

## **Appendix H**

### **Delfin LNG Soil Sediment Report**

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# Port Delfin LNG Project

## Deepwater Port Terminal and Bypass Offshore Field Sampling and Analysis Report

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Response to Data Gap Questions #1d and #27 of  
USCG Data Request of July 16, 2015

Prepared for:



Delfin LNG LLC  
1100 Louisiana Street, Suite 3550  
Houston, TX 77002

Prepared by:



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## Acronyms and Abbreviations

µg/L	micrograms per liter
ASTM	American Society for Testing and Materials
BOD	biological oxygen demand
Bscf/d	billion standard cubic feet per day
Bscf/y	billion standard cubic feet per year
BTEX	benzene, ethylene, toluene, and xylene
CCME	Canadian Council of Ministers of the Environment
COC	contaminants of concern
COD	chemical oxygen demand
CTD	conductivity-temperature-depth
Delfin LNG	Delfin LNG LLC
DGPS	Differential Global Positioning System
DO	dissolved oxygen
DOE	U.S. Department of Energy
DOF	Delfin Onshore Facilities
DWP	deepwater port
DWPA	Deepwater Port Act of 1974, as amended
E & E	Ecology and Environment, Inc.
ELAP	Environmental Laboratory Accreditation Program
EPA	U.S. Environmental Protection Agency
ERM	effects range median
FERC	Federal Energy Regulatory Commission
FLNGV	floating liquefied natural gas vessel
ft <sup>3</sup>	cubic feet
FTA	free trade agreement
GOM	Gulf of Mexico
HI	High Island Block
HIOS	High Island Offshore System
ISQG	interim sediment quality guideline
km	kilometers

km <sup>2</sup>	square kilometers
LDEQ	Louisiana Department of Environmental Quality
LNG	liquefied natural gas
LOQ	limits of quantitation
LUMCON	Louisiana Universities Marine Consortium
m <sup>3</sup>	cubic meters
MARAD	Maritime Administration
MDL	method detection limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mi <sup>2</sup>	square miles
MMscf/d	million standard cubic feet per day
MMtpa	million metric tonnes per annum
MS/MSD	matrix spike/matrix spike duplicate
NELAC	National Environmental Laboratory Accreditation Conference
NGA	Natural Gas Act
NOAA	National Oceanic and Atmospheric Administration
NODC	National Oceanographic Data Center
NPDES	National Pollutant Discharge Elimination System
OCS	Outer Continental Shelf
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PEL	probable effects level
Port Delfin	the offshore component of the Port Delfin LNG Project consisting of the floating liquefied natural gas vessels, foundations, and underwater elements
Port Delfin LNG Project	Delfin LNG LLC's liquefied natural gas project, including all onshore and offshore components
Project	Port Delfin LNG Project
psu	practical salinity units
RCRA	Resource Conservation and Recovery Act
R/V	Research Vessel
SVM	service vessel mooring
SVOCs	semi-volatile organic compounds
TAL	target analyte list

TCL	target compound list
TDS	total dissolved solids
TEF	toxic equivalency factor
TEL	threshold effects level
TEQ	toxic equivalent
TOC	total organic carbon
TSS	total suspended solids
TYMS	tower yoke mooring system
UNOLS	Universities National Oceanographic Laboratory System
USCG	U.S. Coast Guard
UTOS	U-T Offshore System
WC	West Cameron Block

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## Executive Summary

Ecology and Environment, Inc. (E & E), on behalf of Delfin LNG LLC (Delfin LNG), conducted sediment and water sampling and analysis for the proposed deepwater port (DWP) terminal (referred herein as Port Delfin) in the Gulf of Mexico (GOM), during December 15<sup>th</sup> and 16<sup>th</sup> of 2015. The sampling and analysis was authorized by Delfin LNG and was performed in accordance with the *Sediment and Water Sampling Plan for the Proposed Port Delfin LNG Deepwater Port Terminal* submitted to Delfin LNG by E & E in December 2015.

The proposed DWP would be located in federal waters within the Outer Continental Shelf West Cameron Area, West Addition Protraction Area (GOM), approximately 37.4 to 40.8 nautical miles (or 43 to 47 statute miles) off the coast of Cameron Parish, Louisiana, in water depths ranging from approximately 64 to 72 feet (19.5 to 21.9 meters). The DWP would consist of four new-build, custom designed, floating liquefied natural gas vessels (FLNGVs), four tower yoke mooring systems (TYMS), two existing offshore natural gas pipelines of the former U-T Offshore System (UTOS) and the High Island Offshore System (HIOS)<sup>1</sup>, four new pipeline laterals connecting the HIOS pipeline to each of the FLNGVs, and four service vessel moorings (SVMs) supporting each of the FLNGVs. The feed gas would be supplied through these new pipeline laterals to each of the FLNGVs, where it would be cooled sufficiently to totally condense the gas to produce liquefied natural gas (LNG), and then would be stored in internal LNG storage tanks aboard each of the FLNGVs. Each FLNGV would have LNG storage capacity of approximately 210,000 cubic meters (m<sup>3</sup>).

The Port Delfin LNG Project (referred herein as the Project) includes the construction of four new 30-inch-diameter offshore lateral pipelines to send the natural gas from the HIOS pipeline to each of the four FLNGVs, and construction of four new TYMSs. The FLNGVs would be used for natural gas liquefaction and storage. The natural gas would be further treated, super-cooled, liquefied on the FLNGVs, and stored on board each FLNGV until delivered to LNG trading carriers via ship-to-ship transfer through loading arms or cryogenic hoses. Standard LNG trading carriers with nominal cargo capacities between 125,000 and 177,000 m<sup>3</sup> would be used for the export of LNG.

Based on comments regarding the need for baseline information on water and sediment quality provided by the U.S. Coast Guard (USCG) on July 16, 2015 (Data Gap Questions #1d and #27), Delfin LNG collected samples for chemical analysis of surface and bottom water and bottom and sub-bottom sediment horizons within the proposed Project area. Results from the study show that no significant contaminants of concern are present in surface water or sediments near the Project site. The study concludes that there is a greater concern to the ecological community near the site from historical inputs of nutrients from various sources and subsequent formation of anoxic conditions than would be expected from Project construction or operation.

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<sup>1</sup> The Applicant has the exclusive right to use the portion of the existing HIOS pipeline from West Cameron Block 167 to High Island Addition Block 264 under a Pipeline Services Agreement with HIOS LLC.

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# 1 Introduction

Delfin LNG LLC (Delfin LNG), a Louisiana limited liability company, is proposing to construct, own, and operate a deepwater port (DWP) terminal (referred to herein as Port Delfin) in the Gulf of Mexico (GOM) to serve the global liquefied natural gas (LNG) market. Delfin LNG filed an amended application in November 2015 for a license to construct, own, and operate the DWP pursuant to the Deepwater Port Act of 1974, as amended (DWPA), and in accordance with the U.S. Coast Guard's (USCG's) and the Maritime Administration's (MARAD's) implementing regulations. The purpose of the Port Delfin LNG Project<sup>2</sup> (referred to herein as the Project) would be to provide a safe and reliable facility to liquefy natural gas for export to free trade agreement (FTA) and non-FTA nations.

The proposed DWP would be located in federal waters within the Outer Continental Shelf (OCS) West Cameron Area, West Addition Protraction Area of the GOM, approximately 37.4 to 40.8 nautical miles (or 43 to 47 statute miles) off the coast of Cameron Parish, Louisiana, in water depths ranging from approximately 64 to 72 feet (19.5 to 21.9 meters) (Figure 1). The DWP would consist of four new-build, custom designed, floating liquefied natural gas vessels (FLNGVs), four tower yoke mooring systems (TYMS), two existing offshore natural gas pipelines of the former U-T Offshore System (UTOS)<sup>3</sup> and the High Island Offshore System (HIOS)<sup>4</sup>, four new pipeline laterals connecting the HIOS pipeline to each of the FLNGVs, and four service vessel moorings (SVMs) supporting each of the FLNGVs. The feed gas would be supplied through these new pipeline laterals to each of the FLNGVs, where it would be cooled sufficiently to totally condense the gas to produce LNG, and then would be stored in internal LNG storage tanks aboard each of the FLNGVs. Each FLNGV would have LNG storage capacity of approximately 210,000 cubic meters (m<sup>3</sup>).

