2003	Metals	Detection Limit (mg/l)	MW 1	MW 2	MW 3	MW 4
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.005	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
2003	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	0.5	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262	0.5	ND	ND	ND	ND
2002	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	0.115	ND	ND
2002	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262	0.5	ND	ND	ND	ND
2001	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND

2001	PCBs	Detection Limit (ug/l)	MW 1	MW 2	MW 3	MW 4
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262	0.5	ND	ND	ND	ND
2000	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
2000	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	1	ND	ND	ND	ND
	Aroclor 1221	1	ND	ND	ND	ND
	Aroclor 1232	1	ND	ND	ND	ND
	Aroclor 1242	1	ND	ND	ND	ND
	Aroclor 1248	1	ND	ND	ND	ND
	Aroclor 1254	1	ND	ND	ND	ND
	Aroclor 1260	1	ND	ND	ND	ND
	Aroclor 1262	1	ND	ND	ND	ND
1999	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1999	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262					

1998 (June)	Metals	Detection Limit (mg/l)	MW 1	MW 2	MW 3	MW 4
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	0.07	0.08	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	0.08	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1998 (July)	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND		
	Chromium	0.05	ND	ND		
	Copper	0.10	ND	ND		
	Mercury	0.002	ND	ND		
	Nickel	0.05	ND	ND		
	Lead	0.05	ND	ND		
	Zinc	0.10	ND	ND		
1998	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016					
	Aroclor 1221					
	Aroclor 1232					
	Aroclor 1242					
	Aroclor 1248					
	Aroclor 1254					
	Aroclor 1260					
	Aroclor 1262					
1997	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.10	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1997	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262					

1996 (June)	Metals	Detection Limit (mg/l)	MW 1	MW 2	MW 3	MW 4
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.10	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1996 (Dec.)	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	0.10	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.10	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1996	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262					
1995 (May)	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	0.17	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1995 (June)	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01		ND		
	Chromium	0.05		ND		
	Copper	0.10				
	Mercury	0.002				
	Nickel	0.05				
	Lead	0.05				
	Zinc	0.10				

1995 (Dec.)	Metals	Detection Limit (mg/l)	MW 1	MW 2	MW 3	MW 4
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.10	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1995	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262					
1994 (March)	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1994 (June)	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1994 (Sept.)	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	0.78	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	0.46	ND	ND

1994 (Dec.)	Metals	Detection Limit (mg/l)	MW 1	MW 2	MW 3	MW 4
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1994	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262					
1993	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	ND
1993 (March)	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND		ND	ND
	Aroclor 1221	2	ND		ND	ND
	Aroclor 1232	0.5	ND		ND	ND
	Aroclor 1242	0.5	ND		ND	ND
	Aroclor 1248	0.5	ND		ND	ND
	Aroclor 1254	0.5	ND		ND	ND
	Aroclor 1260	0.5	ND		ND	ND
	Aroclor 1262					
1993 (June)	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262					

1993 (Sept.)	PCBs	Detection Limit (ug/l)	MW 1	MW 2	MW 3	MW 4
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262					
1993 (Dec.)	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262					
1992	**Metals**	**Detection Limit (mg/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Cadmium	0.01	ND	ND	ND	ND
	Chromium	0.05	ND	ND	ND	ND
	Copper	0.10	ND	ND	ND	ND
	Mercury	0.002	ND	ND	ND	ND
	Nickel	0.05	ND	ND	ND	ND
	Lead	0.05	ND	ND	ND	ND
	Zinc	0.10	ND	ND	ND	0.11
1992	**PCBs**	**Detection Limit (ug/l)**	**MW 1**	**MW 2**	**MW 3**	**MW 4**
	Aroclor 1016	0.5	ND	ND	ND	ND
	Aroclor 1221	2	ND	ND	ND	ND
	Aroclor 1232	0.5	ND	ND	ND	ND
	Aroclor 1242	0.5	ND	ND	ND	ND
	Aroclor 1248	0.5	ND	ND	ND	ND
	Aroclor 1254	0.5	ND	ND	ND	ND
	Aroclor 1260	0.5	ND	ND	ND	ND
	Aroclor 1262					

Attachment 2

Photographs of BMP Enhancements Completed or Underway

Demonstration of dock cleanup effectiveness. Dock face in right portion of photo has been cleaned. Dock cleanup activities completed September 6-14, 2012.

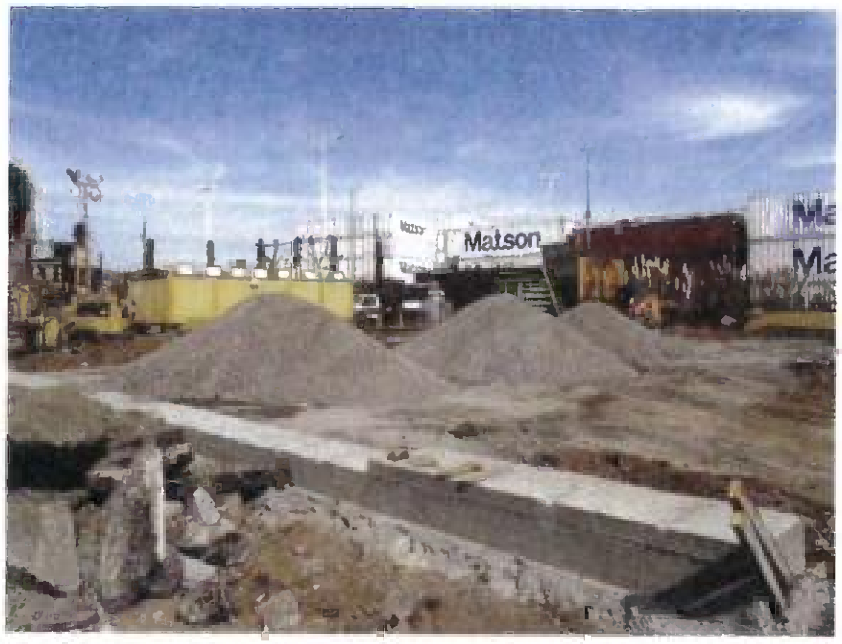
Dock cleaning activities. All wash water was captured by containment barge, profiled and disposed off-site. Dock cleanup activities completed September 6-14, 2012.

Construction project underway to install commercial wheel washing station at facility exit. Expected project completion – October 1, 2012.

New extension of concrete containment wall along southwestern facility boundary. Over 600 lineal feet of new containment installed. Project completed August 24, 2012.

New strip drain to prevent off-site flow of stormwater at retail non-ferrous department entrance. Project completed – May 2012.

Torch-cutting station relocated to paved and contained area. Project completed – June 2012.



Grading, base preparation and footing construction underway to install additional tent structure to expand covered maintenance area. Expected project completion – October 31, 2012.

Ertec™ stormwater filtration barrier awaiting installation along edges of concrete dock. Expected project completion – October 31, 2012.

Attachment 3

Criteria for Beneficial Use Exemptions for Shallow Groundwater at the Margin of San Francisco Bay

terraphase engineering

TECHNICAL MEMORANDUM

September 28, 2012

From: Peter Zawislanski, PG, CHG

To: Scott Sloan, RG, LHG, Schnitzer Steel MRB

Subject: Criteria for Beneficial Use Exemptions for Shallow Groundwater at the Margin of San Francisco Bay

Shallow groundwater[1] underlying areas along the margin of San Francisco Bay ("the Bay"), or within 500 to 1,000 feet of the Bay, is generally of poor quality and is unsuitable for development as a resource for human consumption. The use of shallow groundwater along the margin of the Bay for domestic or municipal supply is not feasible due to several factors, including:

- Shallow groundwater quality generally does not meet regulatory standards due to high salinity;
- The hydrogeology of shallow groundwater does not meet minimum well construction requirements for water supply wells; and
- Extraction of shallow groundwater in coastal areas can lead to further degradation of groundwater quality due to saltwater intrusion.

For these reasons, shallow groundwater along the margin of the Bay has not been developed in the past, is not used at present, and is not being considered for potential future development for municipal or domestic use. State agencies have recognized this issue and have concurred with the beneficial use exemption for municipal/domestic supply at many sites on the periphery of the Bay. Rather, agencies have often required that site-specific cleanup goals for shallow groundwater migrating to the Bay be based on criteria for the protection of aquatic habitat.

Regulatory Water Quality Considerations

Under State Water Resources Control Board (SWRCB) Resolution No. 88-63 (SWRCB 1988), all groundwater of the state is considered to be suitable or potentially suitable for municipal/domestic water supply, with exceptions as noted in Water Board Resolution No. 89-39, "Sources of Drinking Water," where:

[1] "Shallow" groundwater refers to the first encountered groundwater, or "A-zone" groundwater.

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- The total dissolved solids (TDS) concentration exceeds 3,000 milligrams per liter (mg/L), and it is not reasonably expected by the Water Board that the groundwater could supply a public water system; or
- There is contamination, either by natural processes (which can include saltwater intrusion) or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices (BMPs) or best economically achievable treatment practices; or
- The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day; or
- The aquifer is regulated as a geothermal energy-producing source or has been exempted administratively pursuant to 40 Code of Federal Regulations (CFR) Part 146.4 for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR Part 261.3.

Due to saltwater intrusion and the fact that many shoreline areas were formerly salt marshes that were progressively filled over the course of the 20th century, shallow groundwater along the margin of the Bay is generally brackish to saline, with TDS commonly exceeding 3,000 mg/L, and in some cases approaching that of Bay water. Therefore, shallow groundwater in these areas does not meet the SWRCB criteria for a potential beneficial use as a municipal or domestic water supply. The California Department of Public Health (CDPH) has established a TDS secondary maximum contaminant level drinking water standard for public water supplies of 1,000 mg/L. Shallow groundwater along the periphery of the Bay generally does not meet CDPH standards for drinking water and, if extracted for the purpose of human consumption, it would require treatment, such as reverse osmosis, which is not economically viable.

It should be noted that in 1999 the Water Board recommended the de-designation of the of shallow groundwater area in the East Bay Plain Groundwater Basin ("East Bay Plain") from municipal/domestic beneficial use due to naturally occurring high salinity. This area (Oakland Shoreline/Alameda Point Brackish Shallow Groundwater Zone) includes the Port of Oakland High TDS Zone (i.e., Port of Oakland, Alameda Point, Oakland Army Base). As discussed in a subsequent section of this memorandum, the Water Board and the Department of Toxic Substances Control (DTSC) have granted exemptions for the beneficial use of groundwater as a municipal/domestic supply at several sites within this zone.

Well Construction Requirements

Shallow aquifers are vulnerable to contamination from human activities due to short vertical distances from the surface to the water table and, consequently, a greater potential for contaminants reaching groundwater. This vulnerability is addressed in California through well construction standards. The California Department of Water Resources (DWR) well ordinance requires that domestic wells have a minimum annular seal of at least 20 feet below the ground surface, and that municipal supply wells have a minimum annular seal of at least 50 feet (DWR 1991).

The depth to shallow groundwater in Bay coastal areas is small, generally on the order of 5 to 20 feet below ground surface (ft bgs). Geologically, these areas often consist of filled marshland overlying Bay Mud. The depth to Bay Mud is generally 10 to 25 feet below ground surface (ft bgs). Bay Mud is not considered an aquifer for water supply due to low permeability and high salinity (SCWA 2007). The permeability of Bay Mud is reported to be in the 10^{-7} cm/s range [Fox et al. 2003; Welker et al. 2004). By comparison, productive aquifers generally have a hydraulic conductivity equal to or greater than 10^{-2} cm/s (Bear 1972). Therefore, the potentially productive zone of shallow groundwater is limited to depths within 10 to 25 feet of the ground surface. Due to these limitations, shallow groundwater production wells would generally not meet DWR minimum well construction requirements along the margin of the Bay because the minimum required annular seal cannot be installed in a manner that will allow the well to be screened in a sufficiently permeable water-bearing zone that could provide a sustained yield of 200 gallons of water per day.

Groundwater Extraction in Coastal Areas Leads to Saltwater Intrusion

Shallow groundwater along the periphery of the Bay is brackish to saline, indicating saltwater intrusion. Saltwater intrusion occurs in nearly all coastal areas, because at these locations groundwater is in direct contact with saltwater and is subject to tidal fluxes that effectively mix groundwater with saltwater. The physical relationship between groundwater and saltwater in coastal areas is well understood and is described by the Ghyben-Herzberg relation.

Groundwater quality is at risk if production wells are located close to areas where groundwater contains high salinity or is located close to the Bay. Under normal conditions, fresh water flows from inland aquifers and recharge areas to coastal discharge areas to the sea, or in this case, the Bay. This natural movement of fresh water towards the coast minimizes saltwater intrusion to freshwater coastal aquifers (Barlow 2003). Groundwater pumping/development along the Bay shoreline can decrease the amount of fresh water flowing towards the coastal discharge areas, allowing salt water to be drawn into the fresh water zones of coastal aquifers. As a result, the amount of fresh water stored in the aquifers is decreased.

Groundwater extraction from wells located in areas along the periphery of the Bay, whether for municipal/domestic or other uses, such as industrial or agricultural, would likely result in the degradation of water quality as nearby saltwater is drawn toward the production wells. Therefore, development of shallow groundwater for drinking water supply or other uses along the Bay margin is not feasible.

Regional Development of Groundwater for Municipal Supply

Shallow groundwater near the periphery of the Bay is not currently used for municipal or domestic purposes and is not expected to be used for these purposes in the future. Municipal supply wells in the East Bay Plain, which includes all or portions of the cities of Richmond, San Pablo, El Cerrito, Albany,

Berkeley, Emeryville, Piedmont, Alameda, Oakland, San Leandro, San Lorenzo and Hayward, have generally been drilled to depths no shallower than 100 feet and usually to much greater depths, up to 800 feet (Figuers 1998). As of 1999, there were no municipal water supply wells screened above the depth of 50 feet in the East Bay Plain (RWQCB 1999). In total, on record, there were only four municipal wells with screens between depths of 50 and 200 ft bgs in the East Bay Plain in 1999.

Agency Concurrence with Beneficial Use Exemption for Municipal/Domestic Supply

The Water Board and the DTSC have issued concurrence with the beneficial use exemption for municipal/domestic supply at numerous sites on the periphery of the Bay, including several sites in the Port of Oakland High TDS Zone. The following are examples of sites in Oakland, Alameda, San Francisco, and Novato where the agencies have issued concurrence with the beneficial use exemption based, either wholly or in part, on the TDS in groundwater exceeding the 3,000 mg/L threshold.

Embarcadero Cove State Superfund Site, Port of Oakland: The Final Remedial Action Plan (ERM-West 1994) concluded that the shallow groundwater was unsuitable for human consumption for reasons that are very similar to those presented above for the Site, namely high salinity, underlying Bay Mud, and non-compliance with domestic and municipal construction requirements. The DTSC issued a letter approving the Final Remedial Action Plan (DTSC 1994).

Alameda Point, Installation Restoration Site 1, Alameda, California: The Navy received concurrence from the Water Board that groundwater at the site meets the municipal and domestic water supply designation exemption criteria for groundwater due to high salinity (ChaduxTt 2009; Water Board 2003a).

Hunters Point Shipyard, San Francisco: The Navy received concurrence from the Water Board that the A-aquifer (shallow groundwater) met the exemption criteria and was not considered a potential source of drinking water (SulTech 2008; Water Board 2003b).

Navy Ballfields Site, Hamilton Field, Novato, California: The Water Board stated its determination that the shallow groundwater at this site "is not suitable for drinking water as evaluated using the State Water Board's Resolution 88-63, and there is no potential for other beneficial uses of groundwater...because of high total dissolved solids" (Water Board 2006). It should be noted that the TDS at this site ranged from 819 to 18,279 mg/L, and the average concentration of TDS was 4,898 mg/L. Therefore, the RWQCB concurred that groundwater is not of adequate quality for municipal or domestic use where the average TDS is greater than 3,000 mg/L, even if TDS in groundwater in certain parts of the site is below 3,000 mg/L.

Lot 3, Campus Bay, Richmond: In a July 29, 2005 letter, the Department of Toxic Substance Control required that the beneficial use of groundwater underlying Lot 3 be evaluated in the remedial investigation report to be prepared for the property. Lot 3 extends over 1,000 feet inland from the Bay shoreline. In the report, the property owner argued that groundwater underlying Lot 3 is not considered to have a beneficial use as a source of drinking water because TDS concentrations exceeded 3,000 mg/l.

The DTSC approved the report, and this interpretation, in a letter dated June 10, 2008. The DTSC also approved cleanup goals based on aquatic water quality criteria for shallow groundwater at the site.

Concluding Statement

Shallow groundwater underlying areas along the margin of the Bay, or within 500 to 1,000 feet of the Bay, is generally unsuitable for development as a domestic or municipal water supply resource due to factors discussed above. Most importantly, high salinity, potential for further groundwater degradation due to saltwater intrusion, and the non-conformance with minimum production well construction requirements render the domestic or municipal use of shallow groundwater along the margin of the Bay infeasible. As illustrated through examples of several sites located in this setting, state agencies have recognized this issue and have concurred with the beneficial use exemption for municipal/domestic supply at many sites on the periphery of the Bay.

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Attachment 4

2010 Sediment Characterization Report

Mr. Robert Smith
U.S. Army Corps of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103-1398

August 23, 2010

Dear Mr. Smith:

On behalf of Mr. Max Bosserman of the Schnitzer Steel Products Company, Inc. (SSPC), I have enclosed two (2) copies of our report "Sediment Characterization Sampling and Analysis Results (SAR) for the Schnitzer Steel Terminal Berth." In addition, copies of this SAR have been sent to the other DMMO participating agency representatives.

If you have any questions, please give me a call at (707) 207-7767. I look forward to hearing from you.

Sincerely,

Jeffrey Cotsifas
President

cc (w/enc): Brian Ross, U.S. EPA
Brenda Goeden, BCDC
Beth Christian, SFRWQCB
George Isaac, CDFG
David Woodbury, NMFS
Donn Oetzel, SLC
Max Bosserman, SSPC

This testing was performed under Lab Order 17105. The test results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report, and only relate to the sample(s) tested. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk.

DATA REPORT

Sediment Characterization Sampling and Analysis Results (SAR) for the Schnitzer Steel Terminal Berth

Maintenance Dredging Program: Episode 1

Prepared for

Schnitzer Steel Products Company, Inc.
1101 Embarcadero West
Oakland, CA 94607

Prepared by

Pacific EcoRisk
2250 Cordelia Road
Fairfield, CA 94534

August 2010

PACIFIC ECORISK
ENVIRONMENTAL CONSULTING & TESTING

Sediment Characterization Sampling and Analysis Results (SAR) for the Schnitzer Steel Terminal Berth

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List of Acronyms

ASTM	American Society for Testing and Materials
Bay	San Francisco Bay
BCDC	Bay Conservation and Development Commission
CEL	Calscience Environmental Laboratories
COC	Chain-of-custody
CV	Coefficient-of-variation
DGPS	Differential global positioning system
DMMO	Dredged Material Management Office
ESC	Elutriate Suitability Concentrations
GPS	Global positioning system
ITM	Inland Testing Manual
LTMS	Long Term Management Strategy
MLLW	Mean lower low water
PER	Pacific EcoRisk
QA/QC	Quality assurance/quality control
RPD	Relative percent difference
RWQCB	Regional Water Quality Control Board
SAP	Sampling and analysis plan
SLC	State Lands Commission
SOP	Standard operating procedures
SSPC	Schnitzer Steel Products Company, Inc.
SUAD	Suitable for undefined aquatic disposal
TOC	Total organic carbon
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency

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1. INTRODUCTION

The Schnitzer Steel Products Company, Inc. (SSPC), located in Oakland, CA (Figures 1-1 through 1-3), on the northern side of the Oakland Inner Harbor. In order to maintain essential transit and berthing operations at its terminal, it has periodically been necessary to dredge sediments from within the terminal berth area. SSPC is currently seeking a 10-year permit from both the U.S. Army Corps of Engineers (USACE) and the San Francisco Bay Conservation and Development Commission (BCDC); SSPC is also seeking a lease from the State Lands Commission for maintenance dredging of their berth area. It is anticipated that Water Quality Certifications from the San Francisco Regional Water Quality Control Board (RWQCB) will be applied for on an episode-by-episode basis. SSPC is also developing an Integrated Alternatives Analysis (IAA). SSPC was previously permitted to dispose of their dredged material at the SF-11 disposal site located off Alcatraz Island. Pacific EcoRisk has been contracted by SSPC to prepare this Sampling and Analysis Plan (SAP) supporting its Episode 1 maintenance-dredging event.

It is anticipated, that due to the small volume of material to be dredged in the first episode under the new permits, the dredged material would be disposed of at SF-11. It is proposed that the dredged material will be subject to the full suite of chemical, physical, and biological testing, with bioaccumulation testing being deferred pending analysis of the dredged material chemistry data.

To accommodate essential transit and berthing operations, SSPC requires dredging of its terminal berth to a depth of -37 ft. MLLW + 2.0 ft. over-dredge; it is proposed that these areas be sampled and tested to a total depth of -39 ft. MLLW. It is anticipated that approximately 3,700 cubic yards of material will be removed in order to maintain terminal operations and the permitted design depth. The proposed maintenance depth and estimated volumes of dredged material for the SSPC Terminal Berth, including over-depth, are summarized in Table 1-1; stormwater outfalls in the vicinity of the wharf berth are presented in Figure 1-3. A bathymetric survey with sample locations identified is presented in Figure 1-4.

Table 1-1. Proposed maintenance dredging for the Schnitzer Steel Terminal Berth

Area	Design Depth (ft. MLLW)	Design Depth Volume (yds^3)	Over-depth (ft.)	Over-depth Volume (yds^3)	Total Volume (yds^3)	Total Volume with 20% "buffer" (yds^3)
SSPC Terminal Berth	-37	740	2	2,946	3,686	4,423

This sampling and analysis report (SAR) Report has been prepared to provide the required characterization of these sediments. In order to meet permit requirements, one composite

samples representative of this area was analyzed and tested as per the Inland Testing Manual (ITM).

1.1 Objectives of the Sediment Investigation

The purpose of this investigation is to evaluate the proposed dredged material to determine whether it will represent an adverse impact during removal operations and placement at the SF-11 In-Bay disposal site. The procedures for sediment sample collection, sample processing and preparation, physical and chemical analyses, biological testing and data analyses were presented in a previously approved SAP. The specific objectives of the scope-of-work were as follows:

- Collect core samples from within the designated sampling areas following field protocol detailed in the SAP (PER 2010); and
- Conduct chemical and biological analyses to determine whether sediments are suitable for unconfined aquatic disposal (SUAD).

1.2 Organization of this Document

Sample collection and handling procedures are discussed in Sections 2 and 3. Chemical analyses and bioassay results are provided in Section 4. Section 5 presents the conclusions regarding suitability of the material for proposed placement options, and references are provided in Section 6. Appendices A-K contain supporting documentation for this study.

