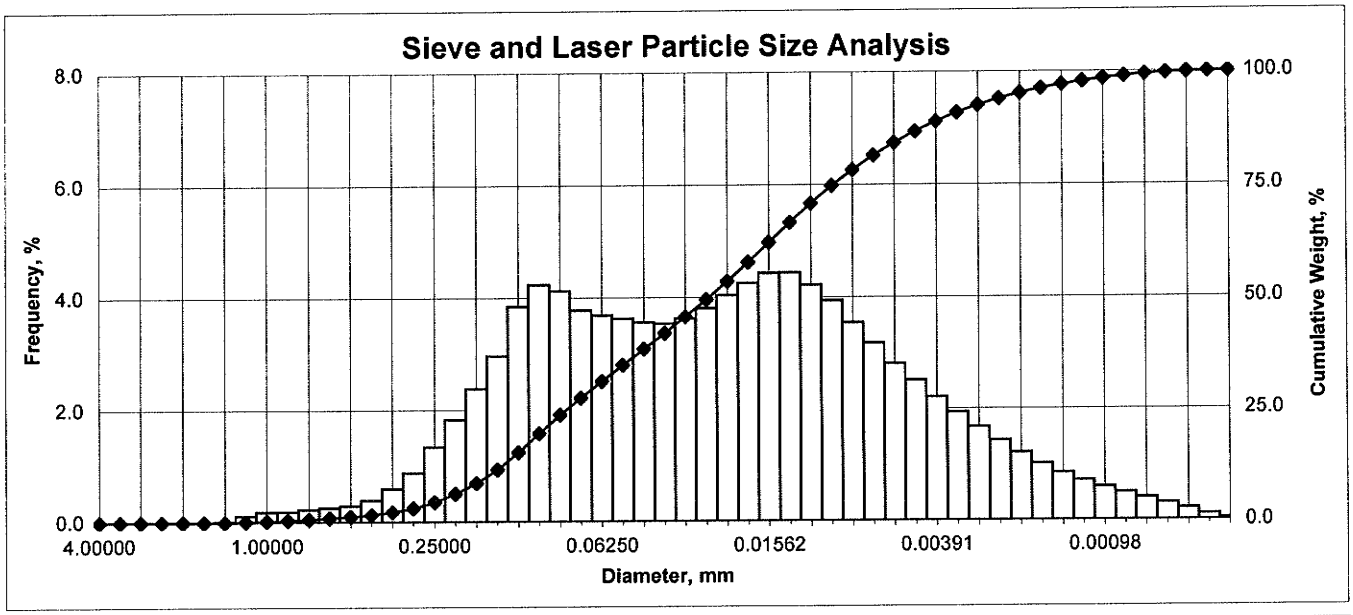
Component Percentages				
Gravel	Sand	Silt	Clay	Silt + Clay
0.00	33.79	55.20	11.01	66.21

Percentile [Weight, %]	Particle Diameter [in.]	[mm]	[phi]
5	0.0196	0.4985	1.0044
10	0.0088	0.2229	2.1656
16	0.0058	0.1473	2.7630
25	0.0038	0.0963	3.3761
40	0.0017	0.0444	4.4935
50	0.0010	0.0266	5.2313
75	0.0004	0.0092	6.7627
84	0.0002	0.0056	7.4749
90	0.0001	0.0036	8.1255
95	0.0001	0.0020	8.9405