In the nominal design case, each of the four FLNGVs would process approximately 500 million standard<sup>5</sup> cubic feet per day (MMscf/d), which would total 2.0 billion standard cubic feet per day (Bscf/d) of input feed gas for all four of the FLNGVs. Based on an estimated production unit availability of 92% and allowance for consumption of feed gas during the liquefaction process, each FLNGV would normally produce 3.0 million metric tonnes per annum [MMtpa]) of LNG for export. Together, the four FLNGVs are designed to have the capability to produce approximately 12.0 MMtpa of LNG for export.

For the optimized design case, each FLNGV would require approximately 575 MMscf/d of feed gas to produce approximately 3.3 MMtpa of LNG for export. The four FLNGVs together would be capable of producing approximately 13.2 MMtpa of LNG, or the equivalent of 657.5 billion standard cubic feet per year (Bscf/y) of LNG. Accordingly, Delfin LNG is requesting authorization under the DWPA to construct and operate facilities capable of exporting up to 13.2 MMtpa of LNG.

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<sup>2</sup> See [www.delfinlng.com](http://www.delfinlng.com).

<sup>3</sup> There are many references in this report and associated drawings to the UTOS pipeline. This naming convention is retained for ease of reference but technically describes the "former UTOS" pipeline system which no longer exists as a legal entity and is now owned by Delfin Offshore Pipeline LLC, a wholly owned subsidiary of Delfin LNG LLC, "the Applicant."

<sup>4</sup> The Applicant has the exclusive right to use the portion of the existing HIOS pipeline from West Cameron Block (WC) 167 to High Island Block (HI) A264 under a Pipeline Services Agreement with HIOS LLC.

<sup>5</sup> A standard cubic foot of gas is defined as a cubic foot at a temperature of 60 degrees Fahrenheit (°F), a pressure of 14.696 pounds per square inch (psi) and 0% relative humidity.

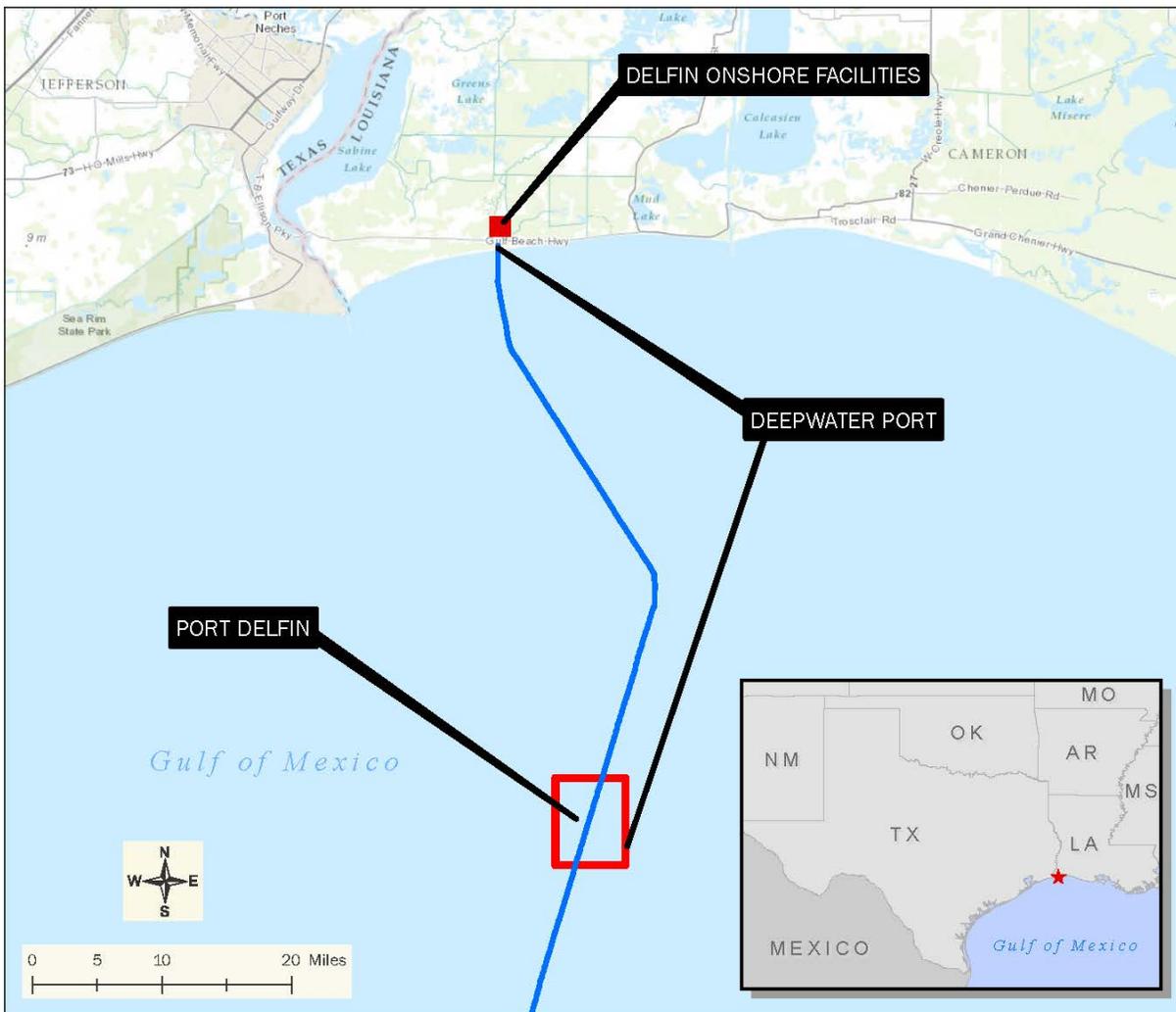


Figure 1 Project Vicinity

On February 20, 2014, the U.S. Department of Energy (DOE)<sup>6</sup> authorized Delfin LNG to export up to 657.5 Bscf/y of natural gas to FTA nations. An application to export an identical volume of LNG to non-FTA nations is currently pending before DOE.

In connection with the Project, Delfin LNG is also seeking authorization from the Federal Energy Regulatory Commission (FERC) under Section 7(c) of the Natural Gas Act (NGA) to site, construct, and operate the Delfin Onshore Facilities (DOF), which include onshore pipelines and associated metering and compression facilities, the purpose of which is to measure and deliver gas into the offshore pipeline for the DWP (amended FERC Application dated November 19, 2015). The DOF comprises the facilities on the landward side of the mean high water mark in Cameron Parish, Louisiana.

The existing UTOS would transport feed gas from the DOF onshore to offshore (one-directional flow). The gas would be transported through the UTOS pipeline and would bypass the existing manifold

<sup>6</sup> See [http://www.fossil.energy.gov/programs/gasregulation/authorizations/Orders\\_Issued\\_2014/ord3393.pdf](http://www.fossil.energy.gov/programs/gasregulation/authorizations/Orders_Issued_2014/ord3393.pdf).

platform located at West Cameron Block (WC) 167, approximately 24.7 nautical miles (28.4 statute miles) offshore in the GOM. The bypass of WC 167 would be a newly installed 42-inch outside diameter pipeline segment of 700 feet in length, connecting to the existing, currently underutilized HIOS pipeline. The bypass would be trenched so that the top of the pipe is a minimum of 3 feet below the seafloor. From the bypass, the feed gas would then be transported further offshore using the HIOS pipeline portion between WC 167 and High Island Block (HI) A264, for 57.4 nautical miles (66 statute miles), under a Pipeline Services Agreement between Delfin LNG and the pipeline operator providing Delfin LNG the exclusive right to utilize the HIOS pipeline as part of its Project (with no other shippers).