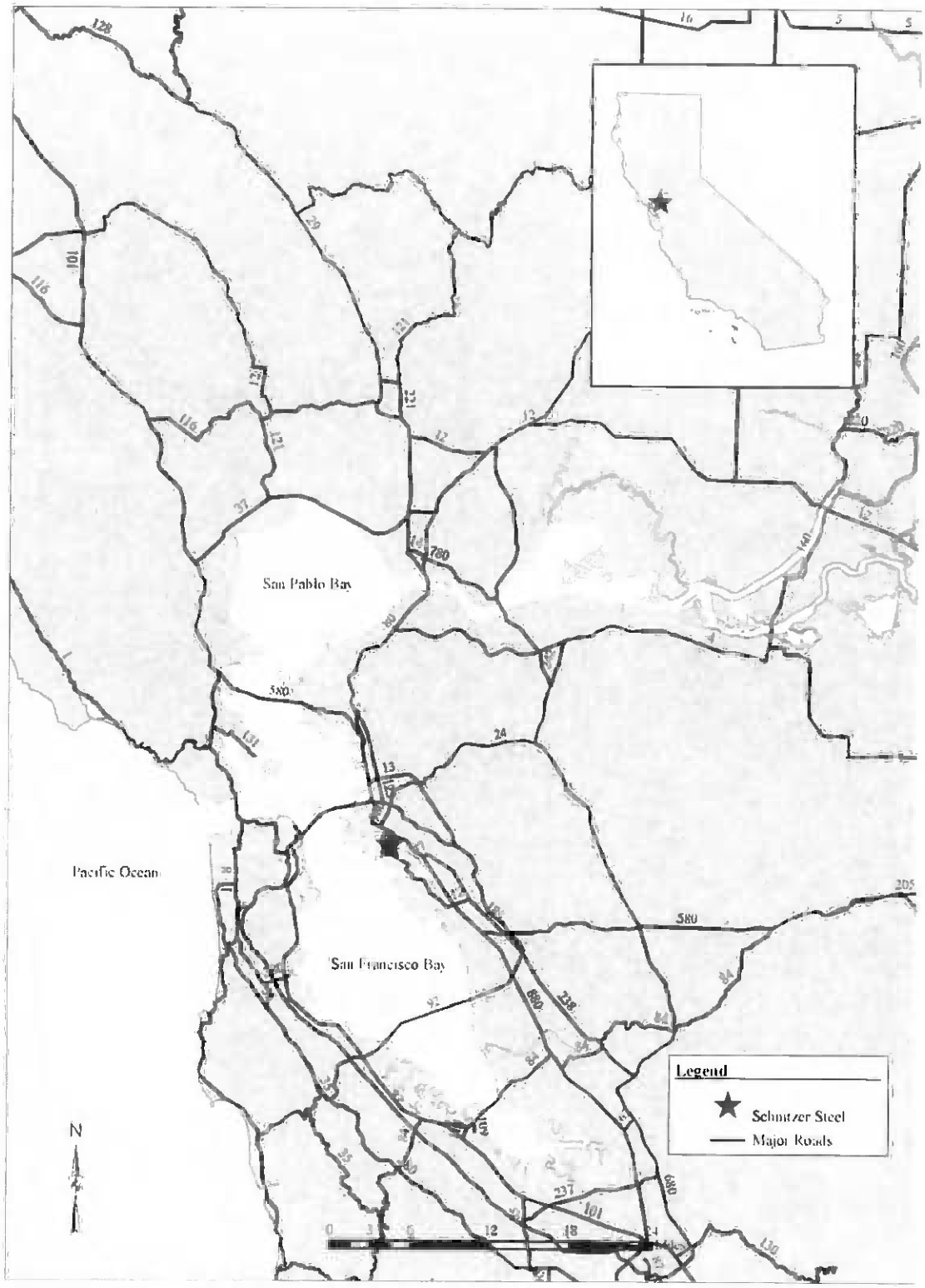


Figure 1-1. Location Map: Schnitzer Steel, Oakland, CA

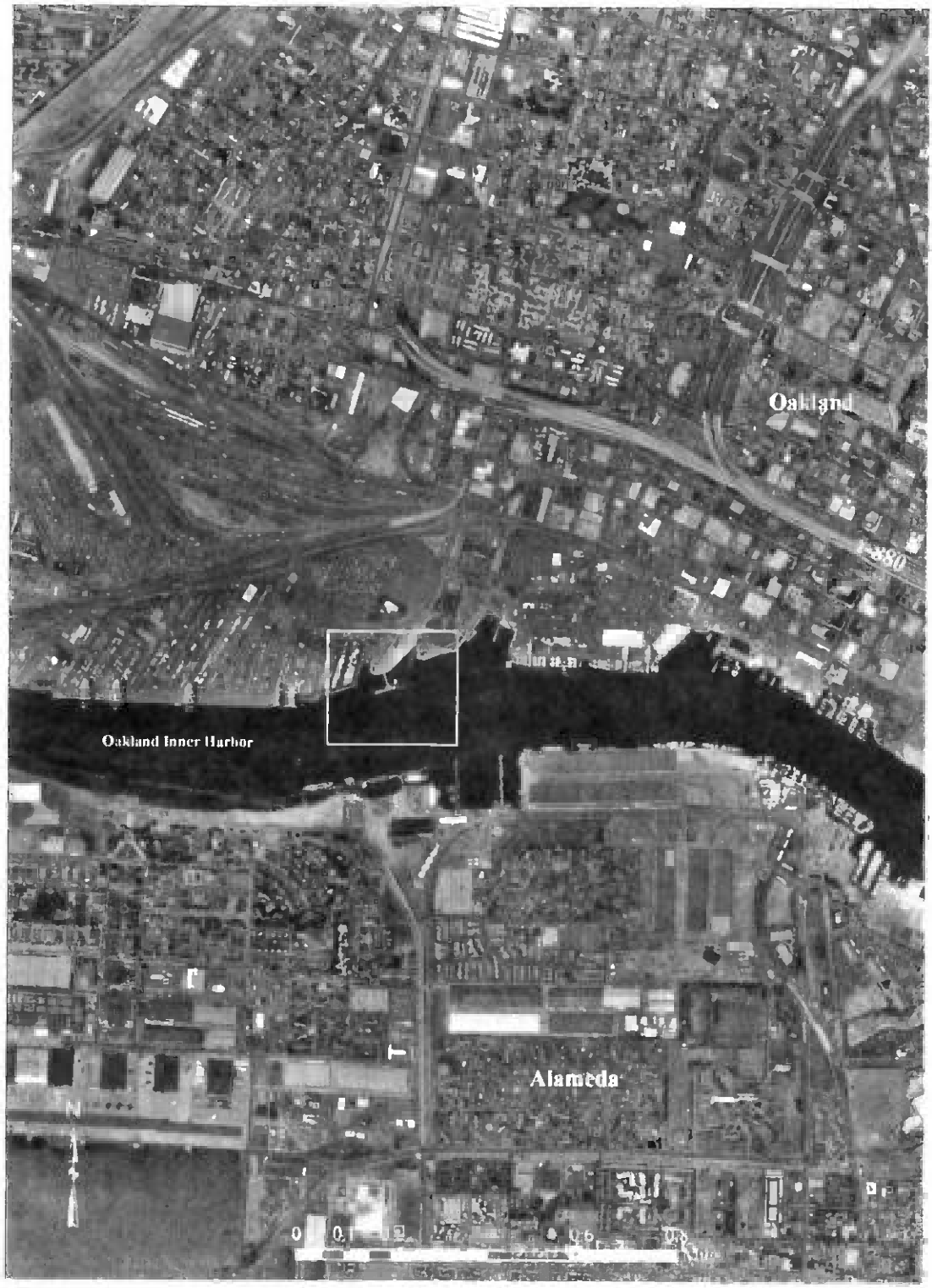


Figure 1-2. Vicinity Map: Schnitzer Steel, Oakland, CA

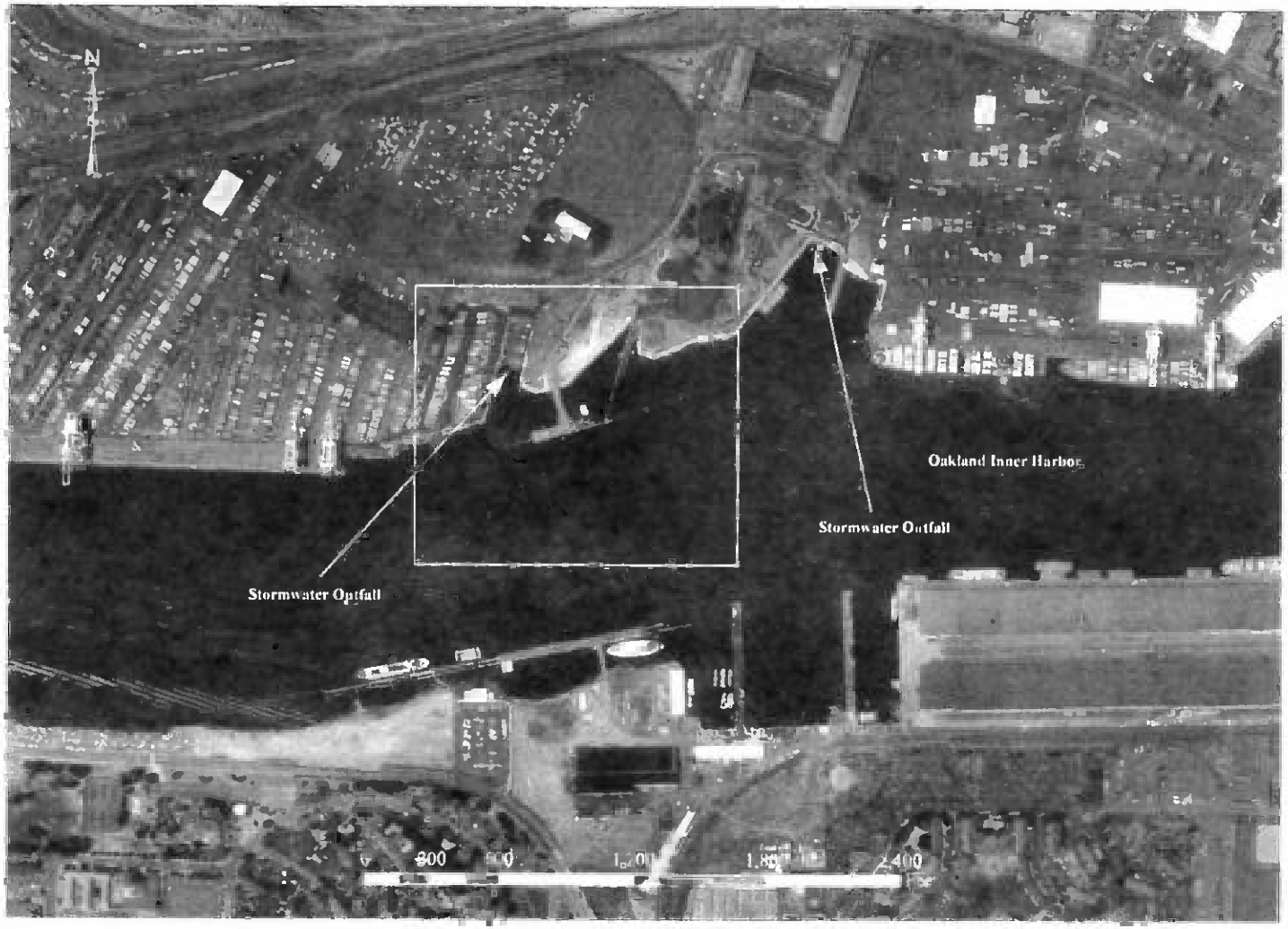
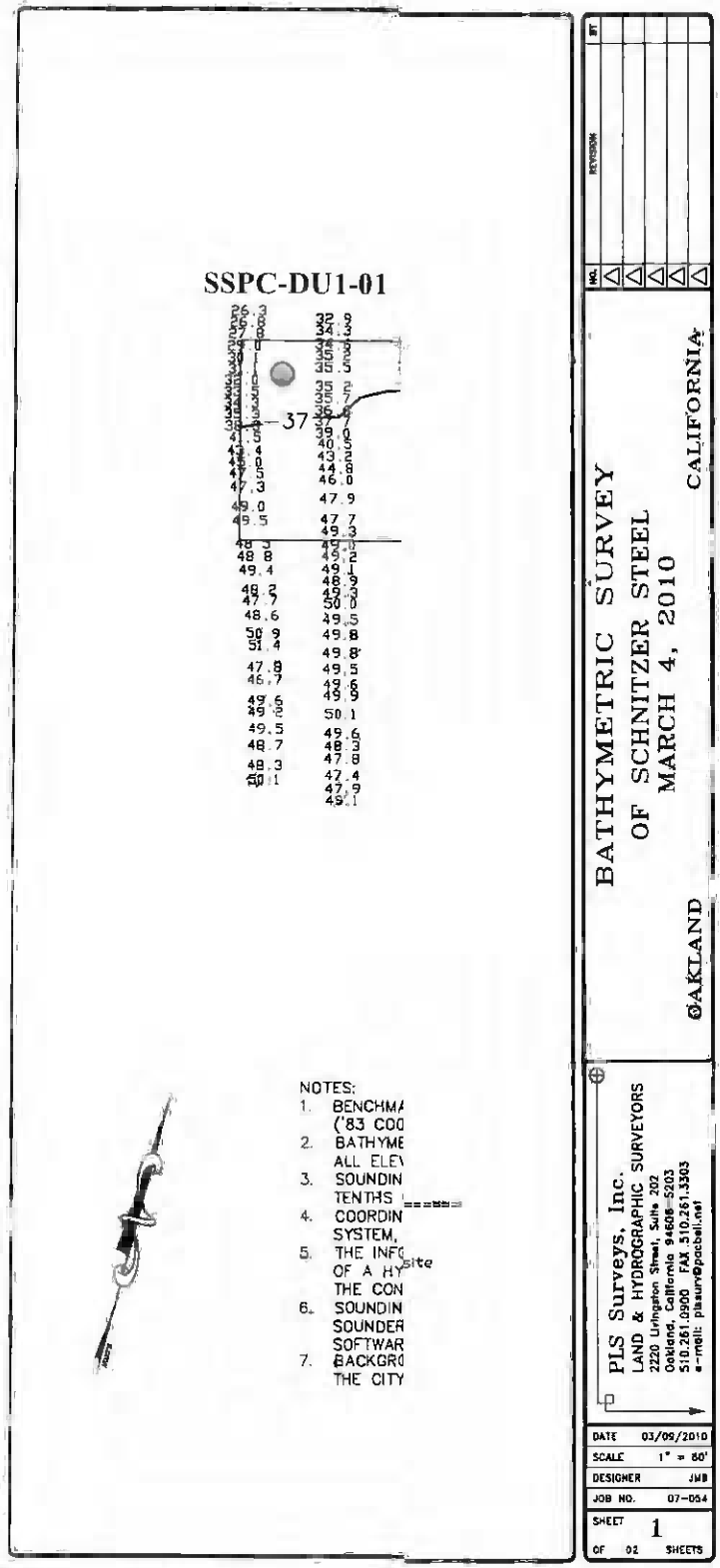


Figure 1-3. Stormwater Outfall Location Map: Schnitzer Steel, Oakland, CA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OAKLAND
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2. FIELD SEDIMENT SAMPLE COLLECTION

All sediments were collected in accordance with guidelines and procedures outlined in the SAP (PER 2010). All sediment sampling field activities at the Schnitzer Steel Terminal Berth were performed on July 21 under the direction of Mr. Jeffrey Cotsifas of Pacific EcoRisk (PER). PER provided the sampling vessel, on-board positioning system, and sampling equipment. PER also provided additional Field Scientists to assist in sediment core collection. Four sediment cores were collected from the designated site (Figure 1-4). Final site positions were determined with a differential global positioning system (GPS) and are accurate to ± 3 m. Table 2-1 lists station identifiers. GPS coordinates for all core locations. mudline elevations, and core penetration depths for all stations.

Table 2-1. Locations of sampling stations, core penetration depths

SAMPLE ID	Latitude^ (deg-dec min)	Longitude^ (deg-dec min)	Mudline Elevation (ft MLLW)	Core Penetration Depth (ft)	Cored Depth (ft MLLW)
SSPC-DU1-01	37°47.614'	122°17.634'	-32.7	38.1*	-5.4
SSPC-DU1-02	37°47.627'	122°17.583'	-35.0	39.0	-4.0
SSPC-DU1-03	37°47.643'	122°17.523'	-35.5	39.0	-3.5
SSPC-DU1-04	37°47.653'	122°17.467'	-35.3	39.0	-3.7

*Hard refusal met at -38.1 ft. MLLW, fine sand in core-catcher.
^State Plane Coordinate System, California Zone 3, NAD 83

On June 15, PER also collected reference sediment from the Alcatraz disposal site (SF-11). The reference sediments were collected as grab samples, using a pipe dredge sampler. The GPS coordinates for the reference sediment sample collection are listed in Table 2-2.

Table 2-2. Alcatraz (SF-11) Reference Site Sample Location

Sample ID	Latitude (N) (deg-dec min)	Longitude (W) (deg-dec min)
SF-11	37° 48.8280'	122° 25.5765'

All sediment samples were maintained on ice until transported to the PER testing lab for processing. Upon receipt at PER, all samples were logged in and placed in cold storage at ≤4°C in the dark until needed. Field log sheets are presented in Appendix A. There were no unusual circumstances encountered during the fieldwork, and no major deviations from the SAP (PER 2010).

3. SAMPLE PROCESSING

The sediment materials from each core section were individually homogenized within a high-density polyethylene bucket to comprise the homogenized core sediments: a sub-sample of each homogenized core sediment sample was frozen for archival storage.

Proportionate volumes of the homogenized core sediments were composited and homogenized within a high-density polyethylene bucket to comprise the "SSPC-DU1-Comp" composite sediment. This sample was analyzed for the full suite of compounds as described in the SAP (PER 2010). The SF-11 reference sediment was also homogenized and used in the biological testing program.

All sediment was processed following procedures outlined in the SAP (PER 2010), with no deviations.

4: RESULTS OF LABORATORY ANALYSES

4.1 Results of Conventional and Chemical Analyses

Sediment samples were analyzed for the conventional and chemical parameters specified in the SAP (PER 2010). Conventional parameters included total organic carbon (TOC), total solids, and grain size. Chemical analyses of trace metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), chlorinated pesticides, and butyltins were also performed. The results of these analyses (performed by Calscience Environmental Laboratories [CEL]) are summarized in Tables 4-1 through 4-7. CEL's full Data Report for the conventional and chemical analyses is provided in Appendix B.

4.1.1 SSPC-DU1-Comp Composite Analytical Chemistry Results

The "SSPC-DU1-Comp" site sediment was 46.0% total solids, and TOC levels were moderate (1.6%). Grain size analyses indicated that the sediment was 78.4% fines (silts and clays), 21.6% sand, and 0.0% gravel.

With the exception of cadmium, selenium, and zinc, all metals were similar to San Francisco Bay background levels (SFRWQCB 1998). Cadmium was measured in the sample at 1.15 mg/Kg, with a duplicate analysis concentration of 0.58 mg/Kg; both of these values are below the cadmium Effect-Range Low (ER-L) value of 1.2 mg/Kg (Long et al 1998). Zinc was measured at 549 mg/kg with a duplicate analysis concentration of 150 mg/Kg; re-analysis of the sample resulted in a reported concentration of 292 mg/Kg. Total PAHs were reported at 1360 µg/kg. All butyltins and organochlorine pesticides were below their respective method detection limits (MDLs). PCB Aroclor 1254 was measured at 25 µg/kg with a duplicate analysis of 29 µg/Kg. Since the reported PCB Aroclor concentrations were at or slightly above the San Francisco Bay 99th percentile concentration, PCB congener analysis was performed and indicated that the total PCB (as congeners) concentration in this sample was <15 µg/kg.

Table 4-1. Results of sediment grain size analysis, total solids (%), and total organic carbon (%)

Analytes	SSPC-DU1-Comp	Bay Ambient <100% Fines (SFRWQCB 1998)
% Gravel	0.00	<100% fines
% Sand	21.6	
% Silt	60.9	
% Clay	17.5	
Total % Fines <4 phi (= %silt + %clay)	78.4	-
Total Solids (%)	46.0	-
Total Organic Carbon (%)	1.6	-

Table 4-2. Sediment metals concentrations (mg/kg, dry wt.)

Metals	SSPC-DU1-Comp	SSPC-DU1-Comp Reanalysis	Bay Ambient <100% Fines (SFRWQCB 1998)
Arsenic	7.93	-	15.3
Cadmium	1.15[B]	-	0.33
Chromium	75.8	-	112
Copper	69.2	-	68.1
Lead	49.8	-	43.2
Mercury	0.215	-	0.45[A]
Nickel	76.3	-	112
Selenium	0.496	-	0.64
Silver	0.345	-	0.58
Zinc	549[C]	292[C]	158

All results below laboratory method detection limit (MDL) are reported as < the MDL concentration.
A - San Francisco Bay 99th Percentile
B - Duplicate analysis result was 0.58 mg/Kg cadmium; both these of these results are below the ER-L of 1.2 mg/Kg.
C - Duplicate result was 150 mg/Kg zinc; reanalysis duplicate result was 240 mg/Kg.

Table 4-3. Sediment PCB Aroclor concentrations (µg/kg, dry wt)

PCB Aroclors	SSPC-DU1-Comp	SSPC-DU1-Comp (duplicate)	Bay Ambient <100% Fines (SFRWQCB 1998)
Aroclor 1016	<4.4	<4.4	see total PCB
Aroclor 1221	<4.3	<4.3	see total PCB
Aroclor 1232	<4.3	<4.3	see total PCB
Aroclor 1242	<4.3	<4.3	see total PCB
Aroclor 1248	<4.3	<4.3	see total PCB
Aroclor 1254	25	29	see total PCB
Aroclor 1260	<4.8	<4.8	see total PCB
Aroclor 1262	<4.3	<4.3	see total PCB
Total Detected PCBs	**25**	**29**	25.0[A]

All results below laboratory method detection limit (MDL) are reported as < the MDL concentration.
A - San Francisco Bay 99th Percentile (SFRWQCB).

Table 4-4. Sediment PCB Congener concentrations (µg/kg, dry wt)

PCB Congeners	SSPC-DU1-Comp	SSPC-DU1-Comp (duplicate)	Bay Ambient <100% Fines (SFRWQCB 1998)
PCB 101	<4.0	5.3	see total PCB
PCB 110	<3.6	5.5	see total PCB
PCB 118	<3.9	4.3	see total PCB
Total Detected PCBs	**0.0**	**15.1**	25.0[A]

Note – Only data for congener concentrations > the MDL concentration are reported in the table above.
All results below laboratory method detection limit (MDL) are reported as < the MDL concentration.
A - San Francisco Bay 99th Percentile (SFRWQCB).

Table 4-5. Sediment PAH concentrations (µg/kg, dry wt)

PAHs	SSPC-DU1-Comp	Bay Ambient <100% Fines (SFRWQCB 1998)
Acenaphthene	17 J	26.6
Acenaphthylene	20 J	31.7
Anthracene	45	88
Benzo(a)anthracene	110	244
Benzo(a)pyrene	120	412
Benzo(b)fluoranthene	100	371
Benzo(e)pyrene	77	-
Benzo(g,h,i)perylene	56	310
Benzo(k)fluoranthene	100	258
Biphenyl	<3.4	-
Chrysene	160	289
Dibenzo(a,h)anthracene	14 J	32.7
2,6-Dimethylnapthalene	6.7 J	-
Fluoranthene	190	514
Fluorene	24	25.3
Indeno(1,2,3-cd)pyrene	45	382
2-Methylnapthalene	7.1 J	-
1- Methylnaphthalene	4.8 J	-
1- Methylphenanthrene	<4.8	-
Naphthalene	53	55.8
Perylene	36	-
Phenanthrene	56	237
Pyrene	250	665
1,6,7-Trimethylnaphthalene	<3.6	-
Total Detected PAHs	**1360**	3390

All results below laboratory method detection limit (MDL) are reported as < the MDL concentration.
J - Analyte was detected at a concentration below the method reporting limit and above the laboratory MDL; reported value is an estimate.

Table 4-6. Sediment organochlorine pesticide concentrations (µg/kg, dry wt.)

Organochlorine Pesticides	SSPC-DU1-Comp	Bay Ambient <100% Fines (SFRWQCB 1998)
Aldrin	<0.67	1.1
alpha-BHC	<0.64	-
beta-BHC	<0.55	-
delta-BHC	<0.69	-
gamma-BHC (Lindane)	<0.50	-
Chlordane	<8.7	1.1
Dieldrin	<0.49	0.44
Endosulfan I	<0.77	-
Endosulfan II	<0.38	-
Endosulfan Sulfate	<0.57	-
Endrin	<0.44	0.78
Endrin Aldehyde	<0.42	-
Endrin Ketone	<0.65	-
Heptachlor	<0.48	-
Heptachlor Epoxide	<0.40	-
Methoxychlor	<0.36	-
Toxaphene	<18	-
Alpha Chlordane	<0.56	-
Gamma Chlordane	<0.56	-
2,4`-DDD	<0.44	see total DDT
2,4`-DDE	<0.39	see total DDT
2,4`-DDT	<0.30	see total DDT
4,4`-DDD	<0.56	see total DDT
4,4`-DDE	<0.65	see total DDT
4,4`-DDT	<0.71	see total DDT
Total Detected DDT	**0.0**	7.0

All results below laboratory method detection limit (MDL) are reported as < the MDL concentration.

Table 4-7. Sediment organotin concentrations (µg/kg, dry wt.)

Organotins	SSPC-DU1-Comp	Bay Ambient <100% Fines (SFRWQCB 1998)
Dibutyltin	<1.3	No data available
Monobutyltin	<2.1	No data available
Tetrabutyltin	<0.78	No data available
Tributyltin	<0.73	No data available
Total Detected Butyltins	**0.0**	NA

All results below laboratory method detection limit (MDL) are reported as < the MDL concentration.

4.1.2 Conventional and Chemical Analytical QA/QC Summary

The QA/QC review entailed reviewing the contract lab Data Report(s) for sample integrity, correct methodology, and compliance with all appropriate Lab QA/QC requirements. The overall data quality assessment found that all data were usable. Appendix B contains the conventional and chemical analysis reports, which include contract laboratory QA/QC narratives.

Any analyses that did not comply with the analytical laboratory QA/QC limits are presented below (also, see final analytical reports in Appendix B for full case narratives).

Metals – Trace levels of copper, nickel, and zinc in the method blank were found below the method reporting limit (MRL), but above the mean detection limit. However, since the concentrations found in the samples exceed the concentrations found in the method blank by and order of magnitude or more, the results were released with no further action.

The matrix spike (MS) and /or matrix spike duplicate (MSD) recoveries for chromium, copper, lead, and nickel were out of the acceptance range due to matrix interferences. However, since the associated Laboratory Control Spike/Duplicate (LCS/LCSD) recoveries were in control, the data were released with no further action.

As the zinc concentration found in the sample exceeded the MS concentration by four times or more, the MS recoveries and subsequent RPDs could not be evaluated. Because the corresponding LCS/LCSD recoveries and RPD values were within the established control limits, the data were released with no further action by the analytical laboratory. An evaluation of the RPD for cadmium, lead and zinc in the sample and duplicate sample indicated that the RPD for these compounds were greater that 20%. This variability was attributed to sample heterogeneity.

Organotins – The detection limit was elevated for a few analytes in all samples. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit.

4.2 Biological Testing

Three different toxicity tests were performed for each composite sample:

1. the 10-day amphipod survival solid-phase sediment test with *Ampelisca abdita;*
2. the 10-day polychaete survival solid-phase sediment test with *Neanthes arenaceodentata; and,*
3. the 48-hour water column (sediment elutriate) toxicity bivalve embryo survival and development test with the mussel *Mytilus galloprovinciales.*

All tests were performed following appropriate protocols as outlined in the SAP (PER 2010). Test data and summaries of the statistical analyses for the bioassay results are provided in Appendices D-I. Summaries of test conditions and test acceptability criteria are provided in Appendix J.

4.2.1 Benthic Toxicity Testing

Solid-phase bioassays were conducted with the amphipod *A. abdita* and the polychaete *N. arenaceodentata*. A summary of the measured concentrations of total ammonia and total sulfides in the sediment porewaters, and summary tables of the total ammonia concentrations measured in the test overlying waters are presented in Appendix C.

Positive and negative Lab Control treatments were tested concurrently with the bioassays. The positive Lab Control for both benthic species consisted of a 96-hr reference toxicant test of waterborne KCl. The results of these tests were compared to our in-house reference toxicant test response database to determine whether these test organisms were responding to toxic stress in a typical fashion. The negative Lab Control for *A. abdita* consisted of the "Home" sediment from which the species was originally collected. The negative Lab Control for *N. arenaceodentata* consisted of a homogenized mixture of previously collected clean reference site sediments that had been maintained at the PER Lab.

For disposal suitability determinations, the solid-phase bioassay survival results for the site sediments were statistically compared to the appropriate reference site values.

The following criteria were used for suitability determinations:

1. If survival is greater in the proposed dredged sediment than in the reference site sediment(s), the proposed dredged sediments are <u>not</u> acutely toxic to benthic organisms.
2. If the difference between the survival response in the proposed dredged sediment and in the reference site sediment(s) is $\leq$ 20% for *A. abdita*, or $\leq$ 10% for *N. arenaceodentata*, the proposed dredged sediments are <u>not</u> acutely toxic to benthic organisms.
3. If the difference between the survival response in the proposed dredged sediment and in the reference site sediment(s) is > 20% for *A. abdita*, or > 10% for *N. arenaceodentata*; <u>and</u> the test sediment survival response is statistically significantly less than in the reference site sediment(s), then the test sediments are considered to be acutely toxic to benthic organisms.

4.2.1.1 Sediment Porewater Characterization - On July 24, the sediment was removed from refrigerated storage, and was composited and homogenized in a large stainless steel bowl. An aliquot of this homogenized site composite sediment was centrifuged at 2,500 g for 15 minutes; the resulting supernatant porewater was carefully collected and analyzed for routine water quality characteristics (Table 4-8). Due to the measurement of elevated sediment porewater ammonia concentrations in the composite sediment that exceeded the USACE guidelines recommended threshold of 15 mg/L, the sediment in each test replicate was purged of ammonia by daily replacement of the overlying water with fresh 30 ppt seawater coupled with aeration until the porewater total ammonia levels were below 15 mg/L.

Table 4-8. Sediment porewater initial water quality characteristics

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
SSPC-DU1-Comp	7.43	33.0	36.6	0.070

4.2.1.2 Sediment Solid-Phase Testing with *Ampelisca abdita* - The results of these tests are summarized in Table 4-9. There was 90% survival in the Control treatment, indicating acceptable survival response by the test organisms. There was 79% survival in the reference site sediment, which is below the 85% survival requirement for use in a suitability determination. As a result, the Alcatraz Environs database value of 92% survival was used to assess sediment toxicity. There was 79% survival in the SSPC-DU1-Comp sediment sample. The site composite sediment survival response was <20% less than the Alcatraz Environs database value. In addition, the difference in survival in the site sediment and in the Lab Control was also <20%, further supporting that the sediment was ***not*** toxic to amphipods. The test data and summary of statistical analyses for this testing are attached as Appendix D.

Table 4-9. *Ampelisca abdita* survival in the solid-phase test sediments

Sediment Site	% Survival in Test Replicates					Overall Mean % Survival
	Rep A	Rep B	Rep C	Rep D	Rep E	
Lab Control	90	90	95	80	95	90
Alcatraz (SF-11)	75	75	90	75	80	79
SSPC-DU1-Comp	65	80	80	80	90	79

4.2.1.2.1 Reference Toxicant Toxicity to *Ampelisca abdita* - The results of this test are presented in Table 4-10a. The survival EC_{50} was 0.93 g/L KCl, which is within the "typical response" range established by the mean ± 2 SD of the 20 most recent reference toxicant tests performed in our laboratory (Table 4-10b), indicating that these test organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are presented in Appendix E.

Table 4-10a. Reference toxicant testing: Effects of KCl on *Ampelisca abdita*

KCl Treatment (g/L)	Overall Mean % Survival
Lab Control	80
0.25	95
0.5	95
1	**35***
2	**0***
4	**0***
EC_{50} =	0.93 g/L KCl

*- Significantly less than the Lab Control at $p < 0.05$

Table 4-10b. Summary of reference toxicant database for *Ampelisca abdita*

Current LC_{50} Value	*Ampelisca abdita* Reference Toxicant Response Database Typical Response Range (mean ± 2SD)
0.93 g/L KCl	0.28 – 2.7 g/L KCl

4.2.1.3 Sediment Solid-Phase Testing with *Neanthes arenaceodentata* - The results of this testing are summarized in Table 4-11. There was 84% survival at the Lab Control treatment, which was below the acceptable Lab Control survival response of ≥90%. However, there was 90% survival in the SF-11 reference site sediment satisfying the 85% survival requirement for use in a suitability determination. There was 84% survival in the SSPC-DU1-Comp sample; the difference in survival relative to the reference site sediment survival response was <10% indicating that the sediment was ***not*** toxic to polychaetes. The test data and summary of statistical analyses for this testing are attached as Appendix F.

Table 4-11. *Neanthes arenaceodentata* survival in the solid-phase test sediments

Sediment Site	% Survival in Test Replicates					**Overall Mean % Survival**
	Rep A	Rep B	Rep C	Rep D	Rep E	
Lab Control	90	70	80	90	90	**84**
Alcatraz (SF-11)	90	90	90	90	90	**90**
SSPC-DU1-Comp	80	80	90	80	90	**84**

4.2.1.3.1 Reference Toxicant Toxicity to *Neanthes arenaceodentata* - The results of this test are presented in Table 4-12a. The survival EC_{50} was 0.84 g/L KCl, which is within the "typical response" range established by the mean ± 2 SD of the 20 most recent previous tests performed in our laboratory (Table 4-12b), indicating that these organisms were responding to toxicant stress in a typical fashion. The test data and summary of statistical analyses for this test are presented in Appendix G.

Table 4-12a. Reference toxicant testing: Effects of KCl on *Neanthes arenaceodentata*

KCl Treatment (g/L)	Overall Mean % Survival
Lab Control	90
0.25	100
0.5	90
1	100
2	**40***
4	**0***
EC_{50} =	1.9 g/L KCl

*- Significantly less than the Lab Control at $p < 0.05$.

Table 4-12b. Summary of reference toxicant database for *Neanthes arenaceodentata*

Current LC_{50} Value	*Neanthes arenaceodentata* Reference Toxicant Response Database Typical Response Range (mean ± 2SD)
1.9 g/L KCl	0.78 – 2.9 g/L KCl

4.2.2 Water Column Toxicity Testing

The 48-hr bivalve embryo development toxicity test was performed to assess the effects of dredged material disposal in the water column. Positive and negative Lab Control treatments were tested concurrently with the site sediment elutriate. The positive Lab Control consisted of a 'waterborne' reference toxicant test; the results of this test were compared to our in-house reference toxicant test response database to determine whether these test organisms were responding to toxic stress in a typical fashion. The negative Lab Control (and dilution media) consisted of 0.45 µm-filtered natural seawater (obtained from the U.C. Santa Cruz Granite Canyon Marine Laboratory), diluted to a test salinity of 30 ppt via addition of Type 1 lab water (reverse-osmosis de-ionized water).

The test results for the sediment composite elutriate were compared with the test organism responses at the negative Lab Control treatment to determine the potential impact of the proposed dredged materials on pelagic organisms at and beyond the boundaries of the disposal site (USEPA/USACE 1998). The following criteria were used for suitability determinations:

1. If the survival and/or normal development response(s) in the sediment composite 100% elutriate(s) is greater than or equal to the test organism responses in the negative Lab Control treatment, the dredged material is not predicted to be acutely toxic to water column organisms.
2. If the survival and/or normal development response(s) in the sediment composite 100% elutriate(s) is ≤10% less than the test response of the negative Lab Control treatment, the dredged material is not predicted to be acutely toxic to water column organisms, and there is no need for statistical analyses.
3. If the survival and/or normal embryo development response(s) in the sediment composite 100% elutriate(s) is >10% less than the test response of the negative Lab Control treatment, then the data must be evaluated statistically to determine the LC_{50} or EC_{50} concentration-response value, which is then compared to the estimated concentration of the sediment during disposal for determination of suitability for disposal at SF-11.