** Distribution pattern precludes calculation of these statistical parameters.

Company : Calscience Environmental Laboratories, Inc.
Proj. No. : 10-06-1502

CL File No. : 57111-410056EN
Sample ID : d44 Site2



Particle Size Distribution						
	Diameter				Weight %	
	[US Mesh]	[in.]	[mm]	[ϕ]	[Incl.]	[Cum.]
Granule	5	0.157480	4.00000	-2.00	0.000	0.00
	6	0.132425	3.36359	-1.75	0.000	0.00
	7	0.111355	2.82843	-1.50	0.000	0.00
	8	0.093638	2.37841	-1.25	0.000	0.00
	10	0.078740	2.00000	-1.00	0.000	0.00
V Crse Sand	12	0.066212	1.68179	-0.75	0.000	0.00
	14	0.055678	1.41421	-0.50	0.013	0.01
	16	0.046819	1.18921	-0.25	0.115	0.13
	18	0.039370	1.00000	0.00	0.189	0.32
Coarse Sand	20	0.033106	0.84090	0.25	0.190	0.51
	25	0.027839	0.70711	0.50	0.231	0.74
	30	0.023410	0.59460	0.75	0.263	1.00
	35	0.019685	0.50000	1.00	0.294	1.29
Medium Sand	40	0.016553	0.42045	1.25	0.391	1.69
	45	0.013919	0.35355	1.50	0.599	2.28
	50	0.011705	0.29730	1.75	0.880	3.16
	60	0.009843	0.25000	2.00	1.341	4.51
Fine Sand	70	0.008277	0.21022	2.25	1.826	6.33
	80	0.006960	0.17678	2.50	2.380	8.71
	100	0.005852	0.14865	2.75	2.964	11.68
	120	0.004921	0.12500	3.00	3.844	15.52
V. Fine Sand	140	0.004138	0.10511	3.25	4.231	19.75
	170	0.003480	0.08839	3.50	4.120	23.87
	200	0.002926	0.07433	3.75	3.777	27.65
Silt	230	0.002461	0.06250	4.00	3.685	31.33
	270	0.002069	0.05256	4.25	3.622	34.96
	325	0.001740	0.04419	4.50	3.556	38.51
	400	0.001463	0.03716	4.75	3.533	42.04
	450	0.001230	0.03125	5.00	3.620	45.66
	500	0.001035	0.02628	5.25	3.803	49.47
	635	0.000870	0.02210	5.50	4.033	53.50
		0.000732	0.01858	5.75	4.251	57.75
		0.000615	0.01562	6.00	4.426	62.18
		0.000517	0.01314	6.25	4.435	66.61
		0.000435	0.01105	6.50	4.212	70.82
		0.000366	0.00929	6.75	3.934	74.76
		0.000308	0.00781	7.00	3.539	78.30
		0.000259	0.00657	7.25	3.174	81.47
		0.000217	0.00552	7.50	2.807	84.28
		0.000183	0.00465	7.75	2.508	86.79
		0.000154	0.00391	8.00	2.209	88.99
Clay		0.000129	0.00328	8.25	1.936	90.93
		0.000109	0.00276	8.50	1.671	92.60
		0.000091	0.00232	8.75	1.432	94.03
		0.000077	0.00195	9.00	1.213	95.25
		0.000065	0.00164	9.25	1.018	96.26
		0.000054	0.00138	9.50	0.852	97.12
		0.000046	0.00116	9.75	0.715	97.83
		0.000038	0.00098	10.00	0.597	98.43
		0.000032	0.00082	10.25	0.499	98.93
		0.000027	0.00069	10.50	0.404	99.33
		0.000023	0.00058	10.75	0.311	99.64
		0.000019	0.00049	11.00	0.216	99.86
		0.000016	0.00041	11.25	0.109	99.97
		0.000015	0.00038	11.50	0.034	100.00

Sorting Statistics (Folk)			
Parameter	Trask	Inman	Folk
Median	Silt sized		
(In)	0.0010	0.0010	0.0010
(mm)	0.0256	0.0256	0.0256
Mean	Silt sized		
(In)	0.0018	0.0010	0.0010
(mm)	0.0465	0.0262	0.0260
Sorting	V. Poor		
	3.021	0.214	2.150
Skewness	Near symmetrical		
	1.082	0.103	0.026
Kurtosis	Platykurtic		
	0.235	0.544	0.882

Component Percentages				
Gravel	Sand	Silt	Clay	Silt + Clay
0.00	31.33	57.66	11.01	68.67

Percentile [Weight, %]	Particle Diameter		
	[in.]	[mm]	[phi]
5	0.0093	0.2359	2.0837
10	0.0064	0.1625	2.6217
16	0.0048	0.1224	3.0304
25	0.0033	0.0838	3.5770
40	0.0016	0.0410	4.6084
50	0.0010	0.0256	5.2860
75	0.0004	0.0092	6.7670
84	0.0002	0.0056	7.4736
90	0.0001	0.0036	8.1257
95	0.0001	0.0020	8.9456

** Distribution pattern precludes calculation of these statistical parameters.

SIEVE and LASER PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

Core Lab RESERVOIR OPTIMIZATION

Petroleum Services

Calscience Environmental Laboratories, Inc.