The proposed Project includes the construction of four new 30-inch-diameter offshore lateral pipelines to send the natural gas from the HIOS pipeline to each of the four FLNGVs, and construction of four new TYMSs. The FLNGVs would be used for natural gas liquefaction and storage. The natural gas would be further treated, super-cooled, liquefied on the FLNGVs, and stored on board each FLNGV until delivered to LNG trading carriers via ship-to-ship transfer through loading arms or cryogenic hoses. Standard LNG trading carriers with nominal cargo capacities between 125,000 and 177,000 m<sup>3</sup> would be used for the export of LNG. The LNG trading carriers would be maneuvered alongside, under the control of a Mooring Master and with tug assistance, and would moor next to the FLNGVs (side-by-side arrangement).

Table 1 details the location of new bypass lateral to connect the former UTOS pipeline to the HIOS pipeline at the existing WC 167 platform. Table 2 shows the locations of the four laterals and associated TYMSs.

**Table 1 Location of the New Bypass of the Existing WC 167 Platform**

	Easting (UTM U.S. Survey feet)	Northing (UTM U.S. Survey feet)	Latitude (degrees minutes seconds)	Longitude (degrees minutes seconds)	Water Depth (feet)
Bypass start	1499774	10666337	29° 23' 18.5 N	93° 26' 30.4" W	46
Bypass end	1499834	10665822	29° 23' 13.4" N	93° 26' 29.7" W	46

Note: Geodetic Information: Universal Transverse Mercator (UTM) Zone 15N, North American Datum (NAD) 1983 Geodetic Reference System 1980 (GRS80).

**Table 2 Locations of the Delfin LNG Deepwater Port Pipeline Laterals and Mooring Platforms**

	Easting (UTM U.S. Survey feet)	Northing (UTM U.S. Survey feet)	Latitude (degrees minutes seconds)	Longitude (degrees minutes seconds)	Water Depth (feet)
Lateral #1 Start (TYMS)	1470015	10575039	29° 8' 13.1" N	93° 32' 02.2" W	63.6
Lateral #1 end (Hot Tap Tee)	1474930	10571385	29° 07' 37.1" N	93° 31' 06.6" W	64.3
Lateral #2 start (TYMS)	1466394	10562993	29° 6' 13.6" N	93° 32' 42.4" W	67.6
Lateral #2 end (Hot Tap Tee)	1471231	10559309	29° 05' 37.4" N	93° 31' 47.7" W	69.0
Lateral #3 start (TYMS)	1479912	10565664	29° 6' 40.7" N	93° 30' 10.1" W	65.8

**Table 2** Locations of the Delfin LNG Deepwater Port Pipeline Laterals and Mooring Platforms

	Easting (UTM U.S. Survey feet)	Northing (UTM U.S. Survey feet)	Latitude (degrees minutes seconds)	Longitude (degrees minutes seconds)	Water Depth (feet)
Lateral #3 end (Hot Tap Tee)	1474069	10568483	29° 07' 08.3" N	93° 31' 16.2" W	65.2
Lateral #4 start (TYMS)	1476164	10553587	29° 4' 40.9" N	93° 30' 51.8" W	71.6
Lateral #4 end (Hot Tap Tee)	1470261	10555792	29° 05' 02.5" N	93° 31' 58.5" W	70.5
FLNGV Mooring #1	1470015	10575039	29° 8' 13.1" N	93° 32' 02.2" W	63.6
FLNGV Mooring #2	1466394	10562993	29° 6' 13.6" N	93° 32' 42.4" W	67.6
FLNGV Mooring #3	1479912	10565664	29° 6' 40.7" N	93° 30' 10.1" W	65.8
FLNGV Mooring #4	1476164	10553587	29° 4' 40.9" N	93° 30' 51.8" W	71.6

Note: Geodetic Information: Universal Transverse Mercator (UTM) Zone 15N, North American Datum (NAD) 1983 Geodetic Reference System 1980 (GRS80).

Key:

TYMS = tower yoke mooring system

UTM = Universal Transverse Mercator

## 2 Background

The Project area under consideration is divided into coastal and marine waters. The proposed offshore components and associated pipeline interconnects would be in the marine waters of the nearshore GOM between Sabine Pass and the Calcasieu River. Marine waters, as defined in this document, include both Louisiana and Texas state waters (shore to 3 statute miles [4.8 kilometers {km}]) and federal waters (3 statute miles [4.8 km] seaward to the outer extent of the exclusive economic zone) in the vicinity of the proposed Project site (WC 327).

In 1999, the U.S. Environmental Protection Agency (EPA) assessed the ecological condition of GOM estuaries. The assessment describes the general ecology and summarizes the “health” of all GOM estuarine systems. The Calcasieu Lake estuarine system was considered to be in poor condition in the early 1990s, primarily due to low dissolved oxygen (DO), sediment contaminants, and a high level of degraded benthos (EPA 1999). With more than 408 square miles (mi<sup>2</sup>; 256 square kilometers [km<sup>2</sup>]), the waters of this estuarine system average 3 feet (1 meter) deep with a salinity of 12 practical salinity units (psu); 100% of the estuarine complex has limited shellfish harvest, and 61% is covered with contaminated sediments (EPA 1999).

The Mississippi River is the primary water body that affects conditions at the proposed Project location. The Mississippi River is 2,302 miles (322 km) long and drains parts or all of 31 states. The Mississippi River is essential to many wildlife species, and is habitat for 40% of the nation’s migratory bird population. The river discharges 612,000 cubic feet (ft<sup>3</sup>) of water per second into the GOM. The discharged water is very turbid and full of nutrients, principally nitrogen and phosphorus. These nutrients sustain marine ecosystems in the GOM, but at many times of the year the nutrient level is so high that an area of hypoxia forms in the GOM south of the Mississippi River Delta.

Nutrients and DO distributions on the GOM OCS are similar to those of the open ocean. Maximum DO concentrations are highest near the surface due to atmospheric exchange and photosynthetic productivity, with concentrations decreasing with depth. Nutrient profiles are generally the opposite from DO, with concentrations near the surface lowest due to light-dependent photosynthetic activity. Deeper waters have higher nutrient concentrations as organic matter decomposes. The most current water quality data collected prior to this survey were at a series of stations near the proposed Project that were collected as part of National Oceanic and Atmospheric Administration’s (NOAA’s) National Oceanographic Data Center (NODC) monitoring program.

Upon entering the GOM, the excess nutrients stimulate the production of large amounts of phytoplankton, not all of which can be incorporated into the food web. These phytoplankton eventually die and sink to the bottom where they decompose; consuming large amounts of bottom water oxygen. Fresher, warmer water in the upper layer is separated from the saltier, colder water in the lower layer, resulting in a barrier to the normal diffusion of oxygen from the surface to the bottom. The excess nutrients delivered by the river fuel the coastal food web by stimulating the offshore production of phytoplankton biomass, but this also contributes to high carbon loading to the bottom layer. The decomposition of this biomass by bacteria leads to low levels of oxygen, which is not resupplied from the surface waters. This discharge of nutrients from the Mississippi River has created a hypoxic area (i.e., devoid of oxygen), which is commonly referred to as the ‘Dead Zone’ (Figure 2).