In order for the material to be suitable for disposal at SF-11, it must be in compliance with the state's narrative water quality standard. Compliance with the narrative water quality standard is determined by evaluating whether the dredge material concentration, after mixing, would exceed 1% of the LC_{50} or EC_{50} value (Elutriate Suitability Concentration (ESC)) calculated from the sediment elutriate test (whichever is most conservative), outside of the mixing zone. The results of this analysis are presented in Appendix K.

4.2.2.1 Sediment Elutriate Testing with *Mytilus galloprovinciales* embryos - The results of the water column testing with *M. galloprovinciales* are summarized in Table 4-13. There was a mean of 86.8% survival and 96.4% normal development at the Lab Control treatment, indicating an acceptable survival response by the test organisms. The test data and the summary of statistical analyses for these tests are presented in Appendix H.

Table 4-13. Effects of SSPC-DU1-Comp sediment elutriate on *Mytilus galloprovinciales*

Elutriate Treatment	Mean % Survival	Mean % Normal Development
Lab Control	86.8	96.4
Site Water Control	74.5	100
1%	91.8	96.6
10%	95.4	96.8
25%	77.6	97.5
50%	88.5	96.9
100%	**10.5***	**14.2***
Salt Control	37.4	50.0
LC_{50} or EC_{50} =	71.5%	79.4%
Disposal limit met?	Yes	Yes

*- Significantly less than the Lab Control at $p < 0.05$.

4.2.2.1.1 Reference Toxicant Toxicity to *Mytilus galloprovinciales* embryos - The results of this test are summarized in Table 4-14a. The normal embryo development EC_{50} was 2.4 g/L KCl, which is within the "typical response" range established by the mean ± 2 SD of the 20 most recent previous tests performed in our laboratory (Table 4-14b), indicating that these test organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are attached as Appendix I.

Table 4-14a. Reference toxicant testing: Effects of KCl on *Mytilus galloprovinciales*

KCl Treatment (g/L)	Mean % Normal Embryo Development
Lab Control	97.5
0.5	97.1
1	**92.6***
2	**89.4***
3	**0***
4	**0***
EC_{50} =	2.4 g/L KCl

* - Significantly less than the Lab Control treatment response at $p < 0.05$

Table 4-14b. Summary of reference toxicant database for *Mytilus galloprovinciales*

Current EC_{50} Value	*Mytilus galloprovinciales* Reference Toxicant Response Database Typical Response Range (mean ± 2SD)
2.4 g/L	1.6 – 3.0 g/L

4.2.3 Biological Testing Quality Lab Control

The biological testing of the sediments with these test species incorporated standard QA/QC procedures to ensure that the test results were valid. Standard QA/QC procedures included the use of negative Lab Controls, positive Lab Controls, test replicates, and measurements of water quality during testing.

Quality assurance procedures that were used for sediment testing are consistent with methods described in the U.S.EPA/ACOE (1998). The methods employed in this sediment testing program are detailed in standard guides and procedures maintained in the analytical laboratory.

Sediments for the bioassay testing were stored appropriately at ≤4°C and were used within the 8-week holding time period. The sediment interstitial water characteristics were within test acceptability limits at the start of the tests.

All measurements of routine water quality characteristics were performed as described in the PER Lab Standard Operating Procedures (SOPs). All biological testing water quality conditions were within the appropriate limits. Laboratory instruments were calibrated daily according to Lab SOPs, and calibration data were logged and initialed.

Negative Lab Control – For the *N. arenaceodentata* test, there was 84% survival at the Lab Control treatment, which was below the acceptable Control survival response of ≥90% survival. The biological responses for all the remaining the test organisms at the negative Lab Control treatments were within acceptable limits.

Positive Lab Control - The accuracy of the responses of the test organisms to toxic stress was evaluated using positive controls (reference toxicant testing). The reference toxicant test dose-response EC point estimates determined for the test organisms were within the reference toxicant test "typical response" ranges, indicating that these test species were responding to toxic stress in a typical fashion.

5. SUMMARY

The composite sediment sample from the Schnitzer Steel Terminal Berth was submitted for full conventional and chemical analyses and biological testing. With the exception of cadmium and zinc, which were measured above Bay background levels, all analytical chemistry results were generally within or below the San Francisco Bay background levels (SFRWQCB 1998). While cadmium levels were measured above Bay background levels, the observed concentrations were below the cadmium ER-L of 1.2 mg/Kg (Long et al 1998). Similarly, while zinc concentrations were above Bay ambient levels, there was no toxicity observed in any of the bulk sediment tests performed.

As indicated above, results from the amphipod and polychaete solid-phase bioassays showed no evidence of increased mortality in test sediments compared to the Alcatraz (SF-11) reference sediment or Alcatraz Environs database survival values. Results of water-column toxicity bioassay of the sediment elutriate indicated that narrative water quality limits would be met for unconfined aquatic disposal.

Base on these results it is recommended that these sediments would be considered suitable for unconfined aquatic disposal (SUAD) at the SF-11 Disposal Site.

6. REFERENCES

PER (2010) Sediment Characterization Sampling and Analysis Plan for the Schnitzer Steel Terminal Berth. Prepared for the Schnitzer Steel Terminal Berth by Pacific EcoRisk.

Long, E. R., L. J. Field, and D. D. MacDonald (1998) Predicting Toxicity in Marine Sediments with Numerical Sediment Quality Guidelines.

SFRWQCB (1998) Ambient concentrations of toxic chemicals in San Francisco Bay Sediments: Draft Staff Report. San Francisco Regional Water Quality Lab Control Board. Oakland, CA.

U.S.EPA/ACOE (1998) Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual (Inland Testing Manual). U.S. Environmental Protection Agency/U.S. Army Corps of Engineers. EPA/823/B-94/002, Office of Water. Washington, DC 20460.

U.S.EPA (1998a) EPA Requirements for Quality Assurance Project Plans. United States Environmental Protection Agency, Quality Assurance Division. Washington. DC. 20460.

U.S.EPA (1998b) EPA Guidance for Quality Assurance Project Plans. United States Environmental Protection Agency, Office of Research and Development, Washington, DC 20460.

Appendix A

Sampling Field Logs and Data Sheets

Pacific EcoRisk
Environmental Ecology and Testing

Pacific EcoRisk
2250 Cordelia Road
Fairfield, CA 94534
Phone: (707) 207-7760
Fax: (707) 207-7916

Sediment Core Collection Form

Station ID: SSPC-DU1-01 **Date:** 7/21/16

Project Name: Schnitzer Steel **Project No.:** 17105

Coordinates: 37° 47.614" 122° 17.633"

Lat/Northing: 37° 47.613" Long/Easting: 122° 17.632"

Vertical Datum: (MLLW) MLW Other:

Depth Measurement: Sounder (Leadline)

Project Depth: 37.0' **Overdredge:** 2.0' +0.5' 2 Cores

	Attempt 1	Attempt 2	#3
Time:	10:40	11:10	11:20
(A) Measured Water Depth	~~37.0~~ 38.0	38.5'	37.4
(B) Tide Height	4.7'	4.7'	4.7
(C) Mudline Elevation (A–B=C)	~~32.3~~ 33.3	33.8'	32.7
(D) Calculated Core Length (PD+OD-C=D)	~~7.2~~ 6.2'	5.7'	6.8'
Estimated Penetration	5.3'	~~4.8~~ 4.0'	5.4'
Description of Core Drive	Smooth, Then Hard refusal	Smooth, Then Hard Refusal	Same ←
Refusal Encountered?	Yes	Yes	Yes
Total Core Length Recovered	5.3'	~~4.3~~ 4.0'	5.4'

Core Characteristics

Sediment Type	cobble, gravel, sand, (C) M, silt, clay, organic matter	cobble, gravel, sand, C M, silt, clay, organic matter
Sediment Color	(gray), black, brown, brown surface, olivine	gray, black, brown, brown surface, olivine
Sediment Odor	(None), slight, mod, strong H.S petroleum, septic	None, slight, mod, strong H.S. petroleum, septic
Any Layering Homogenous	Layering	

Comments: E PE: 8'
#1: Hard refusal at ~5.3', fine sand in core-catcher, retained material in Ziploc Bag.
#2: Also only a small amount of fine sand in catcher, otherwise core identical to #1.

Recorded by: DB

#3 - Very similar to #1. fine sand in Core-Catcher. 37° 47.614" 3 #3
122° 17.634" 3
Retained all 3 Cores

Pacific EcoRisk
Environmental Consulting and Testing

Pacific EcoRisk
2250 Cordelia Road
Fairfield, CA 94534
Phone: (707) 207-7760
Fax: (707) 207-7916

Sediment Core Collection Form

Station ID: SSPC-DU1-02 **Date:** 7/21/10

Project Name: Schnitzer Steel **Project No.:** 1105

Coordinates: #2: 37° 47' 37.6" 122° 17' 35.0"

Lat/Northing: 37° 47' 37.6" Long/Easting: 122° 17' 35.0"

Vertical Datum: (MLLW) MLW Other:

Depth Measurement: Sounder (Leadline)

Project Depth: 37.0 **Overdredge:** 2.0' + 0.5' 2 Layer

	Attempt 1	Attempt 2	
Time:	09:10	09:40	14:50
(A) Measured Water Depth	39.0'	39.5	38.3'
(B) Tide Height	4.0'	4.3'	3.0'
(C) Mudline Elevation (A-B=C)	35.0'	35.2	35.3
(D) Calculated Core Length (PD+OD-C=D)	4.5'	4.3'	4.2'
Estimated Penetration	4.5'	4.3'	4.2'
Description of Core Drive	Smooth	Smooth	Smooth
Refusal Encountered?	No	No	No
Total Core Length Recovered	4.5'	4.3'	4.2'

Core Characteristics

	Attempt 1	Attempt 2
Sediment Type	cobble, gravel, sand C M F, (silt clay), organic matter	cobble, gravel, sand C M F, (silt clay), organic matter
Sediment Color	(gray) black, brown, brown surface, (olivine)	(gray), black, (brown), (brown surface), (olivine)
Sediment Odor	(None) slight, mod, strong H_2S, petroleum, septic	(None) slight, mod, strong H_2S, petroleum, septic
Any Layering Homogenous	Layering	Layering

Comments: EPE: 6'
Core drive smooth. all material is silt/clay. dark gray layers evenly distributed Throughout Core

Recorded by: DG

Core #2 Same as Core #1. #3: 37°47'37.6" 122°17'35.0"

Both Cores Retained Separately
Collected 3rd Core for Volume - This core collected as well.

Pacific EcoRisk
Environmental Consulting and Testing

Pacific EcoRisk
2250 Cordelia Road
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Fax: (707) 207-7916

Sediment Core Collection Form

Station ID: SSPC - DA1 - 03 **Date:** 7/21/10

Project Name: Schnitzer Steel **Project No.:** 17105

Coordinates: 37° 47.643 122° 17.523

Lat/Northing: 37° 47.643 Long/Easting: 122° 17.523

Vertical Datum: (MLLW) MLW Other:

Depth Measurement: Sounder (Leadline)

Project Depth: 37.0' **Overdredge:** 2.0' + 0.5' Z layer

	Attempt 1	Attempt 2 /3	
Time:	13:45	1400	14:25
(A) Measured Water Depth	39.1	39.0	38.
(B) Tide Height	3.6'	3.3'	3.1'
(C) Mudline Elevation (A–B=C)	35.5	35.7'	35.5'
(D) Calculated Core Length (PD+OD-C=D)	4.0'	3.8'	4.0'
Estimated Penetration	4.0'	3.8'	4.0'
Description of Core Drive	smooth	smooth	smooth
Refusal Encountered?	No	No	No
Total Core Length Recovered	4.0'	3.8'	4.0

Core Characteristics

Sediment Type	cobble, gravel, sand C M F, silt clay organic matter	cobble, gravel, sand C M F, silt clay, organic matter
Sediment Color	gray black brown, brown surface, olivine	gray black brown, brown surface, olivine
Sediment Odor	None slight mod, strong H.S. petroleum septic	None slight, mod, strong H.S. petroleum, septic
Any Layering Homogenous	Layering	Layering

Comments: EPE: 6'
#1 - oily sheen + Petroleum odor.
#2 - Similar to #1, although no sheen or petroleum odor observed.

Recorded by: [illegible]

Pacific EcoRisk
Environmental Consulting and Testing

Pacific EcoRisk
2250 Cordelia Road
Fairfield, CA 94534
Phone: (707) 207-7760
Fax: (707) 207-7916

Sediment Core Collection Form

Station ID: SSPC-DU1-04 **Date:** 7/21/10

Project Name: Schnitzer Steel **Project No.:** 17105

Coordinates:
Lat/Northing: 37° 47.653 Long/Easting: 122° 17.~~868~~ .467
37° 47.652 122° 17.468

Vertical Datum: (MLLW) MLW Other:

Depth Measurement: Sounder (Leadline)

Project Depth: 37.0' **Overdredge:** 2.0' + 0.5' ~~2~~ 4

	Attempt 1	Attempt 2	
Time:	12:15	12:30	12:45
(A) Measured Water Depth	41.0'	39.5'	39.5
(B) Tide Height	4.4'	4.2'	~~4.2~~ 4.0
(C) Mudline Elevation (A−B=C)	~~36~~ 36.6'	35.3'	35.5
(D) Calculated Core Length (PD+OD-C=D)	~~2.4~~ 2.9'	4.2'	4.0'
Estimated Penetration	2.9'	4.2'	4.0'
Description of Core Drive	Smooth	Smooth	Smooth
Refusal Encountered?	No	No	No
Total Core Length Recovered	2.9'	4.2'	4.0'

Core Characteristics

Sediment Type	cobble, gravel, sand C M F, (silt clay), organic matter	cobble, gravel, sand C M F, (silt clay), organic matter
Sediment Color	(gray), (black), brown, (brown surface), olivine	(gray), (black), brown, (brown surface), olivine
Sediment Odor	(None), slight, mod, strong H2S, petroleum, septic	(None), slight, mod, strong H2S, petroleum, septic
Any Layering Homogenous	Layering	Layering

Comments: EPE: 6'
Core 2+3 had similar structure to Core #1

Recorded by: [illegible]

#3: 37 47.653 122 17.467

Appendix B

Analytical Chemistry Laboratory Data Report Submitted by Calscience Environmental Laboratories

Calscience
Environmental
Laboratories, Inc.

August 06, 2010

Jeff Cotsifas
Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Subject: **Calscience Work Order No.: 10-07-1715**
Client Reference: Schnitzer Steel

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 7/23/2010 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. 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.

CASE NARRATIVE

Calscience Work Order No.: 10-07-1715
Project Name: Schnitzer Steel

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 sediment sample, housed (2) 16 oz glass containers, was received for this project on July 23, 2010. The sample was transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the sample upon receipt at the laboratory was 1.1°C. The sample was logged into the Laboratory Information Management System (LIMS), given laboratory identification numbers, and then stored under refrigeration pending sediment chemistry testing.

No sample receiving anomalies were noted.

Tests Performed

Trace Metals by EPA 6020/7471A
Chlorinated Pesticides by EPA 8081A
PCB Aroclors by EPA 8082
PAHs by EPA 8270C SIM
Organotins by Krone et. al.
Total Solids by SM 2540 B
TOC by EPA 9060A

Data Summary

The sample was homogenized prior to preparation/analysis.

A laboratory duplicate was performed for sample SSPC-DU1-Comp.

Holding times

All holding times were met.

Calibration

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

Reporting Limits

All sample concentrations and reporting limits were dry weight corrected. The results were evaluated to the MDL, and where applicable, "J" flags were reported.

Blanks

Concentrations of target analytes in the method blanks were found to be below reporting limits/method detection limits with the following exceptions.

Trace levels of Copper, Nickel and Zinc (by EPA 6020) were found below the RL, but above the MDL, in the Method Blank. However, since the concentrations found in the samples exceed the concentrations found in the Method Blank by ten times or more, the results are released with no further action.

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed for each test and all parameters were within the specified control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable analysis. Matrix spiking was performed on sample SSPC-DU1-Comp, and all parameters were within the established control limits for each method with the following exceptions.

The MS and/or MSD recoveries for Chromium, Copper, Lead and Nickel by EPA 6020 were out of the acceptance range due to matrix interference. However, since the associated PDS/PDSD and LCS/LCSD recoveries were in control, the data are released with no further action.

Since the Zinc (by EPA 6020) concentration found in the sample exceeds the matrix spike concentrations by four times or more, the matrix spike recoveries and RPDs were out of range. Because the corresponding LCS/LCSD recoveries and RPD values were within the established control limits, the results are released with no further qualification.

For the Organotins, the matrix spike recovery for Tributyltin was outside the established control limits. Yet the results are released with no further clarification since the matrix spike duplicate and corresponding LCS/LCSD recoveries were in control.

Surrogates

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

Acronyms

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	N/A
		Method:	EPA 9060A

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	**10-07-1715-1-A**	**07/21/10 09:10**	**Sediment**	**TOC 5**	**N/A**	**07/23/10 14:17**	**A0723TOCL1**

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	Units
Carbon, Total Organic	1.6	0.11	0.026	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	**10-07-1715-2-A**	**07/21/10 09:10**	**Sediment**	**TOC 5**	**N/A**	**07/23/10 14:17**	**A0723TOCL1**

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	Units
Carbon, Total Organic	1.7	0.11	0.027	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-06-013-508**	**N/A**	**Solid**	**TOC 5**	**N/A**	**07/23/10 14:17**	**A0723TOCL1**

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	Units
Carbon, Total Organic	ND	0.050	0.012	1		%

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk	Date Received:	07/23/10
2250 Cordelia Road	Work Order No:	10-07-1715
Fairfield, CA 94534-1912	Preparation:	N/A
	Method:	SM 2540 B

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	10-07-1715-1-A	07/21/10 09:10	Sediment	N/A	07/24/10	07/24/10 16:00	A0724TSB1

Parameter	Result	RL	DF	Qual	Units
Solids, Total	46.0	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	10-07-1715-2-A	07/21/10 09:10	Sediment	N/A	07/24/10	07/24/10 16:00	A0724TSB1

Parameter	Result	RL	DF	Qual	Units
Solids, Total	44.7	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-05-019-1,442	N/A	Solid	N/A	07/24/10	07/24/10 16:00	A0724TSB1

Parameter	Result	RL	DF	Qual	Units
Solids, Total	ND	0.100	1		%

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: Organotins by Krone et al.
Units: ug/kg

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	10-07-1715-1-A	07/21/10 09:10	Sediment	GC/MS Y	07/23/10	07/24/10 14:33	100723L18

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	ND	6.5	1.3	1		Tetrabutyltin	ND	6.5	0.78	1	
Monobutyltin	ND	6.5	2.1	1		Tributyltin	ND	6.5	0.73	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	106	50-130	

SSPC-DUI-COMP (DUPLICATE)	10-07-1715-2-A	07/21/10 09:10	Sediment	GC/MS Y	07/23/10	07/24/10 15:07	100723L18

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	ND	6.7	1.3	1		Tetrabutyltin	ND	6.7	0.80	1	
Monobutyltin	ND	6.7	2.2	1		Tributyltin	ND	6.7	0.75	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	100	50-130	

Method Blank	099-07-016-765	N/A	Solid	GC/MS Y	07/23/10	07/24/10 11:46	100723L18

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	114	50-130	

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	**10-07-1715-1-A**	**07/21/10 09:10**	**Sediment**	**GC/MS BBB**	**07/23/10**	**07/26/10 11:17**	**100723L14**

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
Acenaphthene	17	22	3.3	1	J	2,6-Dimethylnaphthalene	6.7	22	3.7	1	J
Acenaphthylene	20	22	3.2	1	J	Fluoranthene	190	22	3.4	1	
Anthracene	45	22	2.9	1		Fluorene	24	22	3.0	1	
Benzo (a) Anthracene	110	22	4.4	1		Indeno (1,2,3-c,d) Pyrene	45	22	2.9	1	
Benzo (a) Pyrene	120	22	2.8	1		2-Methylnaphthalene	7.1	22	4.0	1	J
Benzo (b) Fluoranthene	100	22	3.4	1		1-Methylnaphthalene	4.8	22	4.5	1	J
Benzo (e) Pyrene	77	22	5.0	1		1-Methylphenanthrene	ND	22	4.8	1	
Benzo (g,h,i) Perylene	56	22	2.8	1		Naphthalene	53	22	3.6	1	
Benzo (k) Fluoranthene	100	22	4.2	1		Perylene	36	22	4.2	1	
Biphenyl	ND	22	3.4	1		Phenanthrene	56	22	4.7	1	
Chrysene	160	22	3.3	1		Pyrene	250	22	3.6	1	
Dibenz (a,h) Anthracene	14	22	2.3	1	J	1,6,7-Trimethylnaphthalene	ND	22	3.6	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	53	14-146		Nitrobenzene-d5	77	18-162	
p-Terphenyl-d14	65	34-148					

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	**10-07-1715-2-A**	**07/21/10 09:10**	**Sediment**	**GC/MS BBB**	**07/23/10**	**07/26/10 11:43**	**100723L14**

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
Acenaphthene	18	22	3.4	1	J	2,6-Dimethylnaphthalene	7.3	22	3.8	1	J
Acenaphthylene	21	22	3.2	1	J	Fluoranthene	190	22	3.5	1	
Anthracene	46	22	2.9	1		Fluorene	24	22	3.0	1	
Benzo (a) Anthracene	110	22	4.5	1		Indeno (1,2,3-c,d) Pyrene	44	22	2.9	1	
Benzo (a) Pyrene	120	22	2.9	1		2-Methylnaphthalene	7.1	22	4.1	1	J
Benzo (b) Fluoranthene	100	22	3.5	1		1-Methylnaphthalene	ND	22	4.6	1	
Benzo (e) Pyrene	81	22	5.1	1		1-Methylphenanthrene	ND	22	4.9	1	
Benzo (g,h,i) Perylene	55	22	2.9	1		Naphthalene	55	22	3.7	1	
Benzo (k) Fluoranthene	100	22	4.3	1		Perylene	37	22	4.3	1	
Biphenyl	ND	22	3.5	1		Phenanthrene	56	22	4.8	1	
Chrysene	170	22	3.4	1		Pyrene	270	22	3.7	1	
Dibenz (a,h) Anthracene	12	22	2.4	1	J	1,6,7-Trimethylnaphthalene	ND	22	3.7	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	54	14-146		Nitrobenzene-d5	69	18-162	
p-Terphenyl-d14	69	34-148					

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs
Units: ug/kg

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-471-55**	**N/A**	**Solid**	**GC/MS BBB**	**07/23/10**	**07/24/10 16:42**	**100723L14**

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
Acenaphthene	ND	10	1.5	1		2,6-Dimethylnaphthalene	ND	10	1.7	1	
Acenaphthylene	ND	10	1.5	1		Fluoranthene	ND	10	1.6	1	
Anthracene	ND	10	1.3	1		Fluorene	ND	10	1.4	1	
Benzo (a) Anthracene	ND	10	2.0	1		Indeno (1,2,3-c,d) Pyrene	ND	10	1.3	1	
Benzo (a) Pyrene	ND	10	1.3	1		2-Methylnaphthalene	ND	10	1.8	1	
Benzo (b) Fluoranthene	ND	10	1.5	1		1-Methylnaphthalene	ND	10	2.1	1	
Benzo (e) Pyrene	ND	10	2.3	1		1-Methylphenanthrene	ND	10	2.2	1	
Benzo (g,h,i) Perylene	ND	10	1.3	1		Naphthalene	ND	10	1.7	1	
Benzo (k) Fluoranthene	ND	10	1.9	1		Perylene	ND	10	1.9	1	
Biphenyl	ND	10	1.6	1		Phenanthrene	ND	10	2.2	1	
Chrysene	ND	10	1.5	1		Pyrene	ND	10	1.6	1	
Dibenz (a,h) Anthracene	ND	10	1.1	1		1,6,7-Trimethylnaphthalene	ND	10	1.7	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	118	14-146		Nitrobenzene-d5	127	18-162	
p-Terphenyl-d14	115	34-148					

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8082
Units: ug/kg

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	**10-07-1715-1-A**	**07/21/10 09:10**	**Sediment**	**GC 58**	**07/23/10**	**07/24/10 16:43**	**100723L13**

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
Aroclor-1016	ND	22	4.4	1		Aroclor-1248	ND	22	4.3	1	
Aroclor-1221	ND	22	4.3	1		Aroclor-1254	25	22	4.3	1	
Aroclor-1232	ND	22	4.3	1		Aroclor-1260	ND	22	4.8	1	
Aroclor-1242	ND	22	4.3	1		Aroclor-1262	ND	22	4.3	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	108	50-130		Decachlorobiphenyl	127	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	**10-07-1715-2-A**	**07/21/10 09:10**	**Sediment**	**GC 58**	**07/23/10**	**07/24/10 17:01**	**100723L13**

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
Aroclor-1016	ND	22	4.5	1		Aroclor-1248	ND	22	4.5	1	
Aroclor-1221	ND	22	4.5	1		Aroclor-1254	29	22	4.5	1	
Aroclor-1232	ND	22	4.5	1		Aroclor-1260	ND	22	5.0	1	
Aroclor-1242	ND	22	4.5	1		Aroclor-1262	ND	22	4.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	103	50-130		Decachlorobiphenyl	127	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-565-156**	**N/A**	**Solid**	**GC 58**	**07/23/10**	**07/24/10 15:13**	**100723L13**

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
Aroclor-1016	ND	10	2.0	1		Aroclor-1248	ND	10	2.0	1	
Aroclor-1221	ND	10	2.0	1		Aroclor-1254	ND	10	2.0	1	
Aroclor-1232	ND	10	2.0	1		Aroclor-1260	ND	10	2.2	1	
Aroclor-1242	ND	10	2.0	1		Aroclor-1262	ND	10	2.0	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	115	50-130		Decachlorobiphenyl	112	50-130	

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	**10-07-1715-1-A**	**07/21/10 09:10**	**Sediment**	**GC 41**	**07/23/10**	**07/26/10 15:02**	**100723L12**

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
Aldrin	ND	2.2	0.67	1		Endosulfan I	ND	2.2	0.77	1	
Alpha-BHC	ND	2.2	0.64	1		Endosulfan II	ND	2.2	0.38	1	
Beta-BHC	ND	2.2	0.55	1		Endosulfan Sulfate	ND	2.2	0.57	1	
Delta-BHC	ND	2.2	0.69	1		Endrin	ND	2.2	0.44	1	
Gamma-BHC	ND	2.2	0.50	1		Endrin Aldehyde	ND	2.2	0.42	1	
Chlordane	ND	22	8.7	1		Endrin Ketone	ND	2.2	0.65	1	
Dieldrin	ND	2.2	0.49	1		Heptachlor	ND	2.2	0.48	1	
2,4'-DDD	ND	2.2	0.44	1		Heptachlor Epoxide	ND	2.2	0.40	1	
2,4'-DDE	ND	2.2	0.39	1		Methoxychlor	ND	2.2	0.36	1	
2,4'-DDT	ND	2.2	0.30	1		Toxaphene	ND	43	18	1	
4,4'-DDD	ND	2.2	0.56	1		Alpha Chlordane	ND	2.2	0.56	1	
4,4'-DDE	ND	2.2	0.65	1		Gamma Chlordane	ND	2.2	0.56	1	
4,4'-DDT	ND	2.2	0.71	1							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	99	50-130		Decachlorobiphenyl	65	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	**10-07-1715-2-A**	**07/21/10 09:10**	**Sediment**	**GC 41**	**07/23/10**	**07/26/10 15:30**	**100723L12**

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
Aldrin	ND	2.2	0.69	1		Endosulfan I	ND	2.2	0.80	1	
Alpha-BHC	ND	2.2	0.66	1		Endosulfan II	ND	2.2	0.39	1	
Beta-BHC	ND	2.2	0.57	1		Endosulfan Sulfate	ND	2.2	0.59	1	
Delta-BHC	ND	2.2	0.71	1		Endrin	ND	2.2	0.45	1	
Gamma-BHC	ND	2.2	0.51	1		Endrin Aldehyde	ND	2.2	0.44	1	
Chlordane	ND	22	9.0	1		Endrin Ketone	ND	2.2	0.67	1	
Dieldrin	ND	2.2	0.51	1		Heptachlor	ND	2.2	0.50	1	
2,4'-DDD	ND	2.2	0.45	1		Heptachlor Epoxide	ND	2.2	0.41	1	
2,4'-DDE	ND	2.2	0.40	1		Methoxychlor	ND	2.2	0.37	1	
2,4'-DDT	ND	2.2	0.31	1		Toxaphene	ND	45	19	1	
4,4'-DDD	ND	2.2	0.58	1		Alpha Chlordane	ND	2.2	0.58	1	
4,4'-DDE	ND	2.2	0.67	1		Gamma Chlordane	ND	2.2	0.58	1	
4,4'-DDT	ND	2.2	0.73	1							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	99	50-130		Decachlorobiphenyl	67	50-130	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8081A
Units: ug/kg

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-858-70**	**N/A**	**Solid**	**GC 41**	**07/23/10**	**07/26/10 12:12**	**100723L12**