Core Lab File No : 410056EN

Project Name: N/A
Project No: 10-06-1502

Sample ID	Grain Size Description (Mean from Folk)	Median Grain Size, mm	Component Percentages								Silt & Clay
			Gravel	Sand Size						Clay	
				VCoarse	Coarse	Medium	Fine	VFine	Silt		
D44 Site1	Silt	0.03	0.00	1.42	3.57	3.84	10.46	14.50	55.20	11.01	66.2
D44 Site2	Silt	0.03	0.00	0.32	0.98	3.21	11.01	15.81	57.66	11.01	68.7

Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 . FAX: (714) 894-7501

TO: CORE

CHAIN OF CUSTODY RECORD

DATE: 06/21/10

PAGE: 1 OF 1

LABORATORY CLIENT: Calscience Environmental Laboratories, Inc.

ADDRESS: 7440 Lincoln Way

CITY: Garden Grove, CA 92841-1427

TEL: (714) 895-5494

E-MAIL: dgonsman@calscience.com

CLIENT PROJECT NAME / NUMBER: 10-06-1502

PROJECT CONTACT: Danielle Gonsman

SAMPLER(S): (PRINT)

P.O. NO.: 10-06-1502

TEMP BLANK: C

LAB USE ONLY: 410056EN

TURNAROUND TIME

___SAME DAY ___24 HR ___48HR ___72 HR ___5 DAYS X STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Particle Size (ASTM D422/4464)	%Passing #200 Sieve (ASTM D1140)	Sand Equivalent (CT 217)	Atterberg Limits (ASTM D4318)
	D44 SITE1	06/17/10	1700	SED	1 BAG	X	X	X	X
	D44 SITE2	06/17/10	1715	SED	1 BAG	X	X	X	X

Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:
(CALSCIENCE)	G&O 5144033384	6/22/10	1600
Relinquished by: (Signature)	Received by / Affiliation: (Signature) CoreLab Jeff Smith	Date: 6/23/10	Time: 900
Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:

Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

Date 17 JUN 2010

Page 1 of 1

LABORATORY CLIENT: NAUTILUS ENVIRONMENTAL

ADDRESS: 5550 MOREHOUSE DRIVE

CITY: SAN DIEGO STATE: CA ZIP: 92121

TEL: 619.985.9111 E-MAIL: nick@nautilusenvironmental.com

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD 10-DAY

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING FORMS ☐ COELT EDF ☐ _____

SPECIAL INSTRUCTIONS:
⊛ - for SET preparation
Analyses referenced here are for bulk sediment.
Standard Elutriate Test also requested w/ analyses of metals, PAHs, PCBs, and Pesticides (see attached)

CLIENT PROJECT NAME / NUMBER: EAGLE D44

P.O. NO.:

PROJECT CONTACT: NICK BUTLER

LAB USE ONLY: 06-1502

SAMPLER(S): (PRINT) NICK BUTLER

COELT LOG CODE: ☐☐☐☐

COOLER RECEIPT TEMP= _____ °C

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	FIELD POINT NAME (FOR COELT EDF)	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH(g) TRPH	TPH (d) or (C6-C36) or (C6-C44)	TPHT % SOLIDS, TOC	BTEX / MTBE (8260B) or (____)	VOCs (8260B)	Oxygenates (8260B)	Encore Prep (5035)	SVOCs (8270C) PAHs, Phthalates	Pesticides (8081A)	PCBs (8082)	PNAs (8310) or (8270C)	~~Metals (6010B/7471A)~~ See attached	Cr(VI) [7196A or 7199 or 218.6]	VOCs (TO-14A) or (TO-15)	TPH (g) [TO-3]+ ____	Geotech. (see attached)	Organotins	Total/Dissolved Sulfides
1	EH2O ⊛		17JUN10	1615	SEA H2O	2																		
2	D44SITE1		17JUN10	1700	SED	4	X		X					X	X	X	X						X	X	X
3	D44SITE2		17JUN10	1715	SED	4	X		X					X	X	X	X						X	X	X

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 6/17/10	Time: 1847
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

05/01/07 Revision

Q&Q Graphic 714-898-9702

GeoTechnical Analyses plus Sand Equivalent, Atterberg limits, max Particle Size, and % passing #200 sieve

Table 6. Sample Analysis Methods and Target Reporting Limits.