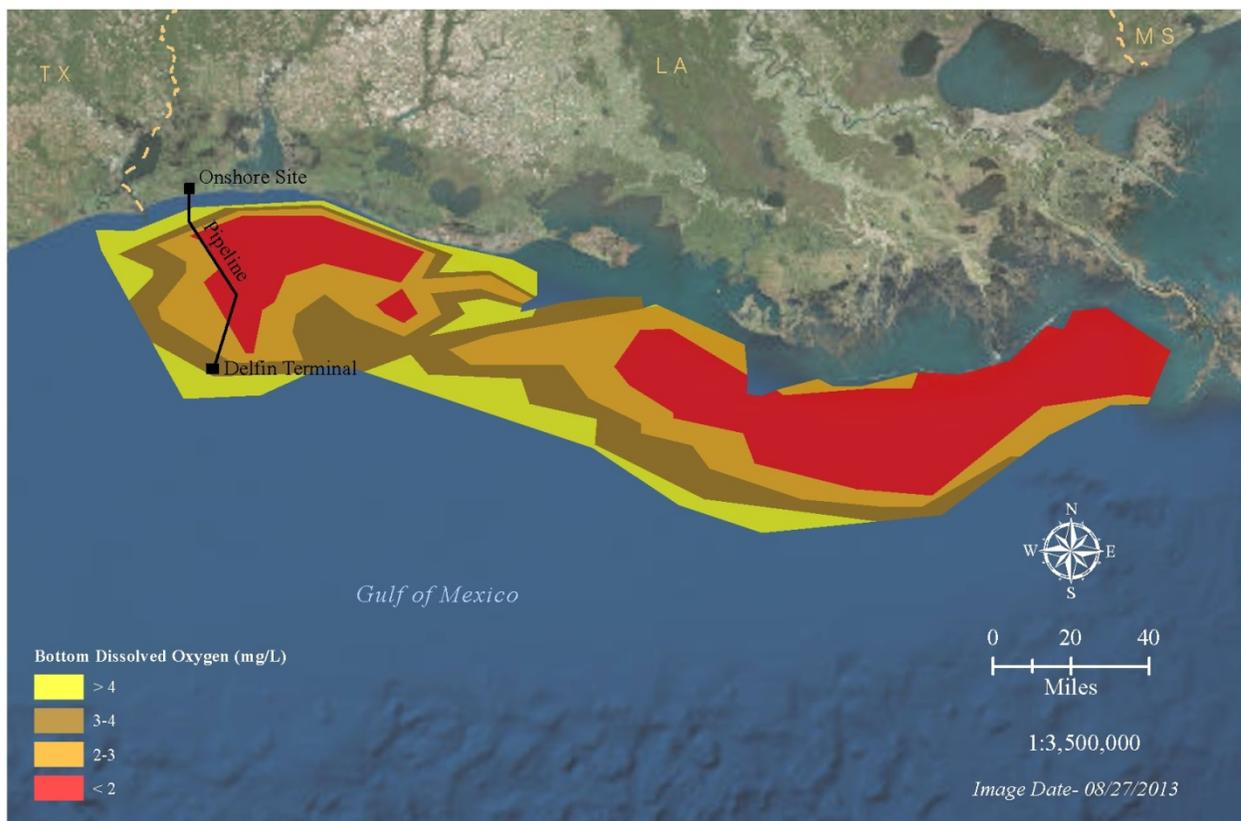


Figure 2 The 'Dead Zone' within the Northern Gulf of Mexico

Toxic substances and pesticides are discharged into GOM estuaries from industrial and municipal discharges, urban and agricultural runoff, accidental spills, and atmospheric deposition. These activities can often have adverse effects on estuarine and nearshore habitats. From 1991 to 1997, the USCG received an annual average of 6,217 notifications of oil or chemical spills in GOM ports (EPA 1999). Chemicals that enter estuaries are often bound to suspended particulate matter that eventually deposits on the sediment surface. Sediment deposition and accumulation rates in an estuary depend greatly on the rate of freshwater inflow and access to flushing from the GOM.

After deposition in the sediment, toxic chemicals may be available for uptake by benthic organisms. Bioavailability is dependent on sediment characteristics, including concentrations of total organic carbon and acid-volatile sulfide. Some chemicals are acutely toxic, resulting in death of the animal; others may have chronic toxicity effects, affecting growth or reproduction. Toxic chemicals can affect humans because they may become biomagnified as they are stored in animal tissue and transferred through the food chain. When sediment chemistry information is combined with sediment toxicity data and benthic health indicators, a better assessment of overall sediment quality can be accomplished.

Sediments in the Mississippi River delta contain industrial by-products, pesticides (e.g., chlorinated organic compounds), and trace metals that could enter the water column if sediments are disrupted. Recent sampling efforts by the Louisiana Department of Environmental Quality (LDEQ) have shown these contaminants to exist in the sediments, but their levels are well below EPA guidelines (Caffey, Coreil, and Demcheck 2002). NOAA's National Status and Trends Mussel Watch Program continually monitors organic and metal contamination in coastal sediments and bivalve mollusks.

Mollusks and other benthic organisms have been shown to be efficient accumulators of toxic contaminants. Mercury is a highly toxic heavy metal that has been shown to be both a natural and anthropogenically introduced contaminant. Generally, both sediment and tissue mercury contamination along the Louisiana coast have been shown to be low (Karnauskas et al. 2013). Similarly, cadmium contamination is important because of its potential toxicity to both humans and wildlife. Cadmium contamination is almost solely anthropogenic in origin, and sediment concentrations have been found to significantly correlate with human population and urban development. Generally, cadmium concentrations in tissues have decreased from the 1990s, but it is still a metal of concern in the western GOM (Karnauskas et al. 2013).

Turner et al. (2003) analyzed shelf sediments off the coast of Louisiana and found trace organic pollutants, including polycyclic aromatic hydrocarbons (PAHs), herbicides such as atrazine, chlorinated pesticides, polychlorinated biphenyls (PCB), and trace inorganic (metal) pollutants. The offshore oil and gas industry operates hundreds of platforms throughout this portion of the GOM. Many platforms have discharges of drilling wastes, produced water, and other industrial wastewater streams that have adverse impacts on water quality. The EPA regulates the discharge of these wastes through National Pollutant Discharge Elimination System (NPDES) permits. Except in shallow waters, the effects of these discharges are generally localized near individual points of discharge (Neff 2005).

The detection of organochlorine pesticides and PAHs in sediment cores collected in water depths of 33 to 330 feet (10 to 100 meters) off the southwest pass of the Mississippi River showed an increase for those deposits after the 1940s (Turner et al. 2003). The river was identified as the primary source of both organochlorine and the pyrogenic PAHs, which are associated with the burning of fossil fuels. However, higher concentrations of petrogenic PAHs, which are associated with natural seeps and/or oil and gas exploration, were found farther from the mouth of the river (Turner et al. 2003).

In the GOM, the EPA regularly collected surface water and sediment samples along the shoreline and beyond to identify chemicals related to oil and dispersants. In 2010, the EPA was one of many agencies providing support to the USCG-led federal response to the British Petroleum oil spill in the GOM. During spill response activities, the EPA and NOAA reviewed the results of the monitoring plan daily and made recommendations to the USCG as to whether the use of subsurface dispersant should continue. During the response period, beach or nearshore samples were collected in Cameron Parish. The analytical results for samples from the two locations showed no significant exceedances of sediment quality benchmarks for select metals (nickel and vanadium) or organics compounds (EPA 2010).

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### 3 Sample Locations

To accurately and sufficiently characterize the sediment composition and chemistry of the Project area, 14 (+ duplicate) vibracore sediment samples were collected at 0.5-mile intervals along the pipeline routes (proposed new laterals and bypass) and at each proposed TYMS location (see Table 3 and Figure 3). Water samples were collected at each of the general sediment locations from both surface and bottom depths. Sample locations were determined by real time Differential Global Positioning System (DGPS), along with depth of water. Information on sample location, details on photos collected, and other essential sample collection information were noted in the field log book (Appendix A). Appendix B provides the photographic record for sediment samples collected.

**Table 3 Lateral and Bypass Sediment and Water Sample Locations**

Sample Location	Easting (UTM U.S. Survey feet)	Northing (UTM U.S. Survey feet)	Latitude (degrees minutes seconds)	Longitude (degrees minutes seconds)
L1a	10573207	1473828	29° 07' 55.11" N	93° 31' 19.13" W
L1b	10574121	1471924	29° 08' 04.08" N	93° 31' 40.64" W
L1c	10575039	1470015	29° 08' 13.10"N	93° 32' 02.20" W
L2a	10560975	1470126	29° 05' 53.80" N	93° 32' 00.25" W
L2b	10561998	1468233	29° 06' 03.85" N	93° 32' 21.65" W
L2c	10562993	1466394	29° 06' 13.60"N	93° 32' 42.40" W
L3a	10567546	1476048	29° 06' 59.14" N	93° 30' 53.80" W
L3b	10566595	1477999	29° 06' 49.81" N	93° 30' 31.76" W
L3c	10565664	1479912	29° 06' 40.70"N	93° 30' 10.10" W
L4a	10555396	1472321	29° 04' 58.65" N	93° 31' 35.23" W
L4b	10554486	1474237	29° 04' 49.72" N	93° 31' 13.58" W
L4c	10553587	1476164	29° 04' 40.90"N	93° 30' 51.80" W
Bypass-b	10665859	1499800	29° 23' 13.70" N	93° 26' 30.10" W
Bypass-a	10666086	1499817	29° 23' 15.60" N	93° 26' 29.90" W

Note: Geodetic Information: Universal Transverse Mercator (UTM) Zone 15N, North American Datum (NAD) 1983 Geodetic Reference System 1980 (GRS80).