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
Aldrin	ND	1.0	0.31	1		Endosulfan I	ND	1.0	0.36	1	
Alpha-BHC	ND	1.0	0.29	1		Endosulfan II	ND	1.0	0.18	1	
Beta-BHC	ND	1.0	0.25	1		Endosulfan Sulfate	ND	1.0	0.26	1	
Delta-BHC	ND	1.0	0.32	1		Endrin	ND	1.0	0.20	1	
Gamma-BHC	ND	1.0	0.23	1		Endrin Aldehyde	ND	1.0	0.20	1	
Chlordane	ND	10	4.0	1		Endrin Ketone	ND	1.0	0.30	1	
Dieldrin	ND	1.0	0.23	1		Heptachlor	ND	1.0	0.22	1	
2,4'-DDD	ND	1.0	0.20	1		Heptachlor Epoxide	ND	1.0	0.18	1	
2,4'-DDE	ND	1.0	0.18	1		Methoxychlor	ND	1.0	0.17	1	
2,4'-DDT	ND	1.0	0.14	1		Toxaphene	ND	20	8.5	1	
4,4'-DDD	ND	1.0	0.26	1		Alpha Chlordane	ND	1.0	0.26	1	
4,4'-DDE	ND	1.0	0.30	1		Gamma Chlordane	ND	1.0	0.26	1	
4,4'-DDT	ND	1.0	0.33	1							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	105	50-130		Decachlorobiphenyl	101	50-130	

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3050B
		Method:	EPA 6020
		Units:	mg/kg
Project: Schnitzer Steel			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	10-07-1715-1-A	07/21/10 09:10	Sediment	ICP/MS 04	07/23/10	07/26/10 12:52	100723L04

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
Arsenic	7.93	0.217	0.110	1		Nickel	76.3	0.217	0.0357	1	B
Cadmium	1.15	0.217	0.00977	1		Selenium	1.25	0.217	0.0750	1	
Chromium	75.8	0.217	0.0377	1		Silver	0.345	0.217	0.00768	1	
Copper	69.2	0.217	0.0397	1	B	Zinc	549	2.17	0.576	1	B
Lead	49.8	0.217	0.0194	1							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	10-07-1715-2-A	07/21/10 09:10	Sediment	ICP/MS 04	07/23/10	07/26/10 13:32	100723L04

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
Arsenic	7.93	0.224	0.114	1		Nickel	74.5	0.224	0.0368	1	B
Cadmium	0.575	0.224	0.0101	1		Selenium	1.48	0.224	0.0772	1	
Chromium	72.3	0.224	0.0388	1		Silver	0.286	0.224	0.00790	1	
Copper	58.8	0.224	0.0409	1	B	Zinc	450	2.24	0.592	1	B
Lead	30.3	0.224	0.0199	1							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	096-10-002-1,785	N/A	Solid	ICP/MS 04	07/23/10	07/23/10 18:15	100723L04

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
Arsenic	ND	0.100	0.0507	1		Nickel	0.0222	0.100	0.0164	1	J
Cadmium	ND	0.100	0.00449	1		Selenium	ND	0.100	0.0345	1	
Chromium	ND	0.100	0.0174	1		Silver	ND	0.100	0.00353	1	
Copper	0.0502	0.100	0.0183	1	J	Zinc	0.484	1.00	0.265	1	J
Lead	ND	0.100	0.00892	1							

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	**10-07-1715-1-A**	**07/21/10 09:10**	**Sediment**	**Mercury**	**07/23/10**	**07/23/10 15:50**	**100723L07**

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	Units
Mercury	0.215	0.0436	0.0282	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	**10-07-1715-2-A**	**07/21/10 09:10**	**Sediment**	**Mercury**	**07/23/10**	**07/23/10 15:52**	**100723L07**

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	Units
Mercury	0.220	0.0448	0.0291	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-452-138**	**N/A**	**Solid**	**Mercury**	**07/23/10**	**07/23/10 15:34**	**100723L07**

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	Units
Mercury	ND	0.0200	0.0130	1		mg/kg

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3050B
		Method:	EPA 6020

Project Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP	Sediment	ICP/MS 04	07/23/10	07/23/10	100723S04

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	107	109	80-120	2	0-20	
Cadmium	98	102	80-120	4	0-20	
Chromium	70	78	80-120	4	0-20	3
Copper	44	48	80-120	2	0-20	3
Lead	67	65	80-120	1	0-20	3
Nickel	76	81	80-120	3	0-20	3
Selenium	107	108	80-120	1	0-20	
Silver	103	107	80-120	4	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

Pacific Ecorisk	Date Received: 07/23/10
2250 Cordelia Road	Work Order No: 10-07-1715
Fairfield, CA 94534-1912	Preparation: EPA 3050B
	Method: EPA 6020

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
SSPC-DUI-COMP	Sediment	ICP/MS 04	07/23/10	07/23/10	100723S04

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	99	96	75-125	3	0-20	
Cadmium	92	92	75-125	1	0-20	
Chromium	80	84	75-125	1	0-20	
Copper	57	63	75-125	3	0-20	
Lead	63	60	75-125	2	0-20	
Nickel	81	87	75-125	3	0-20	
Selenium	87	89	75-125	2	0-20	
Silver	97	98	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

Pacific Ecorisk	Date Received:	07/23/10
2250 Cordelia Road	Work Order No:	10-07-1715
Fairfield, CA 94534-1912	Preparation:	N/A
	Method:	EPA 9060A

Project Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP	Sediment	TOC 5	N/A	07/23/10	A0723TOCS1

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	104	102	75-125	1	0-25	

RPD - Relative Percent Difference CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	N/A
		Method:	SM 2540 B

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
10-07-1714-1	Sediment	N/A	07/24/10	07/24/10	A0724TSD1

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total	54.5	54.9	1	0-25	

RPD - Relative Percent Difference, CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Pacific Ecorisk	Date Received: 07/23/10
2250 Cordelia Road	Work Order No: 10-07-1715
Fairfield, CA 94534-1912	Preparation: EPA 7471A Total
	Method: EPA 7471A

Project Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP	**Sediment**	**Mercury**	**07/23/10**	**07/23/10**	**100723S07**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	88	87	76-136	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.

Project Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP	**Sediment**	**GC/MS Y**	**07/23/10**	**07/24/10**	**100723S18**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	123	118	50-130	4	0-20	
Tributyltin	134	127	50-130	6	0-20	3

RPD - Relative Percent Difference CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Pacific Ecorisk	Date Received:	07/23/10
2250 Cordelia Road	Work Order No:	10-07-1715
Fairfield, CA 94534-1912	Preparation:	EPA 3545
	Method:	EPA 8270C SIM PAHs

Project Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP	Sediment	GC/MS BBB	07/23/10	07/25/10	100723S14

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Acenaphthene	67	68	40-160	0	0-20	
Acenaphthylene	63	64	40-160	1	0-20	
Anthracene	43	45	40-160	4	0-20	
Benzo (a) Anthracene	46	48	40-160	3	0-20	
Benzo (a) Pyrene	52	53	40-160	2	0-20	
Benzo (b) Fluoranthene	57	54	40-160	3	0-20	
Benzo (g,h,i) Perylene	49	53	40-160	7	0-20	
Benzo (k) Fluoranthene	48	47	40-160	0	0-20	
Chrysene	46	47	40-160	1	0-20	
Dibenz (a,h) Anthracene	58	59	40-160	1	0-20	
Fluoranthene	44	46	40-160	5	0-20	
Fluorene	64	66	40-160	3	0-20	
Indeno (1,2,3-c,d) Pyrene	57	59	40-160	2	0-20	
2-Methylnaphthalene	69	67	40-160	2	0-20	
1-Methylnaphthalene	67	62	40-160	7	0-20	
Naphthalene	59	59	40-160	0	0-20	
Phenanthrene	61	61	40-160	0	0-20	
Pyrene	53	49	40-160	3	0-46	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3545
		Method:	EPA 8082

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP	**Sediment**	**GC 58**	**07/23/10**	**07/24/10**	**100723S13**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	115	118	50-135	3	0-25	
Aroclor-1260	131	124	50-135	5	0-25	

RPD - Relative Percent Difference, CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3545
		Method:	EPA 8081A

Project Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP	**Sediment**	**GC 41**	**07/23/10**	**07/27/10**	**100723S12**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aldrin	71	69	50-135	3	0-25	
Alpha-BHC	88	86	50-135	3	0-25	
Beta-BHC	83	80	50-135	4	0-25	
Delta-BHC	88	86	50-135	3	0-25	
Gamma-BHC	79	76	50-135	4	0-25	
Dieldrin	83	79	50-135	4	0-25	
4,4'-DDD	85	83	50-135	2	0-25	
4,4'-DDE	87	84	50-135	3	0-25	
4,4'-DDT	106	101	50-135	5	0-25	
Endosulfan I	72	68	50-135	5	0-25	
Endosulfan II	78	75	50-135	4	0-25	
Endosulfan Sulfate	86	82	50-135	4	0-25	
Endrin	80	76	50-135	4	0-25	
Endrin Aldehyde	69	59	50-135	16	0-25	
Endrin Ketone	96	94	50-135	2	0-25	
Heptachlor	68	66	50-135	4	0-25	
Heptachlor Epoxide	73	71	50-135	3	0-25	
Methoxychlor	88	88	50-135	0	0-25	
Alpha Chlordane	76	73	50-135	4	0-25	
Gamma Chlordane	77	74	50-135	3	0-25	

RPD - Relative Percent Difference CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Pacific Ecorisk		Date Received:	N/A
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-1,785	Solid	ICP/MS 04	07/23/10	07/23/10	100723L04

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	99	98	80-120	1	0-20	
Cadmium	96	96	80-120	0	0-20	
Chromium	94	94	80-120	0	0-20	
Copper	100	98	80-120	2	0-20	
Lead	96	95	80-120	1	0-20	
Nickel	100	97	80-120	3	0-20	
Selenium	102	100	80-120	2	0-20	
Silver	91	91	80-120	0	0-20	
Zinc	103	100	80-120	2	0-20	

RPD - Relative Percent Difference, CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

Pacific Ecorisk	Date Received: N/A
2250 Cordelia Road	Work Order No: 10-07-1715
Fairfield, CA 94534-1912	Preparation: N/A
	Method: EPA 9060A

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-06-013-508	Solid	TOC 5	07/23/10	NONE	A0723TOCL1

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Carbon, Total Organic	0.6	0.632	105	80-120	

RPD - Relative Percent Difference , CL = Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Pacific Ecorisk		Date Received:	N/A
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-452-138	**Solid**	Mercury	**07/23/10**	**07/23/10**	100723L07

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	97	99	82-124	2	0-16	

RPD - Relative Percent Difference, CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Pacific Ecorisk		Date Received:	N/A
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-016-765	Solid	GC/MS Y	07/23/10	07/24/10	100723L18

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	95	99	50-130	4	0-20	
Tributyltin	108	117	50-130	8	0-20	

RPD - Relative Percent Difference, CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Pacific Ecorisk	Date Received: N/A
2250 Cordelia Road	Work Order No: 10-07-1715
Fairfield, CA 94534-1912	Preparation: EPA 3545
	Method: EPA 8270C SIM PAHs

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-471-55	Solid	GC/MS BBB	07/23/10	07/24/10	100723L14

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Acenaphthene	88	87	48-108	38-118	1	0-11	
Acenaphthylene	84	84	40-160	20-180	0	0-20	
Anthracene	66	65	40-160	20-180	2	0-20	
Benzo (a) Anthracene	82	83	40-160	20-180	1	0-20	
Benzo (a) Pyrene	87	86	40-160	20-180	2	0-20	
Benzo (b) Fluoranthene	87	83	40-160	20-180	4	0-20	
Benzo (g,h,i) Perylene	73	73	40-160	20-180	0	0-20	
Benzo (k) Fluoranthene	81	82	40-160	20-180	1	0-20	
Chrysene	83	83	40-160	20-180	0	0-20	
Dibenz (a,h) Anthracene	79	79	40-160	20-180	0	0-20	
Fluoranthene	88	87	40-160	20-180	1	0-20	
Fluorene	91	90	40-160	20-180	1	0-20	
Indeno (1,2,3-c,d) Pyrene	84	84	40-160	20-180	0	0-20	
2-Methylnaphthelene	92	92	40-160	20-180	0	0-20	
1-Methylnaphthalene	89	87	40-160	20-180	2	0-20	
Naphthalene	88	89	40-160	20-180	1	0-20	
Phenanthrene	87	87	40-160	20-180	0	0-20	
Pyrene	83	83	40-160	20-180	0	0-16	

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

Pacific Ecorisk		Date Received:	N/A
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3545
		Method:	EPA 8082

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-565-156	Solid	GC 58	07/23/10	07/24/10	100723L13

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1016	103	108	50-135	4	0-25	
Aroclor-1260	104	116	50-135	10	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

Pacific Ecorisk	Date Received: N/A
2250 Cordelia Road	Work Order No: 10-07-1715
Fairfield, CA 94534-1912	Preparation: EPA 3545
	Method: EPA 8081A

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-12-858-70	Solid	GC 41	07/26/10	10072605	100723L12

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	ME CL	Qualifiers
Aldrin	5.00	4.74	95	50-135	36-149	
Alpha-BHC	5.00	4.47	89	50-135	36-149	
Beta-BHC	5.00	4.52	90	50-135	36-149	
Delta-BHC	5.00	2.57	51	50-135	36-149	
Gamma-BHC	5.00	4.53	91	50-135	36-149	
Dieldrin	5.00	4.80	96	50-135	36-149	
4,4'-DDD	5.00	4.55	91	50-135	36-149	
4,4'-DDE	5.00	4.46	89	50-135	36-149	
4,4'-DDT	5.00	5.04	101	50-135	36-149	
Endosulfan I	5.00	4.73	95	50-135	36-149	
Endosulfan II	5.00	4.70	94	50-135	36-149	
Endosulfan Sulfate	5.00	4.29	86	50-135	36-149	
Endrin	5.00	5.01	100	50-135	36-149	
Endrin Aldehyde	5.00	4.58	92	50-135	36-149	
Endrin Ketone	5.00	4.83	97	50-135	36-149	
Heptachlor	5.00	4.98	100	50-135	36-149	
Heptachlor Epoxide	5.00	4.52	90	50-135	36-149	
Methoxychlor	5.00	4.82	96	50-135	36-149	
Alpha Chlordane	5.00	4.80	96	50-135	36-149	
Gamma Chlordane	5.00	4.59	92	50-135	36-149	

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.

Glossary of Terms and Qualifiers

Work Order Number: 10-07-1715

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.

CHAIN OF CUSTODY RECORD

1715

PACIFIC ECORISK
2250 Cordelia Rd
Fairfield, CA 94534
Ph: (707) 207-7760
Fax: (707) 207-7916
www.pacificecorisk.com

RESULTS TO: Same
Attn: Jeff Collins
Phone:
Email:

BILL TO: Same
Attn: Cynthia Garcia
Phone:
Email:

PROJECT: Schnitzer Steel

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	ANALYSES REQUESTED: See ATTACHED LIST	ANALYSES REQUESTED: GRAIN Size	REMARKS
SSPC-DU1-COMP	7/21/10	09:10	Soil	Comp	2 1500mL Glass	✓		
SSPC-DU1-Comp	7/21/10	09:10	Soil	Comp	1 1 Ziploc Bag		✓	
					1			
					1			
					1			
					1			
					1			
					1			

METHOD OF SHIPMENT: FedEx: X UPS: ____ HAND: ____ OTHER: ____

COMMENTS: Please run duplicate analysis on SSPC-DU1-Comp for Chemistry

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
C. Jenkins	7/22/10	16:00	CCL	7/23/10	1030	1 OF 1

WHITE - RETURN W/ SAMPLE YELLOW - KEEP FOR YOUR RECORDS

ANALYTE LIST

Pacific EcoRisk
2250 Cordelia Rd.
Fairfield, CA 94534

Project Proponent: **Pacific EcoRisk**

Project #: Schnitzer Steel

Site #: SSPC-DU1-COMP

Standard Ocean Disposal List

Solids, Total	SMEWW 2540 B	X
Total Organic Carbon	ASTM D4129-82M	X
Grain Size	Plumb 1981/ASTM	X
Arsenic	6020	X
Cadmium	6020	X
Chromium	6020	X
Copper	6020	X
Lead	6020	X
Nickel	6020	X
Silver	6020	X
Zinc	6020	X
Mercury	7471A	X
Selenium	7740 - GFAA	X
2,4'-DDD	8081A	X
2,4'-DDE	8081A	X
2,4'-DDT	8081A	X
4,4'-DDD	8081A	X
4,4'-DDE	8081A	X
4,4'-DDT	8081A	X
Aldrin	8081A	X
alpha-BHC	8081A	X
alpha-Chlordane	8081A	X
beta-BHC	8081A	X
Chlordane	8081A	X
delta-BHC	8081A	X
Dieldrin	8081A	X
Endosulfan I	8081A	X
Endosulfan II	8081A	X
Endosulfan Sulfate	8081A	X
Endrin	8081A	X
Endrin Aldehyde	8081A	X
gamma-BHC (Lindane)	8081A	X
gamma-Chlordane	8081A	X
Heptachlor	8081A	X
Heptachlor Epoxide	8081A	X
Toxaphene	8081A	X
PCBs 1016	8082 PCBs	X
PCBs 1221	8082 PCBs	X
PCBs 1232	8082 PCBs	X
PCBs1242	8082 PCBs	X
PCBs1248	8082 PCBs	X
PCBs1254	8082 PCBs	X
PCBs1260	8082 PCBs	X
PCBs1262	8082 PCBs	X
PCBs1268	8082 PCBs	X
Acenaphthene	8270C-SIM PAH	X

Acenaphthylene	8270C-SIM PAH	X
Anthracene	8270C-SIM PAH	X
Benz(a)anthracene	8270C-SIM PAH	X
Benzo(a)pyrene	8270C-SIM PAH	X
Benzo(b)fluoranthene	8270C-SIM PAH	X
Benzo(g,h,i)perylene	8270C-SIM PAH	X
Benzo(k)fluoranthene	8270C-SIM PAH	X
Chrysene	8270C-SIM PAH	X
Dibenz(a,h)anthracene	8270C-SIM PAH	X
Fluoranthene	8270C-SIM PAH	X
Fluorene	8270C-SIM PAH	X
Indeno(1,2,3-cd)pyrene	8270C-SIM PAH	X
Naphthalene	8270C-SIM PAH	X
Phenanthrene	8270C-SIM PAH	X
Pyrene	8270C-SIM PAH	X
Di-n-butyltin	Organotins	X
n-Butyltin	Organotins	X
Tetra-n-butyltin	Organotins	X
Tri-n-butyltin	Organotins	X
QA/QC		
Duplicate analysis - SSPC-DUI-COMP		X

If you have any questions regarding this request as checked, please call Jeff Cotsifas at (707)207-7760

Alternative Methods Approved as per conversation w/ Bob Sterns

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-07-1715

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Pacific Ecorisk DATE: 07/23/10

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

Temperature 0.6 °C + 0.5 °C (CF) = 1.1 °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: NC

CUSTODY SEALS INTACT:

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

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: NC

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	☐	☐	☑
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 (2) ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑2

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PJ ☐100PJna_2 ☐_____ ☐_____ ☐_____

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: NC

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]

SOP T100_090 (05/10/10)

Calscience Environmental Laboratories, Inc.

Supplemental Report 4

August 25, 2010

The original report has been revised/corrected.

Jeff Cotsifas
Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Subject: **Calscience Work Order No.: 10-07-1715**
Client Reference: Schnitzer Steel

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 7/23/2010 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. 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

Case Narrative

Supplemental Report Calscience Work Order No: 10-07-1715

At the request of the client, the Selenium data was checked using method EPA 1640. This evaluation showed values considerably lower than the original Selenium values. Upon our investigation of the original metals data set, we determined that the Selenium data was loaded into LIMS incorrectly, that is, it was inadvertently loaded with an improper setting which did not account for positive interferences. This report presents the revised and correct Selenium values.

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received:	07/23/10
Work Order No:	10-07-1715
Preparation:	N/A
Method:	SM 2540 B

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	**10-07-1715-1-A**	**07/21/10 09:10**	**Sediment**	**N/A**	**07/24/10**	**07/24/10 16:00**	**A0724TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	46.0	0.100	1		%

SSPC-DUI-COMP (DUPLICATE)	**10-07-1715-2-A**	**07/21/10 09:10**	**Sediment**	**N/A**	**07/24/10**	**07/24/10 16:00**	**A0724TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	44.7	0.100	1		%

Method Blank	**099-05-019-1,442**	**N/A**	**Solid**	**N/A**	**07/24/10**	**07/24/10 16:00**	**A0724TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	ND	0.100	1		%

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3050B
Method: EPA 6020

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	**10-07-1715-1-A**	**07/21/10 09:10**	**Sediment**	**ICP/MS 04**	**07/23/10**	**07/26/10 13:27**	**100723L04**

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	Units
Selenium	0.496	0.217	0.0750	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	**10-07-1715-2-A**	**07/21/10 09:10**	**Sediment**	**ICP/MS 04**	**07/23/10**	**07/26/10 13:32**	**100723L04**

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	Units
Selenium	0.690	0.224	0.0772	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-10-002-1,785**	**N/A**	**Solid**	**ICP/MS 04**	**07/23/10**	**07/23/10 18:15**	**100723L04**

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	Units
Selenium	ND	0.100	0.0345	1		mg/kg

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3050B
Method: EPA 6020

Project Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP	**Sediment**	**ICP/MS 04**	**07/23/10**	**07/23/10**	**100723S04**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Selenium	108	109	80-120	1	0-20	

RPD - Relative Percent Difference, CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3050B
Method: EPA 6020

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
SSPC-DUI-COMP	Sediment	ICP/MS 04	07/23/10	07/23/10	100723S04

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Selenium	89	90	75-125	2	0-20	

RPD - Relative Percent Difference, CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	N/A
		Method:	SM 2540 B

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
10-07-1714-1	**Sediment**	**N/A**	**07/24/10**	**07/24/10**	**A0724TSD1**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total	54.5	54.9	1	0-25	

RPD - Relative Percent Difference ; CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: N/A
Work Order No: 10-07-1715
Preparation: EPA 3050B
Method: EPA 6020

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-1,785	Solid	ICP/MS 04	07/23/10	07/23/10	100723L04

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Selenium	102	100	80-120	2	0-20	

RPD - Relative Percent Difference, CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 10-07-1715

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.

CHAIN OF CUSTODY RECORD

1715

PACIFIC ECORISK
2250 Cordelia Rd
Fairfield, CA 94534
Ph: (707) 207-7760
Fax: (707) 207-7916
www.pacificecorisk.com

RESULTS TO: Same
Attn: Jeff Cotsifas
Phone:
Email:

BILL TO: Same
Attn: Cynthia Garcia
Phone:
Email:

PROJECT: Schnitzer Steel

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	See ATTACHED LIST	GRAIN Size						REMARKS
SSPC-DU1-COMP	7/21/10	09:10	Sed	Comp	2 1500ml Glass	✓							
SSPC-DU1-COMP	7/21/10	09:10	Sed	Comp	1 1 Ziploc Bag		✓						
					/								
					/								
					/								
					/								
					/								
					/								

METHOD OF SHIPMENT: FedEx: X UPS: ____ HAND: ____ OTHER: ____

COMMENTS: Please run duplicate analysis on SSPC-DU1-COMP for Chemistry

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
[signature]	7/22/10	16:00	[signature] CCR	7/23/10	1030	1 OF 1

WHITE - RETURN W/ SAMPLE YELLOW - KEEP FOR YOUR RECORDS

ANALYTE LIST

Pacific EcoRisk
2250 Cordelia Rd.
Fairfield, CA 94534

Project Proponent: **Pacific EcoRisk**

Project #: Schnitzer Steel

Site #: SSPC-DU1-COMP

Standard Ocean Disposal List

Solids, Total	SMEWW 2540 B	X
Total Organic Carbon	ASTM D4129-82M	X
Grain Size	Plumb 1981/ASTM	X
Arsenic	6020	X
Cadmium	6020	X
Chromium	6020	X
Copper	6020	X
Lead	6020	X
Nickel	6020	X
Silver	6020	X
Zinc	6020	X
Mercury	7471A	X
Selenium	7740 - GFAA	X
2,4'-DDD	8081A	X
2,4'-DDE	8081A	X
2,4'-DDT	8081A	X
4,4'-DDD	8081A	X
4,4'-DDE	8081A	X
4,4'-DDT	8081A	X
Aldrin	8081A	X
alpha-BHC	8081A	X
alpha-Chlordane	8081A	X
beta-BHC	8081A	X
Chlordane	8081A	X
delta-BHC	8081A	X
Dieldrin	8081A	X
Endosulfan I	8081A	X
Endosulfan II	8081A	X
Endosulfan Sulfate	8081A	X
Endrin	8081A	X
Endrin Aldehyde	8081A	X
gamma-BHC (Lindane)	8081A	X
gamma-Chlordane	8081A	X
Heptachlor	8081A	X
Heptachlor Epoxide	8081A	X
Toxaphene	8081A	X
PCBs 1016	8082 PCBs	X
PCBs 1221	8082 PCBs	X
PCBs 1232	8082 PCBs	X
PCBs1242	8082 PCBs	X
PCBs1248	8082 PCBs	X
PCBs1254	8082 PCBs	X
PCBs1260	8082 PCBs	X
PCBs1262	8082 PCBs	X
PCBs1268	8082 PCBs	X
Acenaphthene	8270C-SIM PAH	X

Acenaphthylene	8270C-SIM PAH	X
Anthracene	8270C-SIM PAH	X
Benz(a)anthracene	8270C-SIM PAH	X
Benzo(a)pyrene	8270C-SIM PAH	X
Benzo(b)fluoranthene	8270C-SIM PAH	X
Benzo(g,h,i)perylene	8270C-SIM PAH	X
Benzo(k)fluoranthene	8270C-SIM PAH	X
Chrysene	8270C-SIM PAH	X
Dibenz(a,h)anthracene	8270C-SIM PAH	X
Fluoranthene	8270C-SIM PAH	X
Fluorene	8270C-SIM PAH	X
Indeno(1,2,3-cd)pyrene	8270C-SIM PAH	X
Naphthalene	8270C-SIM PAH	X
Phenanthrene	8270C-SIM PAH	X
Pyrene	8270C-SIM PAH	X
Di-n-butyltin	Organotins	X
n-Butyltin	Organotins	X
Tetra-n-butyltin	Organotins	X
Tri-n-butyltin	Organotins	X
QA/QC		
Duplicate analysis - SSPC-DUJ-COMP		X

If you have any questions regarding this request as checked, please call Jeff Cotsifas at (707)207-7760

Alternative Methods Approved as per conversation w/ Bob Sterns

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-07-1715

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Pacific Ecorisk DATE: 07/23/10

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

Temperature 0.6 °C + 0.5 °C (CF) = 1.1 °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: NC

CUSTODY SEALS INTACT:

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

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: M

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	☐	☐	☑
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 (2) ☐Sleeve (____) ☐EnCores® ☐TerraCores® ☑2

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PJ ☐100PJna_2 ☐_____ ☐_____ ☐_____

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

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

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:**

Calscience Environmental Laboratories, Inc.

Supplemental Report 2

August 11, 2010

Subcontract analyses are reported as a stand-alone report.

Jeff Cotsifas
Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Subject: **Calscience Work Order No.: 10-07-1715**
Client Reference: Schnitzer Steel

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 7/23/2010 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. 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

August 11, 2010

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

Re: Physical Properties Analyses
Project: 10-07-1715
CL File No: 410065EN

Dear Ms Gonsman:

Enclosed are final analysis results for a sample submitted from your Project # 10-07-1715. Appropriate ASTM, EPA or API methodologies were used for this project and SOP's are available on request. The sample remnants for this project are currently in storage and will be retained for thirty days past completion of testing at no charge. At the end of thirty days the samples will be disposed. You may contact me regarding continued storage, disposal or return of the samples.

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. Unless otherwise notified, this electronic version will be the only report issued for 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

Jeffry L. Smith
ARP Supervisor

Encl.