Parameter	Method	Procedure	Sediment Target Reporting Limits[a]	Elutriate Target Reporting Limits[a]	Tissue Target Reporting Limits[a]
Conventional					
Grain Size	ASTM D4464M	Sieve/Optical	0.1 g	NA	NA
Percent Solids	SM 2540B[h]	Gravimetric	0.1 percent	NA	0.1 percent
TOC	USEPA 9060[i]	Combustion	0.1 percent	NA	NA
Total Sulfides	USEPA 376.2M[h]	Titrametric	0.1 mg/kg	NA	NA
Dissolved Sulfides	USEPA 376.2M[h]	Titrametric	0.1 mg/kg	NA	NA
Metals					
Arsenic (As)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.5 mg/kg
Cadmium (Cd)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Chromium (Cr)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.2 mg/kg
Copper (Cu)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.3 mg/kg
Lead (Pb)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Mercury (Hg)	USEPA 7471A[i]	GFAAS	0.02 mg/kg	0.001 mg/L	0.02 mg/kg
Nickel (Ni)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Selenium (Se)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.5 mg/kg
Silver (Ag)	USEPA 6020[i]	ICP-MS	0.1 mg/kg	0.001 mg/L	0.1 mg/kg
Zinc (Zn)	USEPA 6020[i]	ICP-MS	1.0 mg/kg	0.005 mg/L	2.0 mg/kg
Organics					
TRPH	USEPA 418.1M[h]	IR Spectroscopy	1.0 mg/kg	NA	NA
Pesticides[b]	USEPA 8081A[i]	GC/ECD	2-20 µg/kg	0.1-2 µg/L	5 µg/kg
PCBs[c]	USEPA 8082[i]	GC/ECD	10 µg/kg	1 µg/L	5-10 µg/kg
PAHs[d]	USEPA 8270C[i]	GC/MS SIM	20 µg/kg	1 µg/L	10 µg/kg
Phthalates[e]	USEPA 8270C[i]	GC/MS SIM	20 µg/kg	NA	NA
Phenols[f]	USEPA 8270C[i]	GC/MS SIM	20-100 µg/kg	NA	NA
Organotins[g]	Krone et al. 1989	GC/FPD	1 µg/kg	NA	NA

[a] Target reporting limits provided by Calscience Environmental Laboratories
[b] Includes 2,4- and 4,4- isomers of DDD, DDE, and DDT; α–, β–, δ–, and γ-BHC; chlordane; dieldrin; endosulfan I and II; endosulfan sulfate; endrin and endrin aldehyde; heptachlor and heptachlor epoxide; methoxychlor; and toxaphene.
[c] Includes congeners and Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, and 1262.
[d] Includes Low Molecular Weight PAHs (naphthylene, acenaphthylene, acenaphthene, fluorine, and phenanthrene) and High Molecular Weight PAHs (fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene).
[e] Includes 2,4-dimethylphenol, 2,4,6-trichlorophenol, 2-chlorophenol, 2,4-dichlorophenol, 2-nitrophenol, 4-nitrophenol, 4-methylphenol, 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, and pentachlorophenol.
[f] Includes bis-2-ethylhexyl phthalate, butylbenzyl phthalate, di-n-butylbenzyl phthalate, diethyl phthalate, dimethyl phthalate, di-n-octyl phthalate.
[g] Includes mono-, di-, tri- and tetra-butyltin.
[h] *Standard Methods for the Examination of Water and Wastewater*, 19th Edition (APHA, 1995)
[i] SW-846. Test methods for Evaluating Solid Waste, Physical/Chemical Methods (USEPA 1986-1996)
Mass Units: kg – kilogram, g – gram, mg – milligram, µg – microgram, ng – nanogram
L – liter
ASTM – American Society for Testing & Materials
TOC – total organic carbon
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TRPH – total recoverable petroleum hydrocarbons
NA – not applicable
ICPMS – inductively coupled plasma mass spectroscopy
IR – infrared
GFAAS – graphite furnace atomic absorption spectroscopy
GC/ECD – gas chromatography/electron capture dissociation method
GC/MS SIM – gas chromatography/mass spectroscopy selective ion monitoring method
GC/FPD – gas chromatography/flame photometric detection method

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-06-1502

SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: NAUTILUS ENV'L

DATE: 06/17/10

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 12.7 °C + 0.5 °C (CF) = 13.2 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☑ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs Only Initial: PS

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: PS

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: [illegible]

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☑ @ 6/19/10	☐
Analyses received within holding time	☑	☐	☐
pH / Residual Chlorine / Dissolved Sulfide received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑ Z

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s** ☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na** ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☑5 gal cube ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** [illegible]

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** [illegible]

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** [illegible]