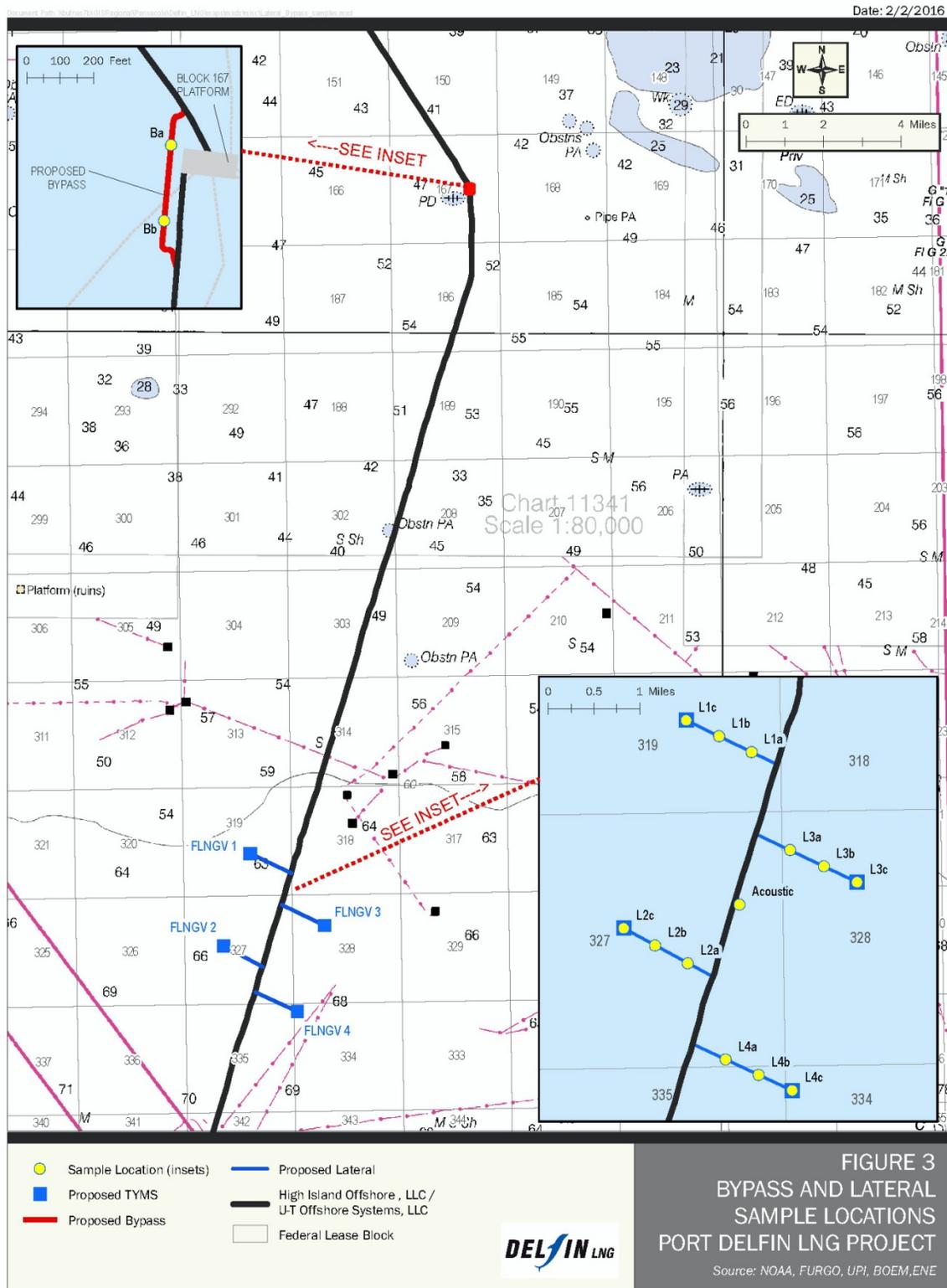


Figure 3 Bypass and Lateral Sample Locations

## 4 Field Sampling Methods

Delfin contracted with the Louisiana Universities Marine Consortium (LUMCON) to conduct the sampling from the Research Vessel (R/V) Pelican (Figure 4) based out of the Marine Center in Cocodrie, Louisiana. The R/V Pelican is operated as an Oceanographic Research Vessel, as designated by the USCB, and is maintained as an American Bureau of Shipping Class A-1+, AMS vessel. LUMCON is a member of the Universities National Oceanographic Laboratory System (UNOLS) and the R/V Pelican is a designated UNOLS vessel.

The R/V Pelican is designed and outfitted to conduct a variety of oceanographic research missions. The reliability, utility, and seaworthiness of the vessel have been well demonstrated. The R/V Pelican has successfully conducted scientific trawling, large box core sampling, 30-foot piston cores, shallow seismic surveys, and current meter array and benthic boundary array deployment and recovery. Plankton sampling, hydrographic casts with a conductivity-temperature-depth (CTD)-rosette system via a towed water sampling systems can also be conducted from the vessel. For this project, CTD data were collected continuously and included depth, conductivity, temperature, and DO using a Sea-Bird Electronics 9+ Underwater Unit with Digiquartz Pressure Sensor. Secchi disk readings to assess water transparency were attempted; however, due to night sampling, extreme sea states, and strong currents, these measurements were deemed unreliable.



Figure 4 R/V Pelican

Sediment cores were collected using a vibracore system (Figure 5). Vibracoring is considered one of the most cost-effective technologies for efficiently collecting large numbers of sediment cores with little distortion to the actual core. Three-inch diameter, 10-foot aluminum core tubes were used for this project. One vibracore sample was taken at each sample location. The goal for each vibracore sample was a collection depth of 10 feet, or to refusal, at each sampling location. Although up to three sediment samples were planned from each vibracore sample, the homogeneous nature of the sediment for all cores resulted in compositing of the entire sediment core. Core length and penetration depth was determined, sediment texture was described using a Modified Burmister scale, and sediment color was noted based on the Munsell Color Chart. Photographs were taken of each core, and grain size samples were collected for American Society for Testing and Materials (ASTM) D-422 *Standard Test Method for Particle-Size Analysis of Soils* analysis. Again, all cores were composited into single samples due to the homogeneous

nature of the sediment. Penetration depth for all cores never exceeded approximately 60 inches, and all met refusal within a very dense clay layer.



Figure 5 Vibracore Apparatus

Fourteen discrete water samples were collected using an automated rosette sampler that collected both surface (0-1 foot depth) and near-bottom (90% of depth) samples. Continuous measurements of conductivity, temperature, and depth were conducted via the CTD measurement instrument that continuously recorded these parameters as the rosette sampler was lowered on a hydrowire from the ship. The CTD was attached to a frame fitted with a number of large water-collecting bottles called “Niskins;” the instrument, together with the bottles, is called the CTD rosette (Figures 6 and 7). The Niskin bottles were designed so that they had lids at both ends. They were sent down open, and triggered to close electronically at the depth that water was to be collected. This way, water could be sampled at various depths throughout the water column, and was kept separate from water collected in other bottles at other depths.



Figure 6 Rosette Sampler with Niskin Bottles



Figure 7 Deploying Rosette Sampler

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## 5 Analytical Methods

No previous sediment or surface water data were available for identifying contaminants of concern (COC) near the Project site. Therefore, the COC list for sediment and surface water samples encompassed a broad range of analytical parameters that can be used as surrogates for assessing general or specific sediment and water quality impacts. COCs were selected to meet the requirements of the USCG. Analytical results are presented in both dry and wet weight. In addition, a particle grain size sieve analysis (utilizing U.S. Standard Sieve Numbers 4, 10, 20, 40, 50, 70, 100, 140, and 200, at minimum) was conducted on sediment samples. Table 4 provides the specific analytical methods, method detection limits (MDLs), and Limits of Quantitation (LOQs) prescribed for each of the surface water and sediment parameters listed below.