CLB
NYSE

SIEVE and LASER PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

Core Lab

Petroleum Services

Calscience Environmental Laboratories, Inc.
Proj. No. : 10-07-1715

Core Lab File No : 57111-410065EN
Date : 8/02/2010

Sample ID	Grain Size Description (Mean from Folk)	Median Grain Size, mm	Component Percentages								Silt & Clay
			Gravel	Sand Size					Silt	Clay	
				VCoarse	Coarse	Medium	Fine	VFine			
SSPC-DU1-COMP	silt	0.01	0.00	0.01	1.99	8.63	7.45	3.56	60.86	17.50	78.4

Company : Calscience Environmental Laboratories, Inc.
Proj. No. : 10-07-1715

C.L. File No. : 57111-410065EN
Date : 8/02/2010

Sieve and Laser Particle Size Analysis (Metric)

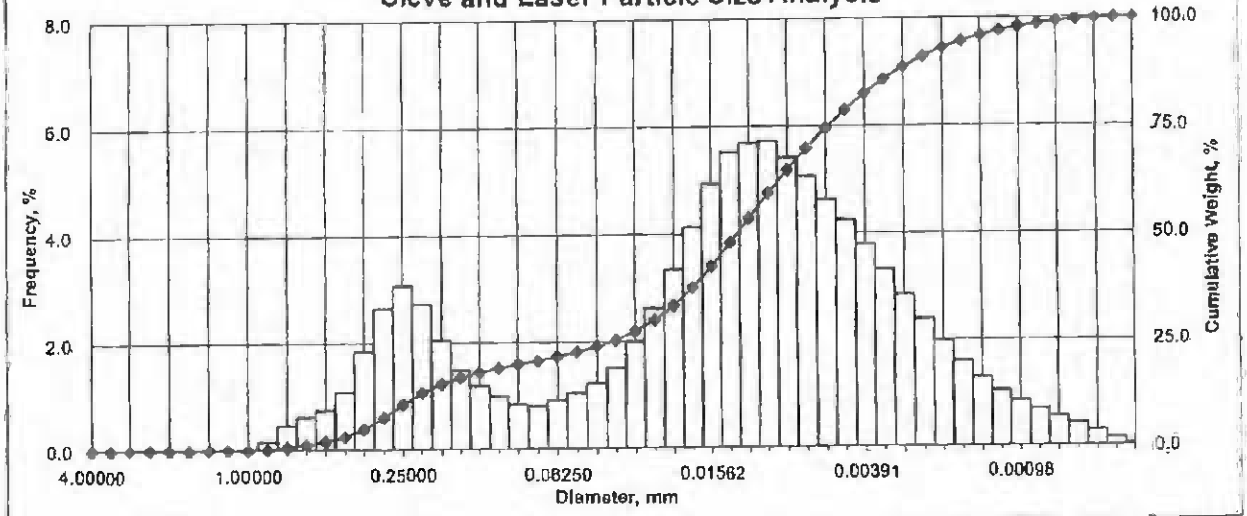
Sample ID	Component Percentages								Percentiles										Sorting Statistics (Folk)				
	Gravel	Sand					Fines		Particle Diameter (mm)										Median	Mean	Sorting	Skew.	Kurt.
		vcgr	cgr	mgr	fgr	vfgr	silt	clay	5	10	16	25	40	50	75	84	90	95	mm	mm	ϕ		
SSPC-DU1-COMP	0.00	0.01	1.99	8.63	7.45	3.56	#####	17.50	0.3515	0.2588	0.1659	**	0.0169	0.0123	0.0054	0.0036	0.0025	0.0016	0.012	0.019	2.563	-0.298	**
									mgr	mgr	fgr	**	silt	silt	silt	clay	clay	clay	silt	silt	v. Poor	coarse	**

** Particle size distribution pattern precludes calculation of these statistical parameters

Company : Calscience Environmental Laboratories, Inc.
Proj. No. : 10-07-1715

CL File No. : 57111-410065EN
Sample ID : SSPC-DU1-COMP

Sieve and Laser Particle Size Analysis



Particle Size Distribution

	Diameter [US Mesh]	[in.]	[mm]	[ϕ]	Weight % [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	0.055676	1.41421	-0.50	0.000	0.00
	16	0.046819	1.18921	-0.25	0.000	0.00
	18	0.039370	1.00000	0.00	0.014	0.01
Coarse Sand	20	0.033106	0.84090	0.25	0.161	0.17
	25	0.027839	0.70711	0.50	0.464	0.64
	30	0.023410	0.59460	0.75	0.616	1.26
	35	0.019685	0.50000	1.00	0.747	2.00
Medium Sand	40	0.016553	0.42045	1.25	1.076	3.08
	45	0.013919	0.35355	1.50	1.846	4.93
	50	0.011705	0.29730	1.75	2.640	7.57
	60	0.009843	0.25000	2.00	3.064	10.63
Fine Sand	70	0.008277	0.21022	2.25	2.723	13.35
	80	0.006960	0.17678	2.50	2.043	15.40
	100	0.005852	0.14865	2.75	1.488	16.89
	120	0.004921	0.12500	3.00	1.186	18.08
V. Fine Sand	140	0.004138	0.10511	3.25	1.001	19.08
	170	0.003480	0.08839	3.50	0.849	19.93
	200	0.002928	0.07433	3.75	0.798	20.73
Silt	230	0.002461	0.06250	4.00	0.915	21.64
	270	0.002069	0.05258	4.25	1.050	22.69
	325	0.001740	0.04419	4.50	1.217	23.91
	400	0.001463	0.03716	4.75	1.514	25.43
	450	0.001230	0.03125	5.00	1.998	27.42
	500	0.001035	0.02628	5.25	2.613	30.04
	635	0.000870	0.02210	5.50	3.338	33.37
		0.000732	0.01858	5.75	4.129	37.50
		0.000615	0.01562	6.00	4.935	42.44
		0.000517	0.01314	6.25	5.521	47.96
		0.000435	0.01105	6.50	5.681	53.64
		0.000366	0.00929	6.75	5.729	59.37
		0.000308	0.00781	7.00	5.414	64.78
		0.000259	0.00657	7.25	5.071	69.85
		0.000217	0.00552	7.50	4.621	74.47
		0.000183	0.00465	7.75	4.244	78.72
		0.000154	0.00391	8.00	3.784	82.50
		0.000129	0.00328	8.25	3.318	85.82
Clay		0.000109	0.00276	8.50	2.642	88.66
		0.000091	0.00232	8.75	2.390	91.05
		0.000077	0.00195	9.00	1.969	93.02
		0.000065	0.00164	9.25	1.598	94.62
		0.000054	0.00138	9.50	1.286	95.91
		0.000046	0.00116	9.75	1.048	96.95
		0.000038	0.00098	10.00	0.850	97.80
		0.000032	0.00082	10.25	0.700	98.50
		0.000027	0.00069	10.50	0.583	99.07
		0.000023	0.00058	10.75	0.433	99.50
		0.000019	0.00049	11.00	0.301	99.80
		0.000016	0.00041	11.25	0.152	99.95
		0.000015	0.00038	11.50	0.048	100.00

Sorting Statistics (Folk)

Parameter	Trask	Inman	Folk
Median		Silt sized	
(ln)	0.0005	0.0005	0.0005
(mm)	0.0123	0.0123	0.0123
Mean		Silt sized	
(ln)	**	0.0010	0.0008
(mm)	**	0.0245	0.0195
Sorting		V. Poor	
	**	0.148	2.563
Skewness		Coarse skewed	
	**	-0.337	-0.299
Kurtosis		**	
	**	0.416	**

Component Percentages

Gravel	Sand	Silt	Clay	Silt + Clay
0.00	21.64	60.86	17.50	78.36

Percentile [Weight, %]	Particle Diameter [in.]	[mm]	[phi]
5	0.0138	0.3515	1.5084
10	0.0102	0.2586	1.9501
16	0.0065	0.1659	2.5915
25	**	**	**
40	0.0007	0.0169	5.8873
50	0.0005	0.0123	6.3418
75	0.0002	0.0054	7.5285
84	0.0001	0.0038	8.1085
90	0.0001	0.0025	8.6342
95	0.0001	0.0016	9.3186

** Distribution pattern precludes calculation of these statistical parameters

410065 CN

CHAIN OF CUSTODY RECORD

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

TO: CORE

DATE: 07/23/10

PAGE: 1 OF 1

LABORATORY CLIENT: Calscience Environmental Laboratories, Inc.	CLIENT PROJECT NAME / NUMBER: 10-07-1715	P.O. NO.: 10-07-1715
ADDRESS: 7440 Lincoln Way	PROJECT CONTACT: Danielle Gonsman	TEMP BLANK:
CITY: Garden Grove, CA 92841-1427	QUOTE NO.:	
TEL: (714) 895-5494 / E-MAIL: dgonsman@calscience.com		

TURNAROUND TIME: ___SAME DAY ___24 HR ___48HR ___72 HR ___5 DAYS X NORMAL

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	Grain Size by ASTM D4464
	SSPC-DU1-COMP	07/21/10	0910	sed	1 ziploc	X

Relinquished by: (Signature) (CALSCIENCE)

Received by / Affiliation: (Signature) GSO5146158Z1 Date: 7/26/10 Time: 1430

Relinquished by: (Signature)

Received by / Affiliation: (Signature) Date: 7/27/10 Time: 1700

Relinquished by: (Signature)

Received by / Affiliation: (Signature) Date: Time:

88/165

410064, 65 66 467 EN
7/27/10

GSO GOLDEN STATE OVERNIGHT

WebShip > > > > >
800-322-5555 www.gso.com

Ship From:
SAMPLE CONTROL
CAL SCIENCE
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

Ship To:
LARRY KUNKUL
CORE LABORATORY
3437 LANDCO DRIVE
BAKERSFIELD, CA 93308

COD:
$0.00

Reference:
DG/10-07-1304/1715/1861/XD/10-07-1777

Delivery Instructions:

Signature Type:
SIGNATURE REQUIRED

Tracking #: 514615821

NPS

BFL G

BAKERSFIELD

D93312A

83390173

Print Date: 07/26/10 14:21 PM

Package 1 of 1

CUSTODY SEAL

Date: 7/26/10

410064, 65, 66 467
7/27/10

Signature: WCbatuca

ENVIRONMENTAL SAMPLING SUPPLY
9601 San Leandro St. Oakland, CA 800-233-8425

89/165

CHAIN OF CUSTODY RECORD

1715

PACIFIC ECORISK
2250 Cordelia Rd
Fairfield, CA 94534
Ph: (707) 207-7760
Fax: (707) 207-7916
www.pacificecorisk.com

RESULTS TO: Same

Attn: Jeff Cotsifas
Phone:
Email:

BILL TO: Same

Attn: Cynthia Garcia
Phone:
Email:

PROJECT: Schnitzer Steel

ANALYSES REQUESTED

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	See ATTACHED LIST	GRAIN Size							REMARKS
SSPC-Dup1-COMP	7/21/10	09:10	Soil	Comp	2 1500ml Glass	✓								
SSPC-Dup1-Comp	7/21/10	09:10	Soil	Comp	1 / 1 Zip Loc Bag		✓							
					/									
					/									
					/									
					/									
					/									
					/									

METHOD OF SHIPMENT: FedEx: X UPS: HAND: OTHER:

COMMENTS: Please run duplicate analysis on SSPC-Dup1-Comp for Chemistry

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
C Jenkins	7/22/10	16:00	[signature] CCL	7/23/10	1030	1 OF 1

WHITE - RETURN W/ SAMPLE YELLOW - KEEP FOR YOUR RECORDS

90/165

ANALYTE LIST

Pacific EcoRisk
2250 Cordelia Rd.
Fairfield, CA 94534

Project Proponent: **Pacific EcoRisk**

Project #: Schnitzer Steel

Site #: SSPC-DU1-COMP

Standard Ocean Disposal List

Solids, Total	SMEWW 2540 B	X
Total Organic Carbon	ASTM D4129-82M	X
Grain Size	Plumb 1981/ASTM	X
Arsenic	6020	X
Cadmium	6020	X
Chromium	6020	X
Copper	6020	X
Lead	6020	X
Nickel	6020	X
Silver	6020	X
Zinc	6020	X
Mercury	7471A	X
Selenium	7740 - GFAA	X
2,4'-DDD	8081A	X
2,4'-DDE	8081A	X
2,4'-DDT	8081A	X
4,4'-DDD	8081A	X
4,4'-DDE	8081A	X
4,4'-DDT	8081A	X
Aldrin	8081A	X
alpha-BHC	8081A	X
alpha-Chlordane	8081A	X
beta-BHC	8081A	X
Chlordane	8081A	X
delta-BHC	8081A	X
Dieldrin	8081A	X
Endosulfan I	8081A	X
Endosulfan II	8081A	X
Endosulfan Sulfate	8081A	X
Endrin	8081A	X
Endrin Aldehyde	8081A	X
gamma-BHC (Lindane)	8081A	X
gamma-Chlordane	8081A	X
Heptachlor	8081A	X
Heptachlor Epoxide	8081A	X
Toxaphene	8081A	X
PCBs 1016	8082 PCBs	X
PCBs 1221	8082 PCBs	X
PCBs 1232	8082 PCBs	X
PCBs1242	8082 PCBs	X
PCBs1248	8082 PCBs	X
PCBs1254	8082 PCBs	X
PCBs1260	8082 PCBs	X
PCBs1262	8082 PCBs	X
PCBs1268	8082 PCBs	X
Acenaphthene	8270C-SIM PAH	X

Acenaphthylene	8270C-SIM PAH	X
Anthracene	8270C-SIM PAH	X
Benz(a)anthracene	8270C-SIM PAH	X
Benzo(a)pyrene	8270C-SIM PAH	X
Benzo(b)fluoranthene	8270C-SIM PAH	X
Benzo(g,h,i)perylene	8270C-SIM PAH	X
Benzo(k)fluoranthene	8270C-SIM PAH	X
Chrysene	8270C-SIM PAH	X
Dibenz(a,h)anthracene	8270C-SIM PAH	X
Fluoranthene	8270C-SIM PAH	X
Fluorene	8270C-SIM PAH	X
Indeno(1,2,3-cd)pyrene	8270C-SIM PAH	X
Naphthalene	8270C-SIM PAH	X
Phenanthrene	8270C-SIM PAH	X
Pyrene	8270C-SIM PAH	X
Di-n-butyltin	Organotins	X
n-Butyltin	Organotins	X
Tetra-n-butyltin	Organotins	X
Tri-n-butyltin	Organotins	X
QA/QC		
Duplicate analysis - SSPC-DU1-COMP		X

If you have any questions regarding this request as checked, please call Jeff Cotsifas at (707)207-7760

Alternative Methods Approved as per conversation w/ Bob Sterns

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-07-1715

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Pacific Ecorisk DATE: 07/23/10

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

Temperature 0.6 °C + 0.5 °C (CF) = 1.1 °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: NC

CUSTODY SEALS INTACT:

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

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: NC

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	☐	☐	☑
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 ☑16(2)ozCGJ ☐Sleeve (____) ☐EnCores® ☐TerraCores® ☑2

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PJ ☐100PJna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® Other: ☐_____ Trip Blank Lot#:_____ Labeled/Checked by: (2)

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

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: (2)

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

August 09, 2010

Additional requested analyses are reported as a stand-alone report.

Jeff Cotsifas
Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Subject: **Calscience Work Order No.: 10-07-1715**
Client Reference: Schnitzer Steel

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 7/23/2010 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. 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.

Analytical Report

Pacific Ecorisk		Date Received:	07/23/10
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	**10-07-1715-1-B**	**07/21/10 09:10**	**Sediment**	**ICP/MS 04**	**08/06/10**	**08/06/10 13:09**	**100806L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Zinc	292	10.9	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	**10-07-1715-2-B**	**07/21/10 09:10**	**Sediment**	**ICP/MS 04**	**08/06/10**	**08/06/10 13:06**	**100806L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Zinc	240	11.2	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**096-10-002-1,798**	**N/A**	**Solid**	**ICP/MS 04**	**08/06/10**	**08/06/10 12:38**	**100806L01**

Parameter	Result	RL	DF	Qual	Units
Zinc	ND	5.00	1		mg/kg

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Pacific Ecorisk	Date Received: 07/23/10
2250 Cordelia Road	Work Order No: 10-07-1715
Fairfield, CA 94534-1912	Preparation: EPA 3050B
	Method: EPA 6020

Project Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP (DUPLICATE)	**Sediment**	**ICP/MS 04**	**08/06/10**	**08/06/10**	**100806S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Zinc	4X	4X	23-173	4X	0-18	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

Pacific Ecorisk	Date Received: 07/23/10
2250 Cordelia Road	Work Order No: 10-07-1715
Fairfield, CA 94534-1912	Preparation: EPA 3050B
	Method: EPA 6020

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
SSPC-DUI-COMP (DUPLICATE)	**Sediment**	**ICP/MS 04**	**08/06/10**	**08/06/10**	**100806S01**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Zinc	4X	4X	75-125	4X	0-18	Q

RPD = Relative Percent Difference; CL = Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Pacific Ecorisk		Date Received:	N/A
2250 Cordelia Road		Work Order No:	10-07-1715
Fairfield, CA 94534-1912		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-1,798	Solid	ICP/MS 04	08/06/10	08/06/10	100806L01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Zinc	102	104	80-120	2	0-20	

RPD - Relative Percent Difference, CL - Control Limit

CHAIN OF CUSTODY RECORD

1715

PACIFIC ECORISK
2250 Cordelia Rd
Fairfield, CA 94534
Ph: (707) 207-7760
Fax: (707) 207-7916
www.pacificecorisk.com

RESULTS TO: Same
Attn: Jeff Collins
Phone:
Email:

BILL TO: Same
Attn: Cynthia Garcia
Phone:
Email:

PROJECT: Schnitzer Steel

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	See ATTACHED LIST	GRAIN Size							REMARKS
SSPC-Dul-COMP	7/21/10	09:10	Seal	Comp	2 1500ml Glass	✓								
SSPC-Dul-Comp	7/21/10	09:10	Seal	Comp	1 1 Zip Lock Bag		✓							
					/									
					/									
					/									
					/									
					/									
					/									

ANALYSES REQUESTED

METHOD OF SHIPMENT: FedEx: X UPS: HAND: OTHER:

COMMENTS: Please run duplicate analysis on SSPC-Dul-Comp for Chemistry

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
C Jenkins	7/22/10	16:00	COC	7/23/10	1030	1 OF 1

WHITE - RETURN W/ SAMPLE YELLOW - KEEP FOR YOUR RECORDS

99/165

ANALYTE LIST

Pacific EcoRisk
2250 Cordelia Rd.
Fairfield, CA 94534

Project Proponent: **Pacific EcoRisk**

Project #: Schnitzer Steel

Site #: SSPC-DU1-COMP

Standard Ocean Disposal List

Solids, Total	SMEWW 2540 B	X
Total Organic Carbon	ASTM D4129-82M	X
Grain Size	Plumb 1981/ASTM	X
Arsenic	6020	X
Cadmium	6020	X
Chromium	6020	X
Copper	6020	X
Lead	6020	X
Nickel	6020	X
Silver	6020	X
Zinc	6020	X
Mercury	7471A	X
Selenium	7740 - GFAA	X
2,4'-DDD	8081A	X
2,4'-DDE	8081A	X
2,4'-DDT	8081A	X
4,4'-DDD	8081A	X
4,4'-DDE	8081A	X
4,4'-DDT	8081A	X
Aldrin	8081A	X
alpha-BHC	8081A	X
alpha-Chlordane	8081A	X
beta-BHC	8081A	X
Chlordane	8081A	X
delta-BHC	8081A	X
Dieldrin	8081A	X
Endosulfan I	8081A	X
Endosulfan II	8081A	X
Endosulfan Sulfate	8081A	X
Endrin	8081A	X
Endrin Aldehyde	8081A	X
gamma-BHC (Lindane)	8081A	X
gamma-Chlordane	8081A	X
Heptachlor	8081A	X
Heptachlor Epoxide	8081A	X
Toxaphene	8081A	X
PCBs 1016	8082 PCBs	X
PCBs 1221	8082 PCBs	X
PCBs 1232	8082 PCBs	X
PCBs1242	8082 PCBs	X
PCBs1248	8082 PCBs	X
PCBs1254	8082 PCBs	X
PCBs1260	8082 PCBs	X
PCBs1262	8082 PCBs	X
PCBs1268	8082 PCBs	X
Acenaphthene	8270C-SIM PAH	X

Acenaphthylene	8270C-SIM PAH	X
Anthracene	8270C-SIM PAH	X
Benz(a)anthracene	8270C-SIM PAH	X
Benzo(a)pyrene	8270C-SIM PAH	X
Benzo(b)fluoranthene	8270C-SIM PAH	X
Benzo(g,h,i)perylene	8270C-SIM PAH	X
Benzo(k)fluoranthene	8270C-SIM PAH	X
Chrysene	8270C-SIM PAH	X
Dibenz(a,h)anthracene	8270C-SIM PAH	X
Fluoranthene	8270C-SIM PAH	X
Fluorene	8270C-SIM PAH	X
Indeno(1,2,3-cd)pyrene	8270C-SIM PAH	X
Naphthalene	8270C-SIM PAH	X
Phenanthrene	8270C-SIM PAH	X
Pyrene	8270C-SIM PAH	X
Di-n-butyltin	Organotins	X
n-Butyltin	Organotins	X
Tetra-n-butyltin	Organotins	X
Tri-n-butyltin	Organotins	X
QA/QC		
Duplicate analysis - SSPC-DU1-COMP		X

If you have any questions regarding this request as checked, please call Jeff Cotsifas at (707)207-7760

Alternative Methods Approved as per conversation w/ Bob Sterns

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-07-1715

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Pacific Ecorisk DATE: 07/23/10

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

Temperature 0.6 °C + 0.5 °C (CF) = 1.1 °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: NC

CUSTODY SEALS INTACT:

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

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: NC

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	☐	☐	☑
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 (2) ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑2

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PJ ☐100PJna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ Trip Blank Lot#:_____ Labeled/Checked by: (1)

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

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: (2)

Calscience
Environmental
Laboratories, Inc.

Supplemental Report 3

August 12, 2010

Additional requested analyses are reported as a stand-alone report.

Jeff Cotsifas
Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Subject: **Calscience Work Order No.: 10-07-1715**
Client Reference; Schnitzer Steel

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 7/23/2010 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. 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.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP	**10-07-1715-1-A**	**07/21/10 09:10**	**Sediment**	**GC/MS N**	**08/06/10**	**08/07/10 18:53**	**100806L12**

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	11	3.9	1		PCB184	ND	11	3.7	1	
PCB018	ND	11	3.8	1		PCB153	ND	11	3.6	1	
PCB028	ND	11	3.8	1		PCB168	ND	11	3.5	1	
PCB052	ND	11	4.4	1		PCB105	ND	11	4.2	1	
PCB049	ND	11	3.8	1		PCB138/158	ND	11	7.6	1	
PCB044	ND	11	3.8	1		PCB187	ND	11	3.8	1	
PCB037	ND	11	3.9	1		PCB183	ND	11	3.7	1	
PCB074	ND	11	3.8	1		PCB126	ND	11	3.6	1	
PCB070	ND	11	4.0	1		PCB128	ND	11	3.6	1	
PCB066	ND	11	3.8	1		PCB167	ND	11	3.8	1	
PCB101	ND	11	4.0	1		PCB177	ND	11	3.7	1	
PCB099	ND	11	3.8	1		PCB156	ND	11	4.1	1	
PCB119	ND	11	3.7	1		PCB157	ND	11	3.9	1	
PCB087	ND	11	3.9	1		PCB180	ND	11	3.8	1	
PCB081	ND	11	3.9	1		PCB170	ND	11	3.2	1	
PCB110	ND	11	3.6	1		PCB201	ND	11	7.1	1	
PCB151	ND	11	3.7	1		PCB169	ND	11	3.4	1	
PCB077	ND	11	3.8	1		PCB189	ND	11	3.6	1	
PCB149	ND	11	3.7	1		PCB195	ND	11	3.4	1	
PCB123	ND	11	3.6	1		PCB194	ND	11	3.0	1	
PCB118	ND	11	3.9	1		PCB206	ND	11	4.0	1	
PCB114	ND	11	3.7	1		PCB209	ND	11	3.8	1	

Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	78	50-125	

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSPC-DUI-COMP (DUPLICATE)	10-07-1715-2-A	07/21/10 09:10	Sediment	GC/MS N	08/06/10	08/07/10 19:28	100806L12

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	11	4.0	1		PCB184	ND	11	3.8	1	
PCB018	ND	11	3.9	1		PCB153	ND	11	3.7	1	
PCB028	ND	11	3.9	1		PCB168	ND	11	3.6	1	
PCB052	ND	11	4.6	1		PCB105	ND	11	4.3	1	
PCB049	ND	11	3.9	1		PCB138/158	ND	11	7.8	1	
PCB044	ND	11	3.9	1		PCB187	ND	11	3.9	1	
PCB037	ND	11	4.0	1		PCB183	ND	11	3.8	1	
PCB074	ND	11	4.0	1		PCB126	ND	11	3.7	1	
PCB070	ND	11	4.2	1		PCB128	ND	11	3.7	1	
PCB066	ND	11	3.9	1		PCB167	ND	11	3.9	1	
PCB101	5.3	11	4.2	1	J	PCB177	ND	11	3.9	1	
PCB099	ND	11	3.9	1		PCB156	ND	11	4.3	1	
PCB119	ND	11	3.9	1		PCB157	ND	11	4.0	1	
PCB087	ND	11	4.0	1		PCB180	ND	11	3.9	1	
PCB081	ND	11	4.0	1		PCB170	ND	11	3.3	1	
PCB110	5.5	11	3.7	1	J	PCB201	ND	11	7.3	1	
PCB151	ND	11	3.8	1		PCB169	ND	11	3.5	1	
PCB077	ND	11	3.9	1		PCB189	ND	11	3.7	1	
PCB149	ND	11	3.8	1		PCB195	ND	11	3.5	1	
PCB123	ND	11	3.7	1		PCB194	ND	11	3.4	1	
PCB118	4.3	11	4.0	1	J	PCB206	ND	11	4.2	1	
PCB114	ND	11	3.8	1		PCB209	ND	11	3.9	1	

Surrogates	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	78	50-125	

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: Schnitzer Steel

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-13-017-122**	**N/A**	**Solid**	**GC/MS N**	**08/06/10**	**08/07/10 15:29**	**100806L12**

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	96	50-125	

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: 07/23/10
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SSPC-DUI-COMP	**Sediment**	**GC/MS N**	**08/06/10**	**08/10/10**	**100806S12B**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
PCB008	93	91	50-125	2	0-30	
PCB018	97	97	50-125	0	0-30	
PCB028	106	106	50-125	0	0-30	
PCB052	100	99	50-125	1	0-30	
PCB044	102	101	50-125	1	0-30	
PCB066	113	113	50-125	0	0-30	
PCB101	106	105	50-125	1	0-30	
PCB077	111	112	50-125	0	0-30	
PCB118	117	115	50-125	0	0-30	
PCB153	109	108	50-125	1	0-30	
PCB105	110	109	50-125	1	0-30	
PCB187	109	107	50-125	1	0-30	
PCB126	108	107	50-125	1	0-30	
PCB128	108	106	50-125	1	0-30	
PCB180	111	110	50-125	1	0-30	
PCB170	99	99	50-125	0	0-30	
PCB195	99	100	50-125	1	0-30	
PCB206	103	103	50-125	0	0-30	
PCB209	96	95	50-125	1	0-30	

RPD - Relative Percent Difference CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Pacific Ecorisk
2250 Cordelia Road
Fairfield, CA 94534-1912

Date Received: N/A
Work Order No: 10-07-1715
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: Schnitzer Steel

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-017-122	Solid	GC/MS N	08/06/10	08/07/10	100806L12

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
PCB008	78	78	50-125	38-138	0	0-30	
PCB018	81	82	50-125	38-138	1	0-30	
PCB028	86	87	50-125	38-138	0	0-30	
PCB052	81	81	50-125	38-138	0	0-30	
PCB044	84	84	50-125	38-138	0	0-30	
PCB066	90	90	50-125	38-138	0	0-30	
PCB101	84	85	50-125	38-138	0	0-30	
PCB077	88	89	50-125	38-138	1	0-30	
PCB118	89	90	50-125	38-138	1	0-30	
PCB153	83	83	50-125	38-138	0	0-30	
PCB105	85	85	50-125	38-138	0	0-30	
PCB187	84	85	50-125	38-138	1	0-30	
PCB126	83	84	50-125	38-138	1	0-30	
PCB128	83	85	50-125	38-138	2	0-30	
PCB180	87	87	50-125	38-138	0	0-30	
PCB170	80	80	50-125	38-138	1	0-30	
PCB195	84	84	50-125	38-138	0	0-30	
PCB206	91	90	50-125	38-138	1	0-30	
PCB209	86	88	50-125	38-138	0	0-30	

Total number of LCS compounds : 19
Total number of ME compounds : 0
Total number of ME compounds allowed :
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: 10-07-1715

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.