### Sediment

- Total Organic Carbon (TOC)
- Resource Conservation and Recovery Act (RCRA) Metals
- Total PCB Aroclors
- Pesticides
- PAHs
- Volatiles : benzene, ethylene, toluene, and xylene - (BTEX)
- Dioxins and Furans
- Sediment Grain Size

### Surface Water

- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS)
- Biological Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Nitrogen-Ammonia
- Nitrogen-Nitrate+Nitrite
- Total Phosphorus
- Target Analyte List (TAL) Total Metals
- Target Compound List (TCL): PCBs, pesticides, and semi-volatile organic compounds (SVOCs)

After collection, all analytical samples were transported to ALS Environmental laboratory in Houston (ALS Houston) for laboratory analysis. ALS is accredited to National Environmental Laboratory Accreditation Conference (NELAC) ISO/IEC 17025:2005 standards and the requirements of the Department of Defense Environmental Laboratory Accreditation Program (ELAP) standards.

Field duplicate samples for each of the parameters were collected at a frequency of approximately one per 20 investigative samples. Analytical accuracy was evaluated by conducting matrix spike/matrix

spike duplicate (MS/MSD) analyses on approximately 5% of investigative samples (one per 20 investigative samples). Because multiple analyses were performed out of the same sample jar, it was not necessary to collect an additional sample aliquot for MS/MSD pair analyses. Samples were analyzed within the approved holding times (unless otherwise noted below) and using EPA methodologies for achieving the necessary levels of detection.

**Table 4 Sample Analytical Methods, Standards and Laboratory Reporting Limit**

Analyte	Method	Laboratory		
		MDL	LOQ	Unit
<b>Sediment Sample Parameters (Solid)</b>				
Miscellaneous				
Total Organic Carbon	SW9060	0.06	0.06	wt%-dry
Grain Size Distribution	ASTM D 422	N/A	N/A	N/A
Metals				
Aluminum	SW6020	0.2	1	mg/Kg
Antimony	SW6020	0.2	0.5	mg/Kg
Arsenic	SW6020	0.1	0.5	mg/Kg
Barium	SW6020	0.08	0.5	mg/Kg
Beryllium	SW6020	0.05	0.5	mg/Kg
Cadmium	SW6020	0.05	0.5	mg/Kg
Calcium	SW6020	10	50	mg/Kg
Chromium	SW6020	0.09	0.5	mg/Kg
Cobalt	SW6020	0.07	0.5	mg/Kg
Copper	SW6020	0.1	0.5	mg/Kg
Iron	SW6020	10	50	mg/Kg
Lead	SW6020	0.05	0.5	mg/Kg
Magnesium	SW6020	10	50	mg/Kg
Manganese	SW6020	0.1	0.5	mg/Kg
Mercury	SW7471A	0.47	3.325	µg/Kg
Nickel	SW6020	0.09	0.5	mg/Kg
Potassium	SW6020	13	50	mg/Kg
Selenium	SW6020	0.18	0.5	mg/Kg
Silver	SW6020	0.08	0.5	mg/Kg
Sodium	SW6020	11	50	mg/Kg
Thallium	SW6020	0.07	0.5	mg/Kg
Vanadium	SW6020	0.23	0.5	mg/Kg
Zinc	SW6020	0.25	0.5	mg/Kg
PCBs				
Aroclor 1016	SW8082	4.2	16.7	µg/Kg
Aroclor 1221	SW8082	5.6	16.7	µg/Kg
Aroclor 1232	SW8082	4.5	16.7	µg/Kg
Aroclor 1242	SW8082	5.9	16.7	µg/Kg
Aroclor 1248	SW8082	5.9	16.7	µg/Kg
Aroclor 1254	SW8082	4.7	16.7	µg/Kg
Aroclor 1260	SW8082	2.4	16.7	µg/Kg
Decachlorobiphenyl	SW8082	0	1.6	µg/Kg
Tetrachloro-m-xylene	SW8082	0	1.6	µg/Kg

Table 4 Sample Analytical Methods, Standards and Laboratory Reporting Limit

Analyte	Method	Laboratory		Unit
		MDL	LOQ	
Pesticides				
4,4'-DDD	SW8081	0.5	3.3	µg/Kg
4,4'-DDE	SW8081	0.5	3.3	µg/Kg
4,4'-DDT	SW8081	0.5	3.3	µg/Kg
Aldrin	SW8081	0.3	1.67	µg/Kg
alpha-BHC	SW8081	0.3	1.67	µg/Kg
beta-BHC	SW8081	0.3	1.67	µg/Kg
Chlordane	SW8081	2	16.7	µg/Kg
delta-BHC	SW8081	0.2	1.67	µg/Kg
Dieldrin	SW8081	0.5	3.3	µg/Kg
Endosulfan I	SW8081	0.3	1.67	µg/Kg
Endosulfan II	SW8081	0.6	3.3	µg/Kg
Endosulfan sulfate	SW8081	0.6	3.3	µg/Kg
Endrin	SW8081	0.6	3.3	µg/Kg
Endrin aldehyde	SW8081	0.6	3.3	µg/Kg
Endrin ketone	SW8081	0.6	3.3	µg/Kg
gamma-BHC	SW8081	0.2	1.67	µg/Kg
Heptachlor	SW8081	0.3	1.67	µg/Kg
Heptachlor epoxide	SW8081	0.3	1.67	µg/Kg
Methoxychlor	SW8081	3.4	16.7	µg/Kg
Toxaphene	SW8081	4.8	16.7	µg/Kg
alpha-Chlordane	SW8081	0.2	1.67	µg/Kg
gamma-Chlordane	SW8081	0.2	1.67	µg/Kg
Decachlorobiphenyl	SW8081	0	0	µg/Kg
Tetrachloro-m-xylene	SW8081	0	0	µg/Kg
PAHs				
Acenaphthene	SW8270	0.5	3.3	µg/Kg
Acenaphthylene	SW8270	1	3.3	µg/Kg
Anthracene	SW8270	0.5	3.3	µg/Kg
Benz(a)anthracene	SW8270	1.6	3.3	µg/Kg
Benzo(a)pyrene	SW8270	1	3.3	µg/Kg
Benzo(b)fluoranthene	SW8270	1.2	3.3	µg/Kg
Benzo(g,h,i)perylene	SW8270	0.7	3.3	µg/Kg
Benzo(k)fluoranthene	SW8270	0.9	3.3	µg/Kg
Chrysene	SW8270	0.8	3.3	µg/Kg
Dibenz(a,h)anthracene	SW8270	1.6	3.3	µg/Kg
Fluoranthene	SW8270	1.1	3.3	µg/Kg
Fluorene	SW8270	1.1	3.3	µg/Kg
Indeno(1,2,3-cd)pyrene	SW8270	0.8	3.3	µg/Kg
Naphthalene	SW8270	0.6	3.3	µg/Kg
Phenanthrene	SW8270	1.5	3.3	µg/Kg
Pyrene	SW8270	0.6	3.3	µg/Kg
2-Fluorobiphenyl	SW8270	0	6.6	µg/Kg

Table 4 Sample Analytical Methods, Standards and Laboratory Reporting Limit

Analyte	Method	Laboratory		Unit
		MDL	LOQ	
4-Terphenyl-d14	SW8270	0	6.6	µg/Kg
Nitrobenzene-d5	SW8270	0	6.6	µg/Kg
TCL Volatiles				
Benzene	SW8260	0.6	5	µg/Kg
Ethylbenzene	SW8260	0.9	5	µg/Kg
m,p-Xylene	SW8260	1.7	10	µg/Kg
o-Xylene	SW8260	1	5	µg/Kg
Toluene	SW8260	0.7	5	µg/Kg
Xylenes, Total	SW8260	2.6	15	µg/Kg
1,2-Dichloroethane-d4	SW8260	0	0	µg/Kg
4-Bromofluorobenzene	SW8260	0	0	µg/Kg
Dibromofluoromethane	SW8260	0	0	µg/Kg
Toluene-d8	SW8260	0	0	µg/Kg
Water Sample Parameters (Aqueous)				
Miscellaneous				
TOC	SW9060	0.06	0.06	wt%-dry
TDS (Residue, Filterable)	SM2540C	5	10	mg/L
TSS (Residue, Non-Filterable)	SM2540D	2	2	mg/L
BOD	SM5210B	2	2	mg/L
COD	E 410.4	5	15	mg/L
Nitrogen, Ammonia (as N)	SM4500 NH3-B-F	0.025	0.05	mg/L
Nitrate/Nitrite (as N)	E300	0.03	0.2	mg/L
Phosphorus, Total (As P)	SM 4500 P E	0.02	0.05	mg/L
Metals				
Aluminum	E200.8	5	10	µg/L
Antimony	E200.8	0.6	5	µg/L
Arsenic	E200.8	1	5	µg/L
Barium	E200.8	1	5	µg/L
Beryllium	E200.8	0.5	5	µg/L
Cadmium	E200.8	0.6	2	µg/L
Calcium	E200.8	50	500	µg/L
Chromium	E200.8	1	5	µg/L
Cobalt	E200.8	0.8	5	µg/L
Copper	E200.8	1	5	µg/L
Iron	E200.8	50	200	µg/L
Lead	E200.8	0.5	5	µg/L
Lithium	E200.8	5	5	µg/L
Magnesium	E200.8	82	500	µg/L
Manganese	E200.8	2.2	5	µg/L
Molybdenum	E200.8	1.2	5	µg/L
Mercury	E245.1	0.47	3.325	µg/Kg
Nickel	E200.8	0.5	5	µg/L
Potassium	E200.8	59	500	µg/L

Table 4 Sample Analytical Methods, Standards and Laboratory Reporting Limit

Analyte	Method	Laboratory		Unit
		MDL	LOQ	
Selenium	E200.8	0.5	5	µg/L
Silver	E200.8	0.5	2	µg/L
Sodium	E200.8	61	200	µg/L
Strontium	E200.8	0.5	5	µg/L
Thallium	E200.8	0.8	2	µg/L
Tin	E200.8	0.9	5	µg/L
Titanium	E200.8	0.8	5	µg/L
Vanadium	E200.8	1	5	µg/L
Zinc	E200.8	2	5	µg/L
PCBs				
Aroclor 1016	SW8082	0.1	0.5	µg/L
Aroclor 1221	SW8082	0.5	0.5	µg/L
Aroclor 1232	SW8082	0.5	0.5	µg/L
Aroclor 1242	SW8082	0.5	0.5	µg/L
Aroclor 1248	SW8082	0.5	0.5	µg/L
Aroclor 1254	SW8082	0.5	0.5	µg/L
Aroclor 1260	SW8082	0.1	0.5	µg/L
Decachlorobiphenyl	SW8082	0	0.05	µg/L
Tetrachloro-m-xylene	SW8082	0	0.05	µg/L
Pesticides				
4,4'-DDD	SW8081	0.008	0.1	µg/L
4,4'-DDE	SW8081	0.004	0.1	µg/L
4,4'-DDT	SW8081	0.007	0.1	µg/L
Aldrin	SW8081	0.01	0.05	µg/L
alpha-BHC	SW8081	0.01	0.05	µg/L
beta-BHC	SW8081	0.01	0.05	µg/L
Chlordane	SW8081	0.1	0.5	µg/L
delta-BHC	SW8081	0.01	0.05	µg/L
Dieldrin	SW8081	0.01	0.1	µg/L
Endosulfan I	SW8081	0.01	0.05	µg/L
Endosulfan II	SW8081	0.02	0.1	µg/L
Endosulfan sulfate	SW8081	0.03	0.1	µg/L
Endrin	SW8081	0.03	0.1	µg/L
Endrin aldehyde	SW8081	0.03	0.1	µg/L
Endrin ketone	SW8081	0.03	0.1	µg/L
gamma-BHC	SW8081	0.01	0.05	µg/L
Heptachlor	SW8081	0.01	0.05	µg/L
Heptachlor epoxide	SW8081	0.01	0.05	µg/L
Methoxychlor	SW8081	0.15	0.5	µg/L
Toxaphene	SW8081	0.19	0.5	µg/L
alpha-Chlordane	SW8081	0.02	0.05	µg/L
gamma-Chlordane	SW8081	0.02	0.05	µg/L
Decachlorobiphenyl	SW8081	0	0	µg/L

Table 4 Sample Analytical Methods, Standards and Laboratory Reporting Limit

Analyte	Method	Laboratory		Unit
		MDL	LOQ	
Tetrachloro-m-xylene	SW8081	0	0	µg/L
Semivolatiles				
1,2,4-Trichlorobenzene	SW8270	0.5	5	µg/L
1,2-Dichlorobenzene	SW8270	0.5	5	µg/L
1,3-Dichlorobenzene	SW8270	0.5	5	µg/L
1,4-Dichlorobenzene	SW8270	0.5	5	µg/L
2,4,5-Trichlorophenol	SW8270	0.5	5	µg/L
2,4,6-Trichlorophenol	SW8270	0.5	5	µg/L
2,4-Dichlorophenol	SW8270	0.5	5	µg/L
2,4-Dimethylphenol	SW8270	0.5	5	µg/L
2,4-Dinitrophenol	SW8270	0.5	5	µg/L
2,4-Dinitrotoluene	SW8270	0.5	5	µg/L
2,6-Dinitrotoluene	SW8270	0.5	5	µg/L
2-Chloronaphthalene	SW8270	0.6	5	µg/L
2-Chlorophenol	SW8270	0.5	5	µg/L
2-Methylnaphthalene	SW8270	0.5	5	µg/L
2-Methylphenol	SW8270	0.5	5	µg/L
2-Nitroaniline	SW8270	0.5	5	µg/L
2-Nitrophenol	SW8270	0.5	5	µg/L
3&4-Methylphenol	SW8270	0.5	5	µg/L
3,3'-Dichlorobenzidine	SW8270	0.6	5	µg/L
3-Nitroaniline	SW8270	0.5	5	µg/L
4,6-Dinitro-2-methylphenol	SW8270	0.5	5	µg/L
4-Bromophenyl phenyl ether	SW8270	0.5	5	µg/L
4-Chloro-3-methylphenol	SW8270	0.5	5	µg/L
4-Chloroaniline	SW8270	0.5	5	µg/L
4-Chlorophenyl phenyl ether	SW8270	0.5	5	µg/L
4-Nitroaniline	SW8270	0.5	5	µg/L
4-Nitrophenol	SW8270	0.5	5	µg/L
Acenaphthene	SW8270	0.5	5	µg/L
Acenaphthylene	SW8270	0.5	5	µg/L
Anthracene	SW8270	0.5	5	µg/L
Benz(a)anthracene	SW8270	0.5	5	µg/L
Benzo(a)pyrene	SW8270	0.5	5	µg/L
Benzo(b)fluoranthene	SW8270	0.5	5	µg/L
Benzo(g,h,i)perylene	SW8270	0.5	5	µg/L
Benzo(k)fluoranthene	SW8270	0.5	5	µg/L
Bis(2-chloroethoxy)methane	SW8270	0.5	5	µg/L
Bis(2-chloroethyl)ether	SW8270	1.2	5	µg/L
Bis(2-chloroisopropyl)ether	SW8270	0.5	5	µg/L
Bis(2-ethylhexyl)phthalate	SW8270	0.5	5	µg/L
Butyl benzyl phthalate	SW8270	0.5	5	µg/L
Carbazole	SW8270	0.5	5	µg/L