CHAIN OF CUSTODY RECORD

1715

PACIFIC ECORISK
2250 Cordelia Rd
Fairfield, CA 94534
Ph: (707) 207-7760
Fax: (707) 207-7916
www.pacificecorisk.com

RESULTS TO: Same
Attn: Jeff Cotitas
Phone:
Email:

BILL TO: Same
Attn: Cynthia Garcia
Phone:
Email:

PROJECT: Schnitzer Steel

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	See ATTACHED LIST	GRAIN Size							REMARKS
SSPC-DUI-COMP	7/21/10	09:10	Soil	Comp	2 1500ml Glass	✓								
SSPC-DUI-Comp	7/21/10	09:10	Soil	Comp	1 1 Zip Loc Bag		✓							
					/									
					/									
					/									
					/									
					/									
					/									
					/									

ANALYSES REQUESTED

METHOD OF SHIPMENT: FedEx: X UPS: HAND: OTHER:

COMMENTS: Please run duplicate analysis on SSPC-DUI-Comp for Chemistry

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
C Jenkins	7/22/10	16:00	COC	7/23/10	1030	1 OF 1

WHITE - RETURN W/ SAMPLE YELLOW - KEEP FOR YOUR RECORDS

110/165

ANALYTE LIST

Pacific EcoRisk
2250 Cordelia Rd.
Fairfield, CA 94534

Project Proponent: **Pacific EcoRisk**

Project #: Schnitzer Steel

Site #: SSPC-DU1-COMP

Standard Ocean Disposal List

Solids, Total	SMEWW 2540 B	X
Total Organic Carbon	ASTM D4129-82M	X
Grain Size	Plumb 1981/ASTM	X
Arsenic	6020	X
Cadmium	6020	X
Chromium	6020	X
Copper	6020	X
Lead	6020	X
Nickel	6020	X
Silver	6020	X
Zinc	6020	X
Mercury	7471A	X
Selenium	7740 - GFAA	X
2,4'-DDD	8081A	X
2,4'-DDE	8081A	X
2,4'-DDT	8081A	X
4,4'-DDD	8081A	X
4,4'-DDE	8081A	X
4,4'-DDT	8081A	X
Aldrin	8081A	X
alpha-BHC	8081A	X
alpha-Chlordane	8081A	X
beta-BHC	8081A	X
Chlordane	8081A	X
delta-BHC	8081A	X
Dieldrin	8081A	X
Endosulfan I	8081A	X
Endosulfan II	8081A	X
Endosulfan Sulfate	8081A	X
Endrin	8081A	X
Endrin Aldehyde	8081A	X
gamma-BHC (Lindane)	8081A	X
gamma-Chlordane	8081A	X
Heptachlor	8081A	X
Heptachlor Epoxide	8081A	X
Toxaphene	8081A	X
PCBs 1016	8082 PCBs	X
PCBs 1221	8082 PCBs	X
PCBs 1232	8082 PCBs	X
PCBs1242	8082 PCBs	X
PCBs1248	8082 PCBs	X
PCBs1254	8082 PCBs	X
PCBs1260	8082 PCBs	X
PCBs1262	8082 PCBs	X
PCBs1268	8082 PCBs	X
Acenaphthene	8270C-SIM PAH	X

Acenaphthylene	8270C-SIM PAH	X
Anthracene	8270C-SIM PAH	X
Benz(a)anthracene	8270C-SIM PAH	X
Benzo(a)pyrene	8270C-SIM PAH	X
Benzo(b)fluoranthene	8270C-SIM PAH	X
Benzo(g,h,i)perylene	8270C-SIM PAH	X
Benzo(k)fluoranthene	8270C-SIM PAH	X
Chrysene	8270C-SIM PAH	X
Dibenz(a,h)anthracene	8270C-SIM PAH	X
Fluoranthene	8270C-SIM PAH	X
Fluorene	8270C-SIM PAH	X
Indeno(1,2,3-cd)pyrene	8270C-SIM PAH	X
Naphthalene	8270C-SIM PAH	X
Phenanthrene	8270C-SIM PAH	X
Pyrene	8270C-SIM PAH	X
Di-n-butyltin	Organotins	X
n-Butyltin	Organotins	X
Tetra-n-butyltin	Organotins	X
Tri-n-butyltin	Organotins	X
QA/QC		
Duplicate analysis - SSPC-DU1-COMP		X

If you have any questions regarding this request as checked, please call Jeff Cotsifas at (707)207-7760

Alternative Methods Approved as per conversation w/ Bob Sterns

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-07-1715

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Pacific Ecorisk DATE: 07/23/10

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

Temperature 0.6 °C + 0.5 °C (CF) = 1.1 °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: NC

CUSTODY SEALS INTACT:

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

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: M

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	☐	☐	☑
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 (2) ☐Sleeve (____) ☐EnCores® ☐TerraCores® ☑2

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na**$_2$ ☐1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PB**na** ☐250PB ☐250PBn ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na**$_2$ ☐_____ ☐_____ ☐_____

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

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

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:**

SOP T100_090 (05/10/10)

Appendix C

Ammonia and Sulfide Analyses Performed in Support of Bioassay Testing

Table C-1. Sediment porewater ammonia levels for *Ampelisca* bioassays at test initiation

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
Lab Control	7.22	29.0	22.0	0.099
Alcatraz (SF-11)	7.53	29.0	3.30	0.265
SSPC-DU1-Comp	7.40	28.8	9.80	0.051

Table C-2. Sediment porewater ammonia levels for *Ampelisca* bioassays at test termination

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
Lab Control	7.15	32.4	9.25	0.041
Alcatraz (SF-11)	7.50	32.5	1.28	0.096
SSPC-DU1-Comp	7.38	41.1	1.01	0.006

Table C-3. Sediment overlying water total ammonia levels for *Ampelisca* bioassays

Sample ID	Total Ammonia (mg/L N)	
	Test Initiation	Test Termination
Lab Control	3.07	4.34
Alcatraz (SF-11)	<1.0*	<1.0*
SSPC-DU1-Comp	1.72	<1.0*

*Below laboratory method detection limit.

Table C-4. Sediment porewater ammonia levels for *Neanthes* bioassays at test initiation

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
Lab Control	7.34	28.4	11.0	0.216
Alcatraz (SF-11)	7.57	29.8	<1.0*	0.288
SSPC-DU1-Comp	7.52	30.2	7.47	0.095

*Below laboratory method detection limit.

Table C-5. Sediment porewater ammonia levels for *Neanthes* bioassays at test termination

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
Lab Control	7.89	35.5	1.01	0.075
Alcatraz (SF-11)	7.59	37.4	<1.0*	0.039
SSPC-DU1-Comp	7.30	38.7	2.39	0.014

*Below laboratory method detection limit.

Table C-6. Sediment overlying water total ammonia levels for *Neanthes* bioassays tests

Sample ID	Total Ammonia (mg/L N)	
	Test Initiation	Test Termination
Lab Control	4.81	2.16
Alcatraz (SF-11)	<1.0*	<1.0*
SSPC-DU1-Comp	1.03	<1.0*

*Below laboratory method detection limit.

Appendix D

Test Data and Summary of Statistics for the Toxicity Evaluation of Schnitzer Steel Products Company, Inc. Sediments with the Amphipod, *Ampelisca abdita*

CETIS Summary Report

10 Day Marine/Estuarine Sediment Test — Pacific EcoRisk

Batch ID:	03-2834-3732	Test Type:	Survival	Analyst:	Mike McElroy
Start Date:	31 Jul-10 09:30	Protocol:	ASTM E1218-97a (1997)	Diluent:	Not Applicable
Ending Date:	10 Aug-10 08:40	Species:	Ampelisca abdita	Brine:	Not Applicable
Duration:	9d 23h	Source:	Aquatic Research Organisms, NH	Age:	NA

Sample ID:	20-0387-8490	Code:	Sediment	Client:	Schnitzer Steel
Sample Date:	15 Jun-10 09:30	Material:	Sediment	Project:	17105
Receive Date:	15 Jun-10 15:00	Source:	Schnitzer Steel		
Sample Age:	46d 0h (0.1 °C)	Station:	Alcatraz		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
07-0582-9143	Survival Rate	<100	100	N/A	7.42%	>1	Equal Variance t Two-Sample Test

Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control Sed	5	0.9	0.877	0.923	0.8	0.95	0.0112	0.0612	6.8%	0.0%
100		5	0.79	0.766	0.814	0.75	0.9	0.0119	0.0652	8.25%	12.2%

Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Control Sed	0.9	0.9	0.95	0.8	0.95
100		0.75	0.75	0.9	0.75	0.8

Analyst: _____ QA: _____

10 Day Marine/Estuarine Sediment Test — Pacific EcoRisk

Analysis ID: 07-0562-9143 Endpoint: Survival Rate CETIS Version: CETISv1.7.0
Analyzed: 14 Aug-10 12:26 Analysis: Parametric-Two Sample Official Results: Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	<100	100	N/A	>1	7.42%

Equal Variance t Two-Sample Test

Control	vs	Conc-%	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control Sed		100*	2.72	1.86	0.109	0.0131	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.06368343	0.06368343	1	7.41	0.0262	Significant Effect
Error	0.0687754	0.008596925	8			
Total	0.1324588	0.07228035	9			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.25	23.2	0.8367	Equal Variances
Distribution	Shapiro-Wilk Normality	0.95		0.6655	Normal Distribution

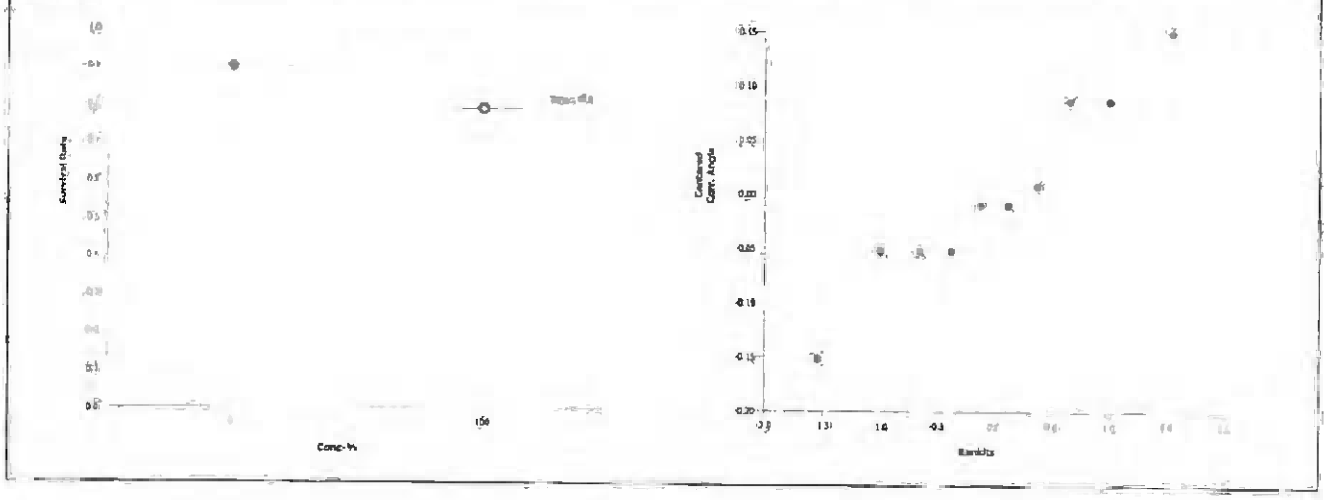
Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control Sed	5	0.9	0.877	0.923	0.8	0.95	0.0114	0.0612	6.8%	0.0%
100		5	0.79	0.765	0.815	0.75	0.9	0.0121	0.0652	8.25%	12.2%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control Sed	5	1.26	1.22	1.3	1.11	1.35	0.0181	0.0977	7.76%	0.0%
100		5	1.1	1.07	1.13	1.05	1.25	0.0162	0.0875	7.96%	12.7%

Graphics



10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: Schnitzer Steel | Test ID#: 39628-29 | Date (Day 0): 7/31/10

Species: *Ampelisca abdita* | Project #: 17105 | Organism Supplier: ARO

Organism Log #: 5332

Day of Test	Test Replicate	Sample ID: Control					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.8	7.95	7.3	29.0	20	Date: 7/31/10
	Rep B	19.8	7.99	7.4	29.0	20	Time: 930
	Rep C	19.8	8.00	7.4	28.6	20	WQ: MO
	Rep D	19.8	8.03	7.6	28.5	20	Scientist Initiation: KS
	Rep E	19.8	8.04	7.6	29.0	20	Scientist Confirmation: MM
Day 1	Rep A	19.7	7.98	7.6	29.3		Date: 8/1/10 Time: 12:00 WQ: SO
Day 2	Rep B	19.7	7.99	7.9	29.3		Date: 8/2/10 Time: 8:30 WQ: CB
Day 3	Rep C	20.2	8.12	7.5	28.0		Date: 8/3/10 Time: 900 WQ: CB
Day 4	Rep D	19.8	8.25	7.7	29.1		Date: 8/4/10 Time: 850 WQ: CB
Day 5	Rep E	20.2	8.24	7.7	29.6		Date: 8/5/10 Time: 0600 WQ: CB
Day 6	Rep A	20.1	8.28	7.5	28.9		Date: 8/6/10 Time: 0905 WQ: CB
Day 7	Rep B	20.2	8.29	7.7	28.1		Date: 8/7/10 Time: 0900 WQ: CB
Day 8	Rep C	20.2	8.33	7.5	28.6		Date: 8/8/10 Time: 10:00 WQ: CB
Day 9	Rep D	20.2	8.33	7.6	29.6		Date: 8/9/10 Time: 0945 WQ: CB
Day 10	Rep A	20.1	8.31	7.5	29.5	18	Date: 8/10/10
	Rep B	20.1	8.32	7.5	28.6	18	Time: 0840
	Rep C	20.1	8.28	7.4	28.5	19	WQ: CB
	Rep D	20.1	8.34	7.5	29.6	16	Scientist Counts: RDB
	Rep E	20.1	8.36	7.5	29.3	19	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.22	2.0	29.0	0.099	18.0 3.07 *	Date: 7/31/10 Time: 1500 WQ: MO
	Overlying Water					3.07	Date: 7/31/10 Time: 1428 WQ: DT
	Meter ID	PH09	RDO4	ECO5	DR4000	DR3800	
Day 10	Porewater	7.15	3.7	32.4	0.041	9.25	Date: 8/10/10 Time: 1320 WQ: MM
	Overlying Water					4.34	Date: 8/10/10 Time: 1100 WQ: CB
	Meter ID	pH14	RDO4	EC03	DR4000	DR3800	

* likely due to sample color

10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: Schnitzer Steel | Test ID#: 39628 | Date (Day 0): 7/21/10

Species: *Ampelisca abdita* | Project #: 17105 | Organism Supplier: AMS

Organism Log #: 5332

Day of Test	Test Replicate	Sample ID: SF-11 (Alcatraz)					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.9	7.91	7.5	29.3	20	Date: 7/21/10
	Rep B	19.9	7.91	7.6	29.4	20	Time: 1030
	Rep C	19.9	7.91	7.6	29.4	20	WQ: MO
	Rep D	19.9	7.90	7.6	29.4	20	Scientist Initiation: AS
	Rep E	19.9	7.88	7.5	29.2	20	Scientist Confirmation: MM
Day 1	Rep A	19.7	7.90	7.4	29.6		Date: 8/1/10 Time: 12:00 WQ: SC
Day 2	Rep B	19.7	7.98	7.7	29.9		Date: 8/2/10 Time: 8:50 WQ: CH
Day 3	Rep C	20.2	8.07	7.8	30.0		Date: 8/3/10 Time: 900 WQ: CH
Day 4	Rep D	19.8	8.07	7.8	29.5		Date: 8/4/10 Time: 8:50 WQ: CH
Day 5	Rep E	20.2	8.04	7.7	28.2		Date: 8/5/10 Time: 0900 WQ: CH
Day 6	Rep A	20.1	8.04	7.6	28.1		Date: 8/6/10 Time: 0905 WQ: CH
Day 7	Rep B	20.2	7.98	7.7	28.0		Date: 8/7/10 Time: 0900 WQ: RDMS
Day 8	Rep C	20.2	8.01	7.7	28.4		Date: 8/8/10 Time: 10:00 WQ: SC
Day 9	Rep D	20.2	8.00	7.5	29.8		Date: 8/9/10 Time: 1000 WQ: CH
Day 10	Rep A	20.1	8.06	7.6	29.5	15	Date: 8/10/10
	Rep B	20.1	8.07	7.6	28.6	15	Time: 0840
	Rep C	20.1	8.07	7.7	28.8	18	WQ: CH
	Rep D	20.1	8.07	7.8	29.9	15	Scientist Counts: ARB
	Rep E	20.1	8.07	7.8	28.6	16	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.53	5.5	29.0	0.265	3.30	Date: 7/21/10 Time: 1400 WQ: MO
	Overlying Water					<1.00	Date: 7/31/10 Time: 1150 WQ: MO
	Meter ID	PH09	RD04	EC05	DR4000	DR3800	
Day 10	Porewater	7.50	5.9	32.5	0.096	1.28	Date: 8/10/10 Time: 1320 WQ: MM
	Overlying Water					21.0	Date: 8/10/10 Time: 1100 WQ: CH
	Meter ID	PH14	RD04	EC03	DR4000	DR3800	

CETIS Summary Report

10 Day Marine/Estuarine Sediment Test					Pacific EcoRisk
Batch ID:	04-9293-0310	**Test Type:**	Survival	**Analyst:**	Mike McElroy
Start Date:	31 Jul-10 09:30	**Protocol:**	ASTM E1218-97a (1997)	**Diluent:**	Not Applicable
Ending Date:	10 Aug-10 08:40	**Species:**	Ampelisca abdita	**Brine:**	Not Applicable
Duration:	9d 23h	**Source:**	Aquatic Research Organisms, NH	**Age:**	NA

Sample ID:	04-1548-7992	**Code:**	Sediment	**Client:**	Schnitzer Steel
Sample Date:	21 Jul-10 09:10	**Material:**	Sediment	**Project:**	17105
Receive Date:	21 Jul-10 19:00	**Source:**	Schnitzer Steel		
Sample Age:	10d 0h (0.1 °C)	**Station:**	SSPC-DU1-Comp		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
01-2983-0786	Survival Rate	<100	100	N/A	6.55%	>1	Equal Variance I Two-Sample Test

Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control Sed	5	0.9	0.877	0.923	0.8	0.95	0.0112	0.0612	6.8%	0.0%
100		5	0.79	0.757	0.823	0.65	0.9	0.0163	0.0894	11.3%	12.2%

Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Control Sed	0.9	0.9	0.95	0.8	0.95
100		0.65	0.8	0.8	0.8	0.9

Analyst: ~~ QA JL

CETIS Analytical Report

10 Day Marine/Estuarine Sediment Test — Pacific EcoRisk

Analysis ID: 01-2983-0786 Endpoint: Survival Rate CETIS Version: CETISv1.7.0
Analyzed: 14 Aug-10 12:32 Analysis: Parametric-Two Sample Official Results: Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	<100	100	N/A	>1	8.55%

Equal Variance t Two-Sample Test

Control	vs	Conc-%	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control Sed		100*	2.39	1.86	0.123	0.0219	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0620266	0.0620266	1	5.71	0.0438	Significant Effect
Error	0.08682758	0.01085345	8			
Total	0.1488542	0.07288004	9			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	1.28	23.2	0.8189	Equal Variances
Distribution	Shapiro-Wilk Normality	0.9		0.2169	Normal Distribution

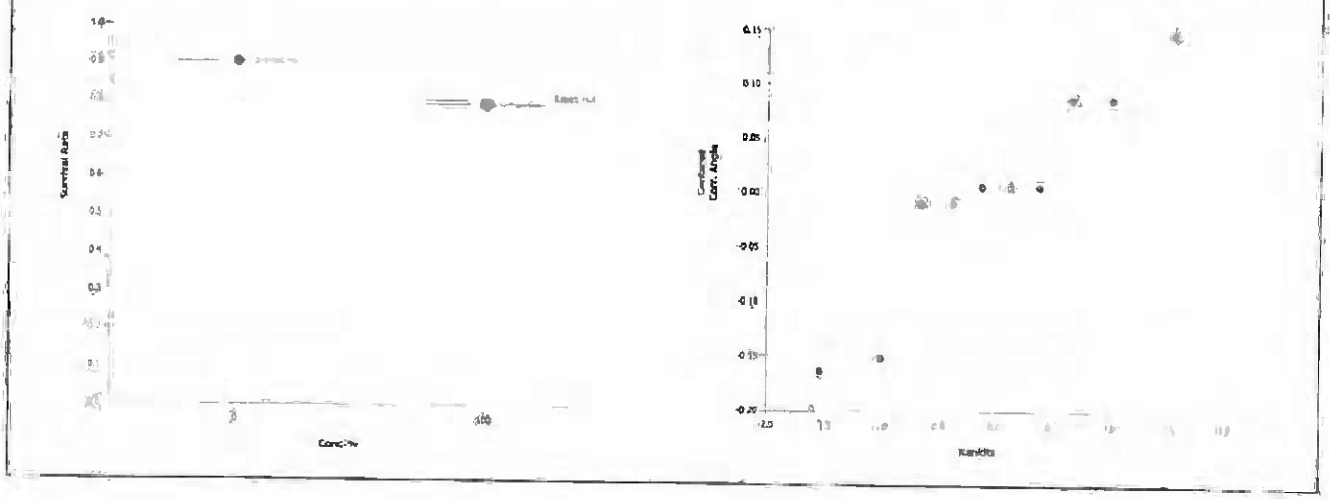
Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control Sed	5	0.9	0.877	0.923	0.8	0.95	0.0114	0.0612	6.8%	0.0%
100		5	0.79	0.756	0.824	0.65	0.9	0.0166	0.0894	11.3%	12.2%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control Sed	5	1.26	1.22	1.3	1.11	1.35	0.0181	0.0977	7.76%	0.0%
100		5	1.1	1.06	1.14	0.939	1.25	0.0205	0.11	10.0%	12.5%

Graphics



10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: Schnitzer Steel | Test ID#: 39629 | Date (Day 0): 7/31/10

Species: *Ampelisca abdita* | Project #: 17105 | Organism Supplier: APO

Organism Log # : 5332

Day of Test	Test Replicate	Sample ID: SSPC-DU1-Comp					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.8	8.03	7.6	28.4	20	Date: 07/31/2010
	Rep B	19.8	8.07	7.6	28.4	20	Time: 0930
	Rep C	19.8	8.05	7.6	28.5	20	WQ: DT
	Rep D	19.8	8.04	7.5	28.9	20	Scientist Initiation: KB
	Rep E	19.8	7.99	7.5	28.6	20	Scientist Confirmation:
Day 1	Rep A	19.7	7.90	7.6	28.9		Date: 8/1/10 Time: 12:00 WQ:
Day 2	Rep B	19.7	8.01	7.6	29.5		Date: 8/2/10 Time: 8:50 WQ:
Day 3	Rep C	20.2	8.12	7.7	27.3		Date: 8/3/10 Time: 900 WQ:
Day 4	Rep D	19.8	8.23	7.8	29.7		Date: 8/4/10 Time: 8:50 WQ:
Day 5	Rep E	20.2	8.22	7.4	28.9		Date: 8/5/10 Time: 0900 WQ:
Day 6	Rep A	20.1	8.27	7.6	28.8		Date: 8/6/10 Time: 0905 WQ:
Day 7	Rep B	20.2	8.35	7.8	28.9		Date: 8/7/10 Time: 0900 WQ:
Day 8	Rep C	20.2	8.40	7.6	28.5		Date: 8/8/10 Time: 10:00 WQ:
Day 9	Rep D	20.2	8.45	7.6	29.4		Date: 8/9/10 Time: 0941 WQ:
Day 10	Rep A	20.1	8.38	7.6	29.3	13	Date: 8/10/10
	Rep B	20.1	8.42	7.6	29.3	16	Time: 0840
	Rep C	20.1	8.43	7.6	28.5	16	WQ:
	Rep D	20.1	8.47	7.5	29.2	16	Scientist Counts: RPB
	Rep E	20.1	8.36	7.3	28.3	18	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.40	4.3	28.8	0.051	9.80	Date: 7/31/10 Time: 1400 WQ: LMO
	Overlying Water					1.72	Date: 7/31/10 Time: 1150 WQ: LMO
	Meter ID	PH09	RDO4	SC05	DR4000	DR3800	
Day 10	Porewater	7.35	3.4	41.1	0.006	1.01	Date: 8/10/10 Time: 1230 WQ: LM
	Overlying Water					41.0	Date: 8/10/10 Time: 1100 WQ:
	Meter ID	PH03	RDO3	SC05	DR4000	DR3800	

Appendix E

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the Amphipod, *Ampelisca abdita*

CETIS Summary Report

Acute Amphipod Survival Test — Pacific EcoRisk

Batch ID:	03-1511-3452	Test Type:	Survival	Analyst:	Jeremy Laurin
Start Date:	31 Jul-10 16:45	Protocol:	ASTM E1367-99 (Amphipod)	Diluent:	Diluted Seawater
Ending Date:	04 Aug-10 14:50	Species:	Ampelisca abdita	Brine:	Not Applicable
Duration:	94h	Source:	Aquatic Research Organisms, NH	Age:	NA

Sample ID:	07-2564-9763	Code:	KCL	Client:	Reference Toxicant
Sample Date:	31 Jul-10 16:45	Material:	Potassium chloride	Project:	17164
Receive Date:	31 Jul-10 16:45	Source:	Reference Toxicant		
Sample Age:	N/A (19.9 °C)	Station:	In House		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
06-0691-8520	Survival Rate	0.5	1	0.707	32.5%		Dunnett's Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	g/L	95% LCL	95% UCL	TU	Method
18-7496-9590	Survival Rate	EC50	0.926	0.796	1.08		Spearman-Kärber

Survival Rate Summary

Conc-g/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Contr	2	0.8	0.747	0.853	0.7	0.9	0.0258	0.141	17.7%	0.0%
0.25		2	0.95	0.924	0.976	0.9	1	0.0129	0.0707	7.44%	-18.8%
0.5		2	0.95	0.924	0.976	0.9	1	0.0129	0.0707	7.44%	-18.8%
1		2	0.35	0.324	0.376	0.3	0.4	0.0129	0.0707	20.2%	56.3%
2		2	0	0	0	0	0	0	0		100.0%
4		2	0	0	0	0	0	0	0		100.0%

Survival Rate Detail

Conc-g/L	Control Type	Rep 1	Rep 2
0	Lab Water Contr	0.7	0.9
0.25		1	0.9
0.5		0.9	1
1		0.4	0.3
2		0	0
4		0	0

96 Hour Marine Reference Toxicant Test Data

Client: Reference Toxicant
Test Material: Potassium Chloride
Test ID#: 39625 Project # 17164
Test Date: 7/31/10 Randomization: 2-6-2

Organism Log #: 5332
Organism Supplier: ARO
Species: *Ampelisca abdita*
Control/Diluent: 28 ppt Seawater

Treatment (g KCl /L)	Temp (°C)	pH new	pH old	D.O. (mg/L) new	D.O. (mg/L) old	Salinity (ppt) new	Salinity (ppt) old	# Live Organisms A	# Live Organisms B	SIGN-OFF
Control	19.9	7.68		7.5		27.9		10	10	Date: 7/31/10
0.25	19.9	7.72		7.7		28.4		10	10	Test Solution Prep: RPB
0.5	19.9	7.73		7.9		28.6		10	10	New WQ: JM
1	19.9	7.76		8.0		29.0		10	10	Initiation Time: 16:45
2	19.9	7.79		8.1		29.9		10	10	Initiation Signoff: AB
4	19.9	7.88		8.4		31.7		10	10	Ref Tox Stock Batch #: 14
Meter ID:	48A	pH 14		ROO3		EC03				
Control	19.7		7.78		7.5		28.3	10	10	Date: 8.1.10
0.25	19.7		7.76		7.4		28.2	10	10	Count Time: 0900
0.5	19.7		7.85		7.5		28.5	10	10	Count Signoff:
1	19.7		7.81		7.4		29.0	9	6	Old WQ:
2	19.7		7.84		7.5		30.0	0	0	
4	19.7		7.90		7.6		31.6	0	0	
Meter ID:	48A		PH09		RO04		EC03			
Control	19.8		7.77		6.9		27.8	10	10	Date: 8/2/10
0.25	19.8		7.74		6.9		28.2	10	10	Count Time: 1330
0.5	19.8		7.75		7.0		28.6	10	10	Count Signoff: SH
1	19.8		7.75		7.0		29.2	8	4	Old WQ: ON
2	—		—		—		—	—	—	
4	—		—		—		—	—	—	
Meter ID:	48A		PH14		RO04		EC03			
Control	20.0		7.79		7.2		29.3	7	10	Date: 8/3/10
0.25	20.0		7.78		7.2		28.7	10	9	Count Time: 1000
0.5	20.0		7.80		7.2		28.7	10	10	Count Signoff: RPB
1	20.0		7.80		7.2		29.2	7	3	Old WQ:
2	—		—		—		—	—	—	
4	—		—		—		—	—	—	
Meter ID:	48A		PH09		RO03		EC05			
Control	20.7		7.82		7.3		27.8	7	9	Date: 8/4/10
0.25	20.7		7.83		7.3		28.3	10	9	Termination Time: 1450
0.5	20.7		7.86		7.3		28.5	9	10	Termination Signoff: RPB
1	20.7		7.87		7.3		29.0	RPB 5 4	3	Old WQ:
2	—		—		—		—	—	—	
4	—		—		—		—	—	—	
Meter ID:	48A		PH09		RO04		EC03			

Appendix F

Test Data and Summary of Statistics for the Toxicity Evaluation of Schnitzer Steel Products Company, Inc. Sediments with the Polychaete, *Neanthes arenaceodentata*

CETIS Summary Report

10 Day Marine/Estuarine Sediment Test — **Pacific EcoRisk**

Batch ID:	03-0984-8228	**Test Type:**	Survival	**Analyst:**	Mike McElroy
Start Date:	01 Aug-10 10:00	**Protocol:**	ASTM E1611-00 (Polychaete)	**Diluent:**	Not Applicable
Ending Date:	11 Aug-10 10:00	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Duration:	10d 0h	**Source:**	Don Reisch	**Age:**	NA

Sample ID:	14-7842-1936	**Code:**	sediment	**Client:**	Schnitzer Steel
Sample Date:	15 Jun-10 09:30	**Material:**	Sediment/Elutriate	**Project:**	17105
Receive Date:	15 Jun-10 15:00	**Source:**	Schnitzer Steel		
Sample Age:	47d 0h (0.1 °C)	**Station:**	Alcatraz		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
10-7851-5505	Survival Rate	100	>100	N/A	8.21%	1	Equal Variance t Two-Sample Test

Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control Sed	5	0.84	0.807	0.873	0.7	0.9	0.0163	0.0894	10.6%	0.0%
100		5	0.9	0.9	0.9	0.9	0.9	0	0	0.0%	-7.14%

Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Control Sed	0.9	0.7	0.8	0.9	0.9
100		0.9	0.9	0.9	0.9	0.9

CETIS Analytical Report

10 Day Marine/Estuarine Sediment Test — Pacific EcoRisk

Analysis ID: 10-7851-5505 Endpoint: Survival Rate CETIS Version: CETISv1.7.0
Analyzed: 14 Aug-10 12:37 Analysis: Parametric-Two Sample Official Results: Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	100	>100	N/A	1	8.21%

Equal Variance t Two-Sample Test

Control	vs	Conc-%	Test Stat	Critical	MSD	P-Value	Decision(5%)
Control Sed		100	-1.53	1.86	0.0972	0.9176	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0159829	0.0159829	1	2.34	0.1647	Non-Significant Effect
Error	0.0546758	0.006834475	8			
Total	0.0706587	0.02261738	9			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Mod Levene Equality of Variance	2.57	13.7	0.1602	Equal Variances
Distribution	Shapiro-Wilk Normality	0.82		0.0255	Normal Distribution

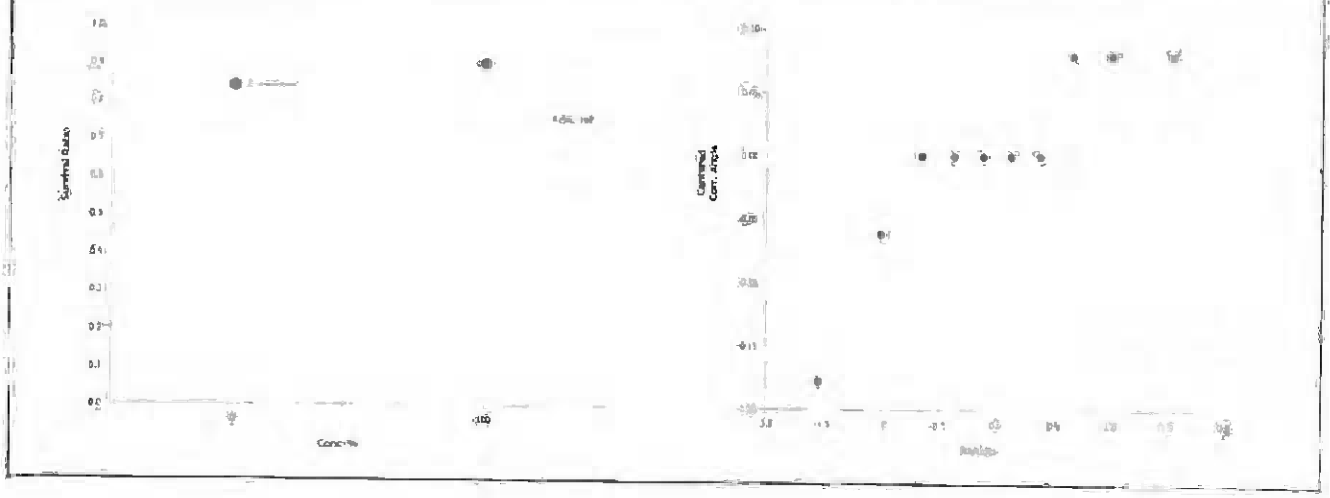
Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control Sed	5	0.84	0.806	0.874	0.7	0.9	0.0166	0.0894	10.6%	0.0%
100		5	0.9	0.9	0.9	0.9	0.9	0	0	0.0%	-7.14%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control Sed	5	1.17	1.12	1.21	0.991	1.25	0.0217	0.117	10.0%	0.0%
100		5	1.25	1.25	1.25	1.25	1.25	0	0	0.0%	-6.84%

Graphics



10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: Schnitzer Steel Test ID #: 39631 Date (Day 0): 8/1/10

Species: *Neanthes arenaceodentata* Project #: 17105 Organism Supplier: Don Reish

Organism Log # : 5334

Day of Test	Test Replicate	Sample ID: Control					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.7	8.01	7.7	29.3	10	Date: 08/01/10 Time: 10:00 WQ: SG Scientist Initiation: DG Scientist Confirmation:
	Rep B	19.7	8.03	7.7	29.1	10	
	Rep C	19.7	8.04	7.6	28.4	10	
	Rep D	19.7	8.02	7.7	28.9	10	
	Rep E	19.7	7.99	7.7	30.3	10	
Day 1	Rep A	19.7	7.99	7.6	29.8		Date: 8/2/10 Time: 9:20 WQ: CB
Day 2	Rep B	20.2	8.19	7.7	28.7		Date: 8/3/10 Time: 0930 WQ: CB
Day 3	Rep C	19.8	8.24	7.6	29.9		Date: 8/4/10 Time: 10:00 WQ: CB
Day 4	Rep D	20.2	8.24	7.5	31.9		Date: 8/5/10 Time: 0930 WQ: CB
Day 5	Rep E	20.1	8.34	7.5	31.6		Date: 8/6/10 Time: 0945 WQ: CB
Day 6	Rep A	20.2	8.30	7.6	31.1		Date: 8/7/10 Time: 0945 WQ: CB
Day 7	Rep B	20.2	~~8.42~~ 8.02 SG	7.6	~~30.7~~ 28.9 SG		Date: 8/8/10 Time: 10:00 WQ: SG
Day 8	Rep C	20.2	8.41	7.5	30.3		Date: 8/9/10 Time: 1012 WQ: CB
Day 9	Rep D	20.2	8.42	7.5	30.4		Date: 8/10/10 Time: 1100 WQ: CN
Day 10	Rep A	20.1	8.29	7.6	30.2	9	Date: ~~8/10/10~~ 8/11/10 Time: 1000 WQ: CG Scientist: REB
	Rep B	20.1	8.37	7.5	30.5	7	
	Rep C	20.1	8.43	7.5	28.6	8	
	Rep D	20.1	8.39	7.5	31.5	9	
	Rep E	20.1	8.41	7.6	31.8	9	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.94	4.3	28.4	0.216	11.0	Date: 8/1/10 Time: 1000 WQ: SG
	Overlying Water					4.81	Date: 8/1/10 Time: 1020 WQ: SG
	Meter ID	pH12	RDO3	EC05	DR4000	DR2800	
Day 10	Porewater	7.86	~~4.6~~ 4.9	~~35.5~~ 28.5	0.075	1.01	Date: 8/11/10 Time: 1230 WQ: CG
	Overlying Water					2.16	Date: 8/11/10 Time: 1100 WQ: CG
	Meter ID	pH03	RDO4	EC05	DR4000	DR2800	

10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: Schnitzer Steel Test ID #: 39630 Date (Day 0): 8/1/10

Species: *Neanthes arenaceodentata* Project #: .17105 Organism Supplier: Don Reish

Organism Log # : 5334

Day of Test	Test Replicate	Sample ID: SF-11 (Alcatraz)					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.7	7.86	7.7	29.3	10	Date: 08/01/10 Time: 10:00 WQ: SC Scientist Initiation: Scientist Confirmation:
	Rep B	19.7	7.95	7.7	29.2	10	
	Rep C	19.7	7.89	7.7	29.4	10	
	Rep D	19.7	7.88	7.7	29.3	10	
	Rep E	19.7	7.86	7.7	30.6	10	
Day 1	Rep A	19.7	7.97	7.6	29.5		Date: 8/2/10 Time: 9:20 WQ: CG
Day 2	Rep B	20.2	8.04	7.7	29.6		Date: 8/3/10 Time: 0930 WQ: CG
Day 3	Rep C	19.8	8.07	7.6	29.8		Date: 8/4/10 Time: 1000 WQ: CG
Day 4	Rep D	20.2	8.01	7.6	30.0		Date: 8/5/10 Time: 0930 WQ: CG
Day 5	Rep E	20.1	8.03	7.7	31.5		Date: 8/6/10 Time: 0945 WQ: CG
Day 6	Rep A	20.2	8.06	7.6	29.5		Date: 8/7/10 Time: 0945 WQ: RCVB
Day 7	Rep B	20.2	8.05	7.7	29.2		Date: 8/8/10 Time: 10:00 WQ: SC
Day 8	Rep C	20.2	8.01	7.7	29.3		Date: 8/9/10 Time: 1011 WQ: CG
Day 9	Rep D	20.2	8.00	7.5	28.6		Date: 8/10/10 Time: 1100 WQ: CG
Day 10	Rep A	20.1	8.08	7.6	30.0	9	Date: 8/11/10 Time: 1000 WQ: CG Scientist: KPD
	Rep B	20.1	8.06	7.7	28.5	9	
	Rep C	20.1	8.07	7.7	29.2	9	
	Rep D	20.1	8.09	7.7	28.8	9	
	Rep E	20.1	8.13	7.7	31.5	9	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.57	6.0	29.8	0.288	0.547	Date: 8/1/10 Time: 10:00 WQ: SC
	Overlying Water					<1	Date: 8/1/10 Time: 1000 WQ: SC
	Meter ID	pH12	RDO3	EC05	DR4000	DR3800	
Day 10	Porewater	7.59	~~7.2~~ 20.4	37.4	0.039	<1.0	Date: 8/11/10 Time: 1230 WQ: KM
	Overlying Water					<1.0	Date: 8/11/10 Time: 1100 WQ: CG
	Meter ID	pH03	RDO4	EC05	DR4000	DR3800	

CETIS Summary Report

10 Day Marine/Estuarine Sediment Test — Pacific EcoRisk

Batch ID:	05-4966-1463	Test Type:	Survival	Analyst:	Mike McElroy
Start Date:	01 Aug-10 10:00	Protocol:	ASTM E1611-00 (Polychaete)	Diluent:	Not Applicable
Ending Date:	11 Aug-10 10:00	Species:	Neanthes arenaceodentata	Brine:	Not Applicable
Duration:	10d 0h	Source:	Don Reisch	Age:	NA

Sample ID:	11-7577-3801	Code:	sediment	Client:	Schnitzer Steel
Sample Date:	21 Jul-10 09:10	Material:	Sediment/Elutriate	Project:	17105
Receive Date:	21 Jul-10 19:00	Source:	Schnitzer Steel		
Sample Age:	11d 1h (0.1 °C)	Station:	SSPC-DU1-Comp		

Batch Note: Results compared to Alcatraz Reference Sediment

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
02-8028-2239	Survival Rate	<100	100	N/A	4.67%	>1	Equal Variance t Two-Sample Test

Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Reference Sed	5	0.9	0.9	0.9	0.9	0.9	0	0	0.0%	0.0%
100		5	0.84	0.82	0.86	0.8	0.9	0.01	0.0548	6.52%	6.67%

Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Reference Sed	0.9	0.9	0.9	0.9	0.9
100		0.8	0.8	0.9	0.8	0.9

Analyst: MW QA: JL

CETIS Analytical Report

10 Day Marine/Estuarine Sediment Test — Pacific EcoRisk

Analysis ID:	02-8028-2239	Endpoint: Survival Rate	CETIS Version: CETISv1.7.0
Analyzed:	14 Aug-10 12:48	Analysis: Parametric-Two Sample	Official Results: Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	<100	100	N/A	>1	4.67%

Equal Variance t Two-Sample Test

Control	vs	Conc-%	Test Stat	Critical	MSD	P-Value	Decision(5%)
Reference Sed		100*	2.45	1.86	0.0646	0.0200	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.0181213	0.0181213	1	6	0.0400	Significant Effect
Error	0.02416173	0.003020216	8			
Total	0.04228302	0.02114151	9			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Mod Levene Equality of Variance	3	13.7	0.1340	Equal Variances
Distribution	Shapiro-Wilk Normality	0.814		0.0215	Normal Distribution

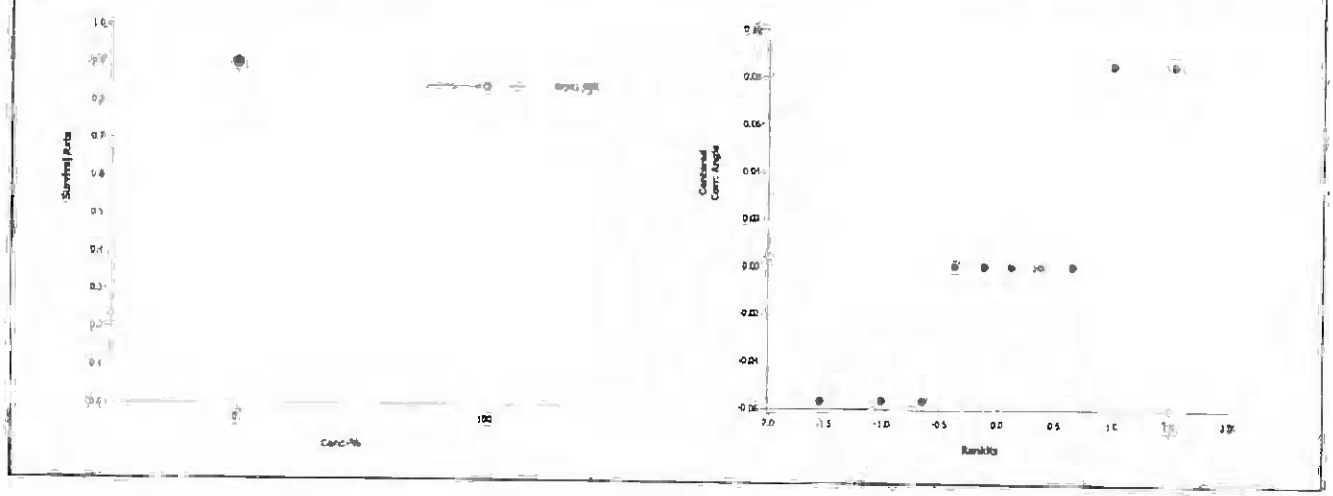
Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Reference Sed	5	0.9	0.9	0.9	0.9	0.9	0	0	0.0%	0.0%
100		5	0.84	0.819	0.861	0.8	0.9	0.0102	0.0548	6.52%	6.67%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Reference Sed	5	1.25	1.25	1.25	1.25	1.25	0	0	0.0%	0.0%
100		5	1.16	1.13	1.19	1.11	1.25	0.0144	0.0777	6.68%	6.82%

Graphics



10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: Schnitzer Steel Test ID #: 39631 Date (Day 0): 8/1/10

Species: *Neanthes arenaceodentata* Project #: 17105 Organism Supplier: Don Reish

Organism Log # : 5334

Day of Test	Test Replicate	Sample ID: SSPC-DU1-Comp					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.7	7.87	7.7	30.7	10	Date: 08/01/10 Time: 10:00 WQ: SG Scientist Initiation: Scientist Confirmation:
	Rep B	19.7	7.90	7.6	30.4	10	
	Rep C	19.7	7.94	7.7	30.9	10	
	Rep D	19.7	7.91	7.7	31.0	10	
	Rep E	19.7	7.94	7.7	31.0	10	
Day 1	Rep A	19.7	7.98	7.6	28.9		Date: 8/2/10 Time: 9:20 WQ: CG
Day 2	Rep B	20.2	8.10	7.7	30.8		Date: 8/3/10 Time: 0930 WQ: CG
Day 3	Rep C	19.8	8.09	7.1	29.6		Date: 8/4/10 Time: 1000 WQ: CG
Day 4	Rep D	20.2	8.23	7.5	31.9		Date: 8/5/10 Time: 0930 WQ: CG
Day 5	Rep E	20.1	8.33	7.5	29.6		Date: 8/6/10 Time: 0945 WQ: CG
Day 6	Rep A	20.2	8.26	7.6	29.0		Date: 8/7/10 Time: 0945 WQ: FAB
Day 7	Rep B	20.2	8.05	7.2	28.9		Date: 8/8/10 Time: 10:00 WQ: SG
Day 8	Rep C	20.2	8.26	7.4	28.8		Date: 8/9/10 Time: 1010 WQ: CG
Day 9	Rep D	20.2	8.41	7.4	29.5		Date: 8/10/10 Time: 1100 WQ: CG
Day 10	Rep A	20.1	8.34	7.6	28.9	8	Date: 8/11/10 Time: 1000 WQ: CG Scientist: DAM
	Rep B	20.1	8.38	7.5	29.9	8	
	Rep C	20.1	8.33	7.6	28.8	9	
	Rep D	20.1	8.41	7.6	29.9	8	
	Rep E	20.1	8.37	7.5	31.5	9	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.52	5.1	30.2	0.095	7.47	Date: 8/1/10 Time: 12:00 WQ: SG
	Overlying Water					1.03	Date: 8/1/10 Time: 12:00 WQ: SG
	Meter ID	pH12	RDO3	EC05	DR4000	DR2800	
Day 10	Porewater	7.30	4.9 4.7	38.7	0.014	2.39	Date: 8/11/10 Time: 1230 WQ: WM
	Overlying Water					21.0	Date: 8/11/10 Time: 1100 WQ: CG
	Meter ID	pH03	RDO4	EC05	DR4000	DR3800	

Appendix G

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the Polychaete, *Neanthes arenaceodentata*

CETIS Summary Report

Acute Polychaete Survival Test — Pacific EcoRisk

Batch ID:	13-8494-6954	Test Type:	Survival (96h)	Analyst:	Padrick Anderson
Start Date:	01 Aug-10 15:00	Protocol:	ASTM E1611-00 (Polychaete)	Diluent:	Diluted Seawater
Ending Date:	05 Aug-10 14:00	Species:	Neanthes arenaceodentata	Brine:	Not Applicable
Duration:	95h	Source:	Don Reisch	Age:	NA

Sample ID:	02-1591-1925	Code:	KCl	Client:	Reference Toxicant
Sample Date:	01 Aug-10 15:00	Material:	Potassium chloride	Project:	17166
Receive Date:	01 Aug-10 15:00	Source:	Reference Toxicant		
Sample Age:	N/A (19.7 °C)	Station:	In House		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
14-0584-5624	96h Survival Rate	1	2	1.41	44.5%		Dunnett's Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	g/L	95% LCL	95% UCL	TU	Method
13-6116-5464	96h Survival Rate	EC50	1.89	1.52	2.35		Spearman-Kärber

96h Survival Rate Summary

Conc-g/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Contr	2	0.9	0.847	0.953	0.8	1	0.0258	0.141	15.7%	0.0%
0.25		2	1	1	1	1	1	0	0	0.0%	-11.1%
0.5		2	0.9	0.847	0.953	0.8	1	0.0258	0.141	15.7%	0.0%
1		2	1	1	1	1	1	0	0	0.0%	-11.1%
2		2	0.4	0.294	0.506	0.2	0.6	0.0516	0.283	70.7%	55.6%
4		2	0	0	0	0	0	0	0		100.0%

96h Survival Rate Detail

Conc-g/L	Control Type	Rep 1	Rep 2
0	Lab Water Contr	1	0.8
0.25		1	1
0.5		1	0.8
1		1	1
2		0.2	0.6
4		0	0

96 Hour Marine Reference Toxicant Test Data

Client: Reference Toxicant
Test Material: Potassium Chloride
Test ID#: 39627 Project #: 17166
Test Date: 8/1/10 Randomization: ~~2.7.2~~ 2.6.2
Organism Log #: 5334
Organism Supplier: Don Reish
Species: *Neanthes arenaceodentata*
Control/Diluent: 30 ppt Seawater

Treatment (g KCl /L)	Temp (°C)	pH new	pH old	DO (mg/L) new	DO old	Salinity (ppt) new	Salinity old	# Live Organisms A	# Live Organisms B	SIGN-OFF
Control	19.7	7.89		7.1		29.7		5	5	Date: 8/1/10
0.25	19.7	7.90		7.1		29.3		5	5	Test Solution Prep:
0.5	19.7	7.9[illegible]		7.1		29.3		5	5	New WQ: CN
1	19.7	7.91		7.2		29.7		5	5	Initiation Time: 1500
2	19.7	7.89		7.3		30.7		5	5	Initiation Signoff: CN
4	19.7	7.89		7.2		33.0		5	5	Ref Tox Stock Batch #: 7/8
Meter ID:	15A	PH14		RD04		E004				
Control	19.8		7.90		7.2		28.0	5	5	Date: 8/2/10
0.25	19.8		7.83		7.0		28.7	5	5	Count Time: 1345
0.5	19.8		7.83		7.4		28.8	5	5	Count Signoff:
1	19.8		7.83		7.4		29.2	5	5	Old WQ: CN
2	19.8		7.82		7.5		30.1	5	5	
4	19.8		7.81		7.5		32.4	0	0	
Meter ID:	48A		PH14		RD04		E003			
Control	20.0		7.87		7.1		28.0	5	5	Date: 8/3/10
0.25	20.0		7.89		7.3		28.7	5	5	Count Time: 0945
0.5	20.0		7.89		7.3		28.9	5	4	Count Signoff: RPD
1	20.0		7.89		7.3		29.2	5	5	Old WQ: CN
2	20.0		7.89		7.4		30.2	2	5	
4	—		—		—		—	—	—	
Meter ID:	48A		PH09		RD03		E005			
Control	19.6		7.95		7.3		27.2	5	5	Date: 8/4/10
0.25	19.6		7.94		7.2		28.5	5	5	Count Time: 850
0.5	19.6		7.95		7.3		28.7	5	4	Count Signoff: RPD
1	19.6		7.95		7.3		29.1	5	5	Old WQ: CN
2	19.6		7.95		7.3		30.2	2	5	
4	—		—		—		—	—	—	
Meter ID:	48A		PH14		RD03		E005			
Control	20.0		7.92		7.4		28.5	5	4	Date: 8/5/10
0.25	20.0		7.92		7.4		28.7	5	5	Termination Time: 1400
0.5	20.0		7.92		7.5		28.9	5	4	Termination Signoff:
1	20.0		7.91		7.5		30.4	5	5	Old WQ: JTW
2	20.0		7.91		7.5		30.4	1	3	
4	—		—		—		—	—	—	
Meter ID:	48A		PH03		RD04		E003			

Appendix H

Test Data and Summary of Statistics for the Toxicity Evaluation of Schnitzer Steel Products Company, Inc. Sediment Elutriate with Mussel *(Mytilus galloprovinciales)* Embryos

Bivalve Larval Survival and Development Test — Pacific EcoRisk

Batch ID:	13-7003-3579	Test Type:	Development-Survival	Analyst:	Jason Walker
Start Date:	12 Aug-10 15:15	Protocol:	EPA/600/R-95/136 (1995)	Diluent:	Diluted Seawater
Ending Date:	14 Aug-10 15:00	Species:	Mytilus galloprovincialis	Brine:	Crystal Sea
Duration:	48h	Source:	M-REP	Age:	NA

Sample ID:	04-2948-6615	Code:	Elutriate	Client:	Schnitzer Steel
Sample Date:	21 Jul-10 09:10	Material:	Sediment	Project:	17105
Receive Date:	21 Jul-10 19:00	Source:	Schnitzer Steel		
Sample Age:	22d 6h (0.1 °C)	Station:	SSPC-DU1-Comp		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
07-1085-7636	Development Rate	50	100	70.7	2.95%	2	Steel Many-One Rank Test
05-1481-7145		0	>0		1.05%		Unequal Variance t Two-Sample Test
08-9091-0503		<0	0		13.0%		Unequal Variance t Two-Sample Test
08-3233-4525	Survival Rate	<0	0		14.0%		Equal Variance t Two-Sample Test
14-1882-4608		0	>0		13.3%		Equal Variance t Two-Sample Test
14-6593-4555		50	100	70.7	15.9%	2	Dunnett's Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
15-7066-9143	Development Rate	EC5	52.9	52.1	53.1	1.89	Linear Interpolation (ICPIN)
		EC10	55.9	55	56.3	1.79	
		EC15	56.8	57.9	59.7	1.7	
		EC20	61.8	60.7	63	1.62	
		EC25	64.7	63.5	66.3	1.55	
		EC40	73.5	71.9	76	1.36	
		EC50	79.4	77.4	82.7	1.26	
20-1837-8401	Survival Rate	EC50	71.5	70.7	72.3	1.4	Trimmed Spearman-Kärber

Development Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Contr	5	0.964	0.96	0.967	0.952	0.976	0.00182	0.00994	1.03%	0.0%
0	Salt Control	5	0.505	0.421	0.589	0.279	0.76	0.0409	0.224	44.4%	47.6%
0	Site Water	5	1	1	1	1	1	0	0	0.0%	-3.76%
1		5	0.966	0.965	0.966	0.964	0.968	0.000278	0.00153	0.16%	-0.24%
10		5	0.968	0.965	0.97	0.96	0.976	0.00126	0.00692	0.72%	-0.43%
25		5	0.975	0.972	0.978	0.965	0.982	0.00148	0.00809	0.83%	-1.2%
50		5	0.969	0.964	0.974	0.95	0.984	0.00243	0.0133	1.38%	-0.51%
100		5	0.142	0.116	0.168	0.0821	0.26	0.0126	0.0692	48.7%	85.2%

Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Contr	5	0.868	0.855	0.88	0.821	0.913	0.00607	0.0332	3.83%	0.0%
0	Salt Control	5	0.374	0.31	0.436	0.188	0.565	0.0312	0.171	45.8%	56.9%
0	Site Water	5	0.745	0.69	0.799	0.56	0.913	0.0266	0.146	19.6%	14.1%
1		5	0.918	0.892	0.944	0.826	1	0.0128	0.0698	7.61%	-5.79%
10		5	0.954	0.934	0.974	0.874	1	0.00975	0.0534	5.6%	-9.91%
25		5	0.776	0.722	0.83	0.531	0.884	0.0263	0.144	18.5%	10.6%
50		5	0.885	0.87	0.901	0.816	0.923	0.00757	0.0415	4.69%	-2.0%
100		5	0.105	0.0847	0.126	0.0531	0.186	0.0101	0.0553	52.5%	87.9%

Bivalve Larval Survival and Development Test — Pacific EcoRisk

Analysis ID:	08-9091-0503	Endpoint:	Development Rate	CETIS Version:	CETISv1.7.0
Analyzed:	17 Aug-10 14:59	Analysis:	Parametric-Two Sample	Official Results:	Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	<0	0			13.0%

Unequal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	P-Value	Decision(5%)
Lab Water Control		Salt Control	5.62	2.13	0.224	0.0025	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.8688502	0.8688502	1	31.6	0.0005	Significant Effect
Error	0.2199672	0.0274959	8			
Total	1.088817	0.8963461	9			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	69.7	23.2	0.0012	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.907		0.2610	Normal Distribution

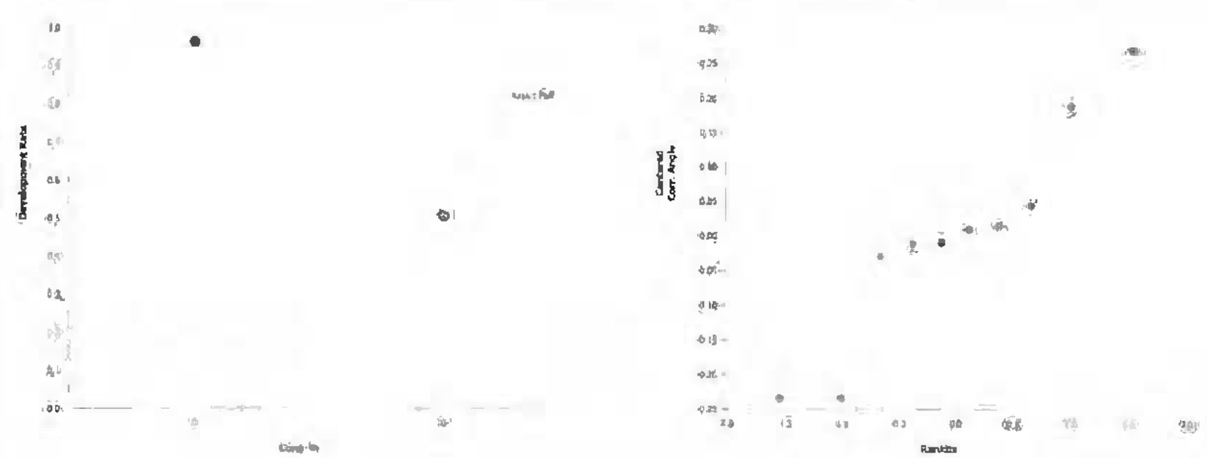
Development Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Salt Control	5	0.505	0.42	0.59	0.279	0.76	0.0416	0.224	44.4%	0.0%
0	Lab Water Contr	5	0.964	0.96	0.967	0.952	0.978	0.00185	0.00994	1.03%	-90.8%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Salt Control	5	0.791	0.702	0.879	0.556	1.06	0.0432	0.233	29.4%	0.0%
0	Lab Water Cont	5	1.38	1.37	1.39	1.35	1.42	0.00518	0.0279	2.02%	-74.5%

Graphics



Bivalve Larval Survival and Development Test — Pacific EcoRisk

Analysis ID: 05-1481-7145 Endpoint: Development Rate CETIS Version: CETISv1.7.0
Analyzed: 17 Aug-10 14:59 Analysis: Parametric-Two Sample Official Results: Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	0	>0			1.05%

Unequal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	P-Value	Decision(5%)
Lab Water Control		Site Water	-11.9	2.13	0.0269	0.9999	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.05604343	0.05604343	1	141	<0.0001	Significant Effect
Error	0.003178264	0.000397283	8			
Total	0.05922169	0.05644071	9			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	45.2	23.2	0.0028	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.896		0.1994	Normal Distribution

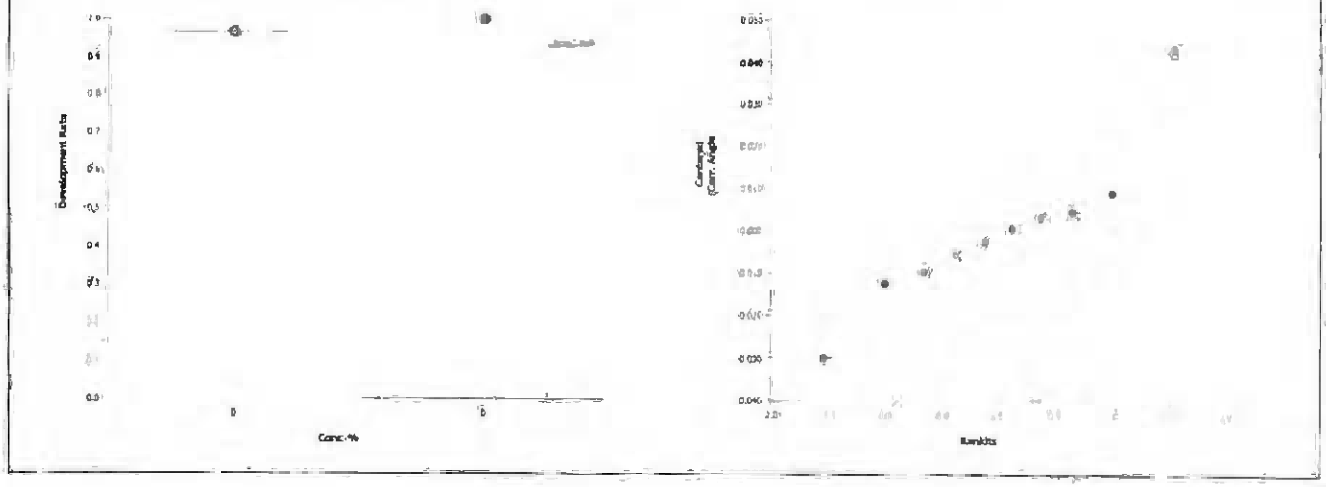
Development Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Site Water	5	1	1	1	1	1	0	0	0.0%	0.0%
0	Lab Water Contr	5	0.964	0.96	0.967	0.952	0.976	0.00185	0.00994	1.03%	3.64%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Site Water	5	1.53	1.53	1.53	1.52	1.53	0.00077	0.00415	0.27%	0.0%
0	Lab Water Cont	5	1.38	1.37	1.39	1.35	1.42	0.00518	0.0279	2.02%	9.79%

Graphics



Bivalve Larval Survival and Development Test — Pacific EcoRisk

Analysis ID:	07-1085-7636	Endpoint:	Development Rate	CETIS Version:	CETISv1.7.0
Analyzed:	17 Aug-10 14:59	Analysis:	Nonparametric-Control vs Treatments	Official Results:	Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	50	100	70.7	2	2.95%

Steel Many-One Rank Test

Control	vs	Conc-%	Test Stat	Critical	Ties	P-Value	Decision(5%)
Lab Water Control		1	31	16	0	0.9676	Non-Significant Effect
		10	31	16	0	0.9676	Non-Significant Effect
		25	37	16	0	0.9996	Non-Significant Effect
		50	31	16	0	0.9676	Non-Significant Effect
		100*	15	16	0	0.0191	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	4.28227	0.856454	5	426	<0.0001	Significant Effect
Error	0.0482187	0.002009113	24			
Total	4.330489	0.8584631	29			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	26.4	15.1	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk Normality	0.858		0.0009	Non-normal Distribution

Development Rate Summary

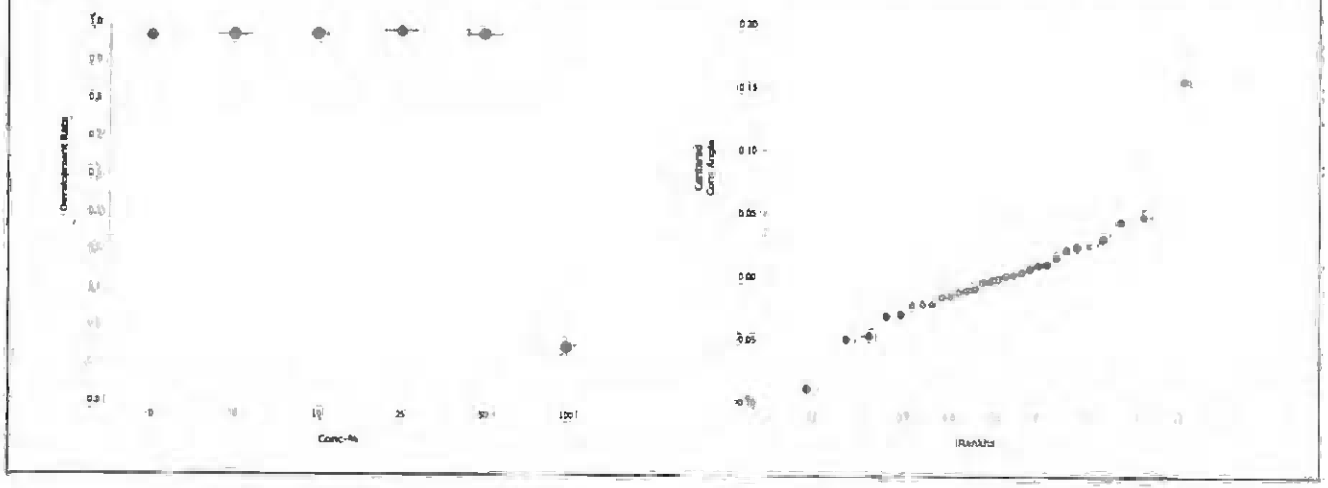
Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Contr	5	0.964	0.96	0.967	0.952	0.978	0.00165	0.00994	1.03%	0.0%
1		5	0.966	0.965	0.966	0.964	0.968	0.000283	0.00153	0.16%	-0.24%
10		5	0.968	0.965	0.97	0.96	0.976	0.00129	0.00692	0.72%	-0.43%
25		5	0.975	0.972	0.978	0.965	0.982	0.0015	0.00809	0.83%	-1.2%
50		5	0.969	0.963	0.974	0.95	0.984	0.00248	0.0133	1.38%	-0.51%
100		5	0.142	0.116	0.169	0.0821	0.26	0.0126	0.0692	48.7%	85.2%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Cont	5	1.38	1.37	1.39	1.35	1.42	0.00518	0.0279	2.02%	0.0%
1		5	1.39	1.38	1.39	1.38	1.39	0.000783	0.00421	0.3%	-0.34%
10		5	1.39	1.38	1.4	1.37	1.42	0.00367	0.0198	1.42%	-0.77%
25		5	1.41	1.4	1.42	1.38	1.44	0.00476	0.0256	1.81%	-2.44%
50		5	1.4	1.38	1.41	1.35	1.44	0.00722	0.0389	2.79%	-1.12%
100		5	0.38	0.344	0.415	0.291	0.535	0.0173	0.0933	24.6%	72.5%

Bivalve Larval Survival and Development Test					Pacific EcoRisk
Analysis ID:	07-1085-7636	Endpoint:	Development Rate	CETIS Version:	CETISv1.7.0
Analyzed:	17 Aug-10 14:59	Analysis:	Nonparametric-Control vs Treatments	Official Results:	Yes

Graphics



CETIS Analytical Report

Report Date: 17 Aug-10 15:00 (p 1 of 1)
Test Code: 04-4808-2725/39765

Bivalve Larval Survival and Development Test — Pacific EcoRisk

Analysis ID:	15-7066-9143	Endpoint:	Development Rate	CETIS Version:	CETISv1.7.0
Analyzed:	17 Aug-10 14:59	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	57951	200	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	52.9	52.1	53.1	1.89	1.88	1.92
EC10	55.9	55	56.3	1.79	1.78	1.82
EC15	58.8	57.9	59.7	1.7	1.68	1.73
EC20	61.8	60.7	63	1.62	1.59	1.65
EC25	64.7	63.5	66.3	1.55	1.51	1.58
EC40	73.5	71.9	76	1.36	1.31	1.39
EC50	79.4	77.4	82.7	1.26	1.21	1.29

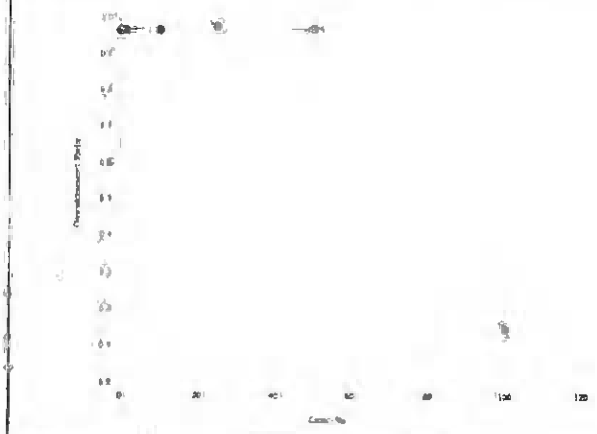
Development Rate Summary

			Calculated Variate(A/B)								
Conc-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	Diff%	A	B
0	Lab Water Contr	5	0.964	0.952	0.978	0.00182	0.00994	1.03%	0.0%	898	932
1		5	0.966	0.964	0.968	0.000279	0.00153	0.16%	-0.24%	961	995
10		5	0.968	0.96	0.976	0.00126	0.00692	0.72%	-0.43%	987	1020
25		5	0.975	0.965	0.982	0.00148	0.00809	0.83%	-1.2%	803	823
50		5	0.969	0.95	0.984	0.00243	0.0133	1.38%	-0.51%	916	946
100		5	0.142	0.0821	0.26	0.0126	0.0692	48.7%	85.2%	109	754

Development Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water Control	0.96	0.967	0.978	0.959	0.952
1		0.964	0.965	0.966	0.966	0.968
10		0.962	0.976	0.96	0.973	0.967
25		0.979	0.968	0.965	0.982	0.982
50		0.979	0.95	0.966	0.964	0.984
100		0.26	0.123	0.14	0.107	0.0821

Graphics



Bivalve Larval Survival and Development Test — Pacific EcoRisk

Analysis ID:	08-3233-4525	Endpoint:	Survival Rate	CETIS Version:	CETISv1.7.0
Analyzed:	17 Aug-10 14:58	Analysis:	Parametric-Two Sample	Official Results:	Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	<0	0			14.0%

Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	P-Value	Decision(5%)
Lab Water Control		Salt Control	6.47	1.86	0.158	<0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.7581249	0.7581249	1	41.9	0.0002	Significant Effect
Error	0.1447564	0.01809455	8			
Total	0.9028813	0.7762194	9			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	13.7	23.2	0.0266	Equal Variances
Distribution	Shapiro-Wilk Normality	0.953		0.7097	Normal Distribution

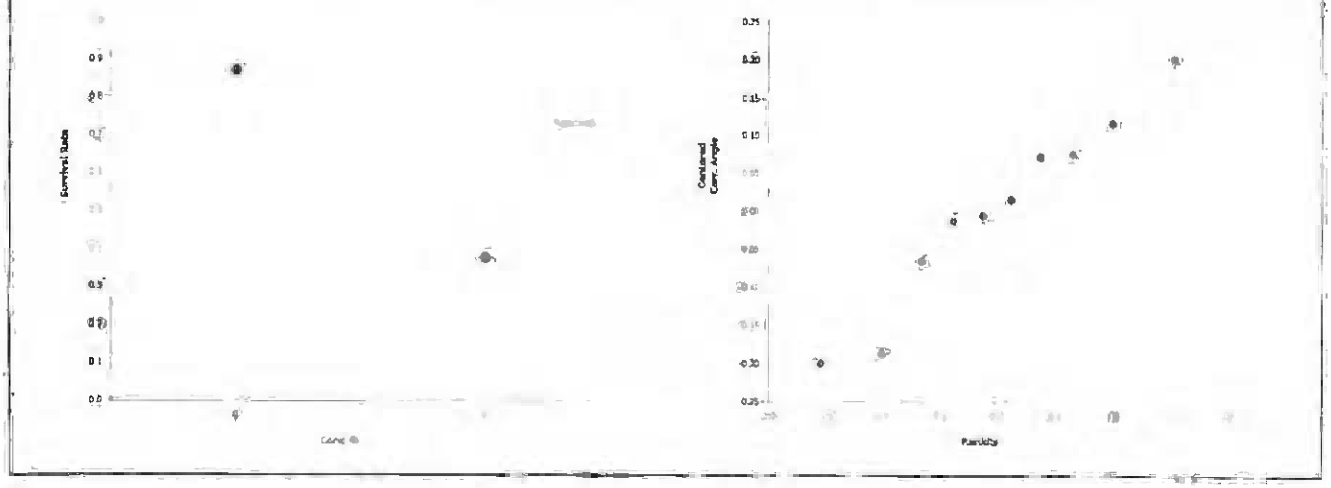
Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Salt Control	5	0.374	0.309	0.439	0.188	0.565	0.0318	0.171	45.8%	0.0%
0	Lab Water Contr	5	0.868	0.855	0.88	0.821	0.913	0.00617	0.0332	3.83%	-132.0%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Salt Control	5	0.65	0.58	0.72	0.449	0.851	0.0341	0.184	28.3%	0.0%
0	Lab Water Cont	5	1.2	1.18	1.22	1.13	1.27	0.00923	0.0497	4.14%	-84.7%

Graphics



Bivalve Larval Survival and Development Test — Pacific EcoRisk

Analysis ID:	14-1882-4608	Endpoint:	Survival Rate	CETIS Version:	CETISv1.7.0
Analyzed:	17 Aug-10 14:58	Analysis:	Parametric-Two Sample	Official Results:	Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	0	>0			13.3%

Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	P-Value	Decision(5%)
Lab Water Control		Site Water	1.78	1.86	0.151	0.0561	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	0.05241672	0.05241672	1	3.18	0.1123	Non-Significant Effect
Error	0.1317835	0.01647294	8			
Total	0.1842002	0.06888966	9			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Variance Ratio F	12.3	23.2	0.0320	Equal Variances
Distribution	Shapiro-Wilk Normality	0.981		0.9687	Normal Distribution

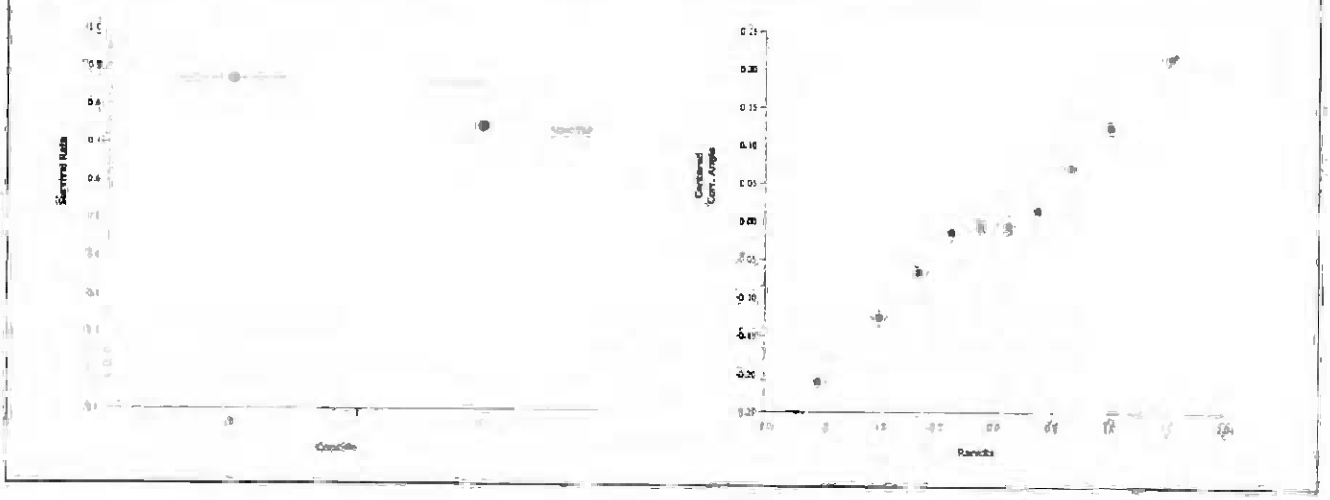
Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Site Water	5	0.745	0.689	0.8	0.56	0.913	0.0271	0.146	19.6%	0.0%
0	Lab Water Contr	5	0.868	0.855	0.88	0.821	0.913	0.00617	0.0332	3.83%	-16.5%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Site Water	5	1.06	0.989	1.12	0.846	1.27	0.0324	0.175	16.5%	0.0%
0	Lab Water Cont	5	1.2	1.18	1.22	1.13	1.27	0.00923	0.0497	4.14%	-13.7%

Graphics



Bivalve Larval Survival and Development Test — Pacific EcoRisk

Analysis ID: 14-6593-4555 Endpoint: Survival Rate CETIS Version: CETISv1.7.0
Analyzed: 17 Aug-10 14:58 Analysis: Parametric-Control vs Treatments Official Results: Yes

Data Transform	Zeta	Alt Hyp	Monte Carlo	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	50	100	70.7	2	15.9%

Dunnett's Multiple Comparison Test

Control	vs	Conc-%	Test Stat	Critical	MSD	P-Value	Decision(5%)
Lab Water Control		1	-1.5	2.36	0.177	0.9963	Non-Significant Effect
		10	-2.49	2.36	0.177	0.9999	Non-Significant Effect
		25	1.47	2.36	0.177	0.2322	Non-Significant Effect
		50	-0.374	2.36	0.177	0.9204	Non-Significant Effect
		100*	11.7	2.36	0.177	<0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(5%)
Between	3.791224	0.7582449	5	54.3	<0.0001	Significant Effect
Error	0.3353878	0.01397449	24			
Total	4.126612	0.7722194	29			

ANOVA Assumptions

Attribute	Test	Test Stat	Critical	P-Value	Decision(1%)
Variances	Bartlett Equality of Variance	7.73	15.1	0.1716	Equal Variances
Distribution	Shapiro-Wilk Normality	0.983		0.8973	Normal Distribution

Survival Rate Summary

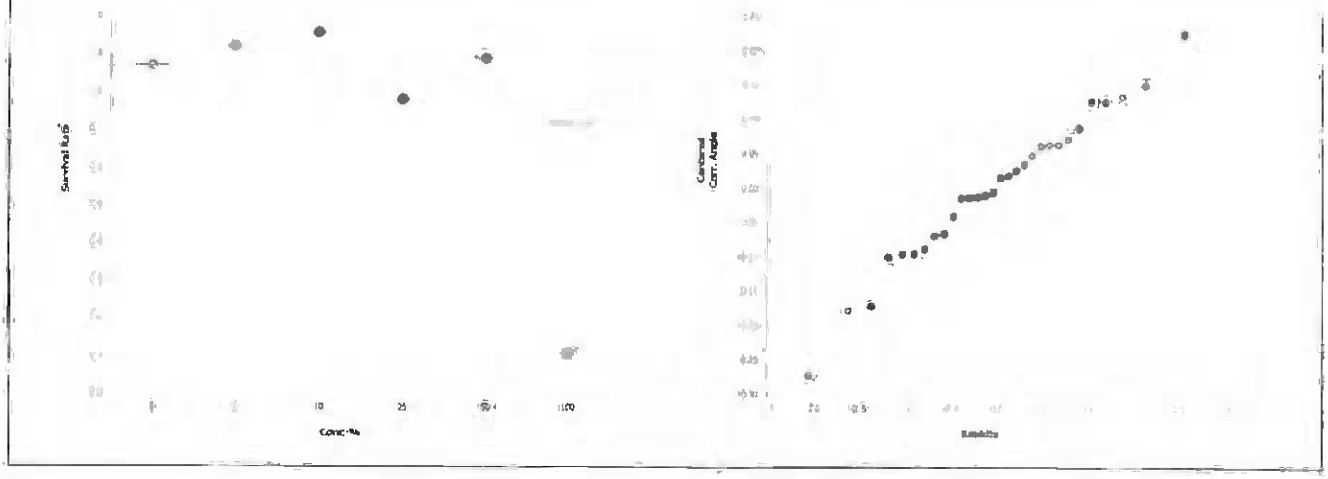
Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Contr	5	0.868	0.855	0.88	0.821	0.913	0.00617	0.0332	3.83%	0.0%
1		5	0.918	0.891	0.944	0.826	1	0.013	0.0698	7.61%	-5.79%
10		5	0.954	0.933	0.974	0.874	1	0.00992	0.0534	5.6%	-9.91%
25		5	0.776	0.721	0.831	0.531	0.884	0.0268	0.144	18.6%	10.6%
50		5	0.885	0.869	0.901	0.816	0.923	0.0077	0.0415	4.69%	-2.0%
100		5	0.105	0.0843	0.126	0.0531	0.188	0.0103	0.0553	52.5%	87.9%

Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Cont	5	1.2	1.18	1.22	1.13	1.27	0.00923	0.0497	4.14%	0.0%
1		5	1.31	1.25	1.37	1.14	1.54	0.0291	0.157	11.9%	-9.34%
10		5	1.38	1.34	1.44	1.21	1.54	0.0248	0.134	9.65%	-15.5%
25		5	1.09	1.03	1.15	0.817	1.22	0.0307	0.165	15.1%	9.18%
50		5	1.23	1.2	1.25	1.13	1.29	0.0115	0.0621	5.06%	-2.33%
100		5	0.322	0.289	0.356	0.233	0.449	0.0164	0.0885	27.4%	73.1%

Bivalve Larval Survival and Development Test					Pacific EcoRisk
Analysis ID:	14-6593-4555	Endpoint:	Survival Rate	CETIS Version:	CETISv1.7.0
Analyzed:	17 Aug-10 14:58	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Graphics



CETIS Analytical Report

Report Date: 17 Aug-10 15:00 (p 1 of 1)
Test Code: 04-4808-2725/39765

Bivalve Larval Survival and Development Test				Pacific EcoRisk
Analysis ID:	20-1837-8401	Endpoint: Survival Rate	CETIS Version:	CETISv1.7.0
Analyzed:	17 Aug-10 14:58	Analysis: Trimmed Spearman-Kärber	Official Results:	Yes

Trimmed Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0.132	11.53%	1.85	0.00254	71.5	70.7	72.3

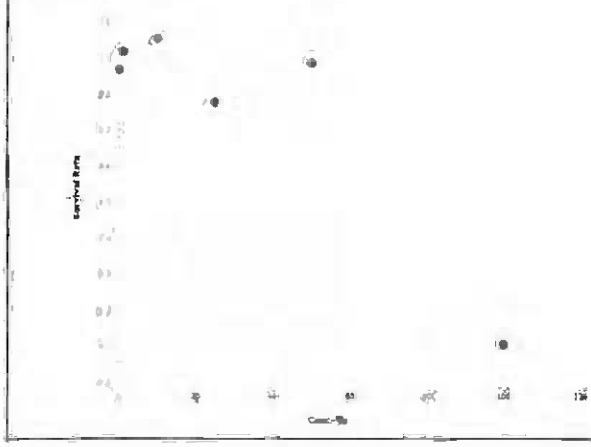
Survival Rate Summary

			Calculated Variate(A/B)								
Conc-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	Diff%	A	B
0	Lab Water Contr	5	0.868	0.821	0.913	0.00607	0.0332	3.83%	0.0%	868	1035
1		5	0.918	0.826	1	0.0128	0.0698	7.61%	-5.79%	950	1035
10		5	0.954	0.874	1	0.00975	0.0534	5.6%	-9.91%	987	1035
25		5	0.776	0.531	0.884	0.0263	0.144	18.6%	10.6%	803	1035
50		5	0.885	0.816	0.923	0.00757	0.0415	4.69%	-2.0%	916	1035
100		5	0.105	0.0531	0.188	0.0101	0.0553	52.5%	87.9%	109	1035

Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water Control	0.821	0.86	0.879	0.913	0.865
1		0.913	1	0.826	0.971	0.879
10		0.986	0.966	0.923	0.874	1
25		0.884	0.879	0.531	0.807	0.778
50		0.908	0.923	0.816	0.899	0.879
100		0.188	0.0918	0.13	0.0628	0.0531

Graphics



Bivalve Larval Survival and Development Test — Pacific EcoRisk

Development Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water Contr	0.96	0.967	0.978	0.959	0.952
0	Salt Control	0.279	0.279	0.76	0.688	0.52
0	Site Water	1	1	1	1	1
6		0.964	0.965	0.966	0.966	0.968
10		0.962	0.976	0.96	0.973	0.967
25		0.979	0.968	0.965	0.982	0.982
50		0.979	0.95	0.966	0.964	0.984
100		0.26	0.123	0.14	0.107	0.0821

Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water Contr	0.821	0.86	0.879	0.913	0.865
0	Salt Control	0.198	0.188	0.565	0.478	0.44
0	Site Water	0.913	0.754	0.643	0.855	0.56
6		0.913	1	0.826	0.971	0.879
10		0.986	0.986	0.923	0.874	1
25		0.884	0.879	0.531	0.807	0.778
50		0.908	0.923	0.816	0.899	0.879
100		0.188	0.0918	0.13	0.0628	0.0531

Mytilus sp. Development Toxicity Test Count Data

Client: Schnitzer Steel
Test Material: SSPC-DU1-Comp
Test ID #: 39765
Project #: 17105
Sample Salinity adjusted with : Crystal Sea

Test Start Date: 8/12/10
Test End Date: 8/14/10
Enumeration Date: 8/17/10
Investigator: JM
Inoculation Count: 207

Concentration	Replicate	Number of Normal Larvae	Number of Abnormal Larvae	Total Number Larvae	Percent Normal Development	Percent Survival
Control	A	170	7	177	96.0	84.2
	B	178	6	184	96.7	86.0
	C	182	4	186	97.8	87.9
	D	189	8	197	95.9	91.3
	E	179	9	188	95.2	86.5
1.0%	A	189	7	196	96.4	91.3
	B	218	8	226	96.5	100
	C	171	6	177	96.6	82.6
	D	201	7	208	96.6	97.1
	E	182	6	188	96.8	87.9
10%	A	204	8	212	96.2	98.6
	B	204	5	209	97.6	98.6
	C	191	8	199	96.0	92.3
	D	181	5	186	97.3	87.4
	E	207	7	214	96.7	100
25%	A	183	4	187	97.9	88.4
	B	182	6	188	96.8	87.9
	C	110	4	114	96.5	53.1
	D	167	3	170	98.2	80.7
	E	161	3	164	98.2	77.8
50%	A	188	4	192	97.9	90.8
	B	191	10	201	95.0	92.3
	C	169	6	175	96.6	81.6
	D	186	7	193	96.4	89.9
	E	182	3	185	98.4	87.9
100%	A	39	111	150	26.0	18.8
	B	19	136	155	12.3	9.18
	C	27	166	193	14.0	13.0
	D	13	109	122	10.7	6.28
	E	11	123	134	8.21	5.31

Mytilus sp. Development Toxicity Test Water Chemistry Data

Client: Schnitzer Steel
Test Material: SSPC-DU1-Comp
Test ID#: 39765 Project #: 17105
Test Date: _____ Randomization: _____
Sample Salinity adjusted with: Crystal Sea

Organism Log#: 5323 Age: N/A
Organism Supplier: M-Rep
Control/Diluent: 30ppt FSW

Day 0

Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Control	15.6	7.77	7.8	30.5	Test Solution Prep: SM/JZ
1%	15.6	7.79	7.9	80.9	New WQ: JZ
10%	15.6	7.82	7.9	30.7	Inoculation Date: 8/12/10
25%	15.6	7.88	8.0	30.4	Inoculation Time: 1515
50%	15.6	7.95	8.0	30.1	Inoculation Signoff: SM
100%	15.6	8.06	8.0	29.2	
Meter ID	53A	PH12	RDO3	EC04	

Day 1

Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Control	15.5				Date: 8/13/10
1%	15				Signoff: JZ
10%	15.5				
25%	15.5				
50%	15.5				
100%	15.5				
Meter ID	53A				

Day 2

Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Control	15.7	7.25	6.1	31.0	Termination Signoff: DT
1%	15.7	7.20	5.7	31.2	Termination Date: 8/14/10
10%	15.7	7.28	6.3	30.6	Termination Time: 1500
25%	15.7	7.36	6.7	30.7	Old WQ: JZ
50%	15.7	7.47	6.7	30.6	
100%	15.7	7.62	6.1	29.8	
Meter ID	53A	ph01	RDO4	EC04	

Mytilus sp. Development Toxicity Test Count Data

Client: **Schnitzer Steel**
Test Material: Salt Control/Site Water
Test ID #: 39765
Project #: 17105
Sample Salinity adjusted with : Crystal Sea

Test Start Date: 8/12/10
Test End Date: 8/14/10
Enumeration Date: 8/17/10
Investigator: JM
Innoculation Counts: 207

Concentration	Replicate	Number of Normal Larvae	Number of Abnormal Larvae	Total Number Larvae	Percent Normal Development	Percent Survival
Control	A	170	7	177	96.0	84.2
	B	178	6	184	96.7	86.0
	C	182	4	186	97.8	87.9
	D	189	8	197	95.9	91.3
	E	179	9	188	95.2	86.5
Salt Control	A	41	106	147	27.9	19.8
	B	39	101	140	27.9	18.8
	C	117	37	154	76.0	56.5
	D	99	45	144	68.8	47.8
	E	91	84	175	52.0	44.0
Site Water Control	A	189	0	189	100	91.3
	B	156	0	156	100	75.4
	C	133	0	133	100	64.3
	D	177	0	177	100	85.5
	E	116	0	116	100	56.0

Mytilus sp. Development Toxicity Test Water Chemistry Data

Client: Schnitzer Steel
Test Material: Salt Control/Site Water
Test ID#: 39765 Project #: 17105
Test Date: _____ Randomization: _____
Sample Salinity adjusted with : Crystal Sea Salts

Organism Log#: 5323 Age: N/A
Organism Supplier: M-Rep
Control/Diluent: 30 ppt FSW

Day 0

Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Control	15.6	7.77	7.8	30.5	Date & Inoculation Time: 9/12/10 1515
Crystal Sea Salt Control	15.6	8.14	7.1	29.0	Test Solution Prep: SM / JL
Site Water Control	15.6	~~8.19 8.4~~	~~8.4 8.3~~	30.0	Inoculation Signoff: SM
Meter ID	53A	Ph 12	RDO3	EC04	New WQ:

Day 1

Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Control	15.3				Date 9/13/10
Crystal Sea Salt Control	15.3				Old WQ JL
Site Water Control	15.3				
Meter ID	53A				

Day 2

Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Control	15.7	7.25	6.1	31.0	Date 9/14/10
Crystal Sea Salt Control	15.7	7.88	7.5	28.9	Termination: JT
Site Water Control	15.7	7.45	7.4	30.9	Old WQ:
Meter ID	53A	ph04	RDO4	EC04	