Table 4 Sample Analytical Methods, Standards and Laboratory Reporting Limit

Analyte	Method	Laboratory		Unit
		MDL	LOQ	
Chrysene	SW8270	0.5	5	µg/L
Di-n-butyl phthalate	SW8270	0.5	5	µg/L
Di-n-octyl phthalate	SW8270	0.5	5	µg/L
Dibenz(a,h)anthracene	SW8270	0.7	5	µg/L
Dibenzofuran	SW8270	0.5	5	µg/L
Diethyl phthalate	SW8270	0.5	5	µg/L
Dimethyl phthalate	SW8270	0.5	5	µg/L
Fluoranthene	SW8270	0.5	5	µg/L
Fluorene	SW8270	0.5	5	µg/L
Hexachlorobenzene	SW8270	0.5	5	µg/L
Hexachlorobutadiene	SW8270	0.5	5	µg/L
Hexachlorocyclopentadiene	SW8270	0.6	5	µg/L
Hexachloroethane	SW8270	0.5	5	µg/L
Indeno(1,2,3-cd)pyrene	SW8270	0.7	5	µg/L
Isophorone	SW8270	0.5	5	µg/L
N-Nitrosodi-n-propylamine	SW8270	0.8	5	µg/L
N-Nitrosodiphenylamine	SW8270	0.5	5	µg/L
Naphthalene	SW8270	0.5	5	µg/L
Nitrobenzene	SW8270	0.5	5	µg/L
Pentachlorophenol	SW8270	0.5	5	µg/L
Phenanthrene	SW8270	0.5	5	µg/L
Phenol	SW8270	0.5	5	µg/L
Pyrene	SW8270	0.5	5	µg/L
2,4,6-Tribromophenol	SW8270	0	5	µg/L
2-Fluorobiphenyl	SW8270	0	5	µg/L
2-Fluorophenol	SW8270	0	5	µg/L
4-Terphenyl-d14	SW8270	0	5	µg/L
Nitrobenzene-d5	SW8270	0	5	µg/L
Phenol-d6	SW8270	0	5	µg/L

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## 6 Results and Discussion

### 6.1 Water Column Assessment

In situ water chemistry results showed conductivity, pH, and salinity at levels appropriate for offshore marine waters (Table 5). Although DO was measured, reduction of the data required post-collection processing using Sea-Bird Electronics software that was beyond the scope of this project.

Table 5 In Situ Conductivity, pH, and Salinity Measurements

Parameter	Bypass (n=4,136)		L1b (n=5,594)		L2a (n=7,562)		L3b (n=6,548)		L4b (n=4,969)	
	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean
Cond (S/m)	4.36-4.69	4.49	4.77-4.87	4.79	4.73-4.93	4.78	4.78-4.80	4.79	4.77-4.93	4.81
pH	8.15-8.21	8.18	8.18-8.22	8.20	8.17-8.20	8.19	8.18-8.21	8.20	8.15-8.18	8.16
Salinity (PSU)	31.51-33.62	32.32	34.08-34.68	34.23	33.87-35.00	34.19	34.16-34.33	34.23	34.20-34.99	34.39
Temp (°C)	20.01-20.70	20.27	20.83-21.15	20.91	20.73-21.38	20.87	20.77-20.95	20.89	20.85-21.35	20.95
DO (Weiss ml/L)	5.14-5.27	5.22	5.07-5.11	5.10	5.04-5.13	5.11	5.10-5.11	5.10	5.04-5.11	5.09

Key:  
 °C = degrees Celsius  
 ml/L = milliliters per liter  
 PSU = practical salinity units  
 S/m = Siemens per meter

Analytical results for all surface water samples are presented in Appendix C. Generally, for the majority of both organic and inorganic analytes tested, concentrations were below the selected method detection limit. As expected in a marine environment, ubiquitous ionic constituents, such as calcium, magnesium, potassium and sodium, were above detection limits, and total dissolved selenium, ranging from 0.00752 to 0.0230 milligrams per liter (mg/L), was detected in all samples (Table 6). Total dissolved selenium is typically found as selenite (SeIV), selenate (SeVI), and organic selenides (Se-II). Within low DO waters (as was expected within the perimeter of the GOM Dead Zone), Measures et al. (1981) found that a loss of selenate (i.e., deselenification) resulted in reduction of total dissolved selenium to the insoluble, non-toxic, elemental selenium (Se0) (Wambaugh 2016).

Bis(2-ethylhexyl)phthalate (or DEHP) was detected in six of the 15 samples, and ranged from 0.017 to 0.043 mg/L, with a mean of 0.025 mg/L. DEHP is a manufactured chemical that is commonly added to plastics to make them flexible. DEHP has been shown to be ubiquitous in the environment. DEHP toxicity data for saltwater aquatic life are limited and, thus, no final acute or chronic values could be determined (EPA 1995). However, if the chronic sensitivity of saltwater aquatic life is similar to that of freshwater organisms, adverse effects on individual species might be expected at 160 micrograms per liter (µg/L) (EPA 1995). None of the six DEHP concentrations detected were above this concentration.

Also, various physicochemical parameters, such as TDS, TSS and COD, were within ranges expected for marine waters and, except for the detection of nitrate/nitrite at L3-B Dup and Bypass B, a majority of the concentrations for the other nutrients (ammonia and phosphorus) were undetectable or very low. Although offshore current directions were not determined during sampling, the nitrate/nitrite concentration (10.9 mg/L) at Bypass-B station (very close to Platform WC 167), which was an order of magnitude greater than the only other detected concentration at L3-B Dup, may have likely reflected anthropogenic activities on the manned and operating production platform.

Although water quality criteria, standards, or other relevant benchmarks were limited for many of the compounds detected, none exceeded the standards applied for this study, except for phosphorous at one station (see Table 6). The reason for, or relevance of, this elevated phosphorous concentration could not be determined.

Table 6 Detected Compounds in Surface Water compared to Screening Benchmarks

Method-Units-Analyte	Water Quality Benchmark	L1-S	L1-B	L2A-S	L2A-B	L3-S	L3-S Dup	L3-B	L3-B Dup	L4A-S	L4A-B	L4B-S	L4B-B	L4C-S	L4C-B	Bypass -S	Bypass -B
<b>Total Metals E200.8 (mg/L)</b>																	
Aluminum	N/A	0.0773 J	0.0799 J	0.0612 J	0.0634 J	0.0824 J	0.0651 J	0.0605 J	0.0532 J	0.0673 J	0.0708 J	0.0629 J	0.0540 J	0.0621 J	0.0707 J	0.0613 J	0.183
Barium	N/A	0.0141 J	0.0152 J	0.0135 J	0.0129 J	0.0135 J	0.0132 J	0.0141 J	0.0141 J	0.0137 J	0.0136 J	0.0153 J	0.0124 J	0.0135 J	0.0136 J	0.0226 J	0.0177 J
Calcium	N/A	456	449	442	451	484	417	447	473	419	509	459	423	433	447	420	449
Magnesium	N/A	1,420	1,390	1,370	1,360	1,420	1,260	1,350	1,390	1,220	1,480	1,500	1,400	1,450	1,430	1,310	1,390
Potassium	N/A	444	436	438	430	479	408	436	460	403	485	456	414	432	438	409	434
Selenium	.071 <sup>1</sup>	0.0179 J	0.0139 J	0.0108 J	0.0179 J	0.0169 J	0.0148 J	0.0169 J	0.0204 J	0.0204 J	0.0178 J	0.00667 J	0.0123 J	0.0150 J	0.0183 J	0.0230 J	0.00752 J
Sodium	N/A	9,370	10,100	10,100	10,500	10,600	10,000	10,300	10,500	9,820	10,400	10,900	10,200	10,600	9,780	9,480	10,600
<b>Semivolatiles (mg/L)</b>																	
Bis(2-ethylhexyl) phthalate	N/A				0.035			0.038			0.019		0.043		0.017		0.0032 J
<b>Ammonia as N SM4500 NH3-B-F (mg/L)</b>																	
Nitrogen, Ammonia (as N)	N/A	0.025 J	0.043 J	0.034 J		0.049 J	0.026 J	0.062	0.028 J	0.060	0.055	0.039 J	0.029 J	0.028 J	0.035 J	0.029 J	0.031 J
<b>Phosphorus by SM4500P E (mg/L)</b>																	
Phosphorus, Total (as P)	0.0001 <sup>2</sup>				0.0200 J												
<b>Nitrate/Nitrite E300.0 (mg/L)</b>																	
Nitrate/Nitrite (as N)	N/A								1.87 J								10.9
<b>Total Suspended Solids by SM 2540D (mg/L)</b>																	
Total Suspended Solids	N/A	3.68	6.32	4.90	5.40	6.40	6.44	5.30	5.20	5.70	6.30	15.6	16.6	6.70	8.25	7.26	9.60
<b>Total Dissolved Solids by SM2540C (mg/L)</b>																	
Total Dissolved Solids	N/A	39,600	39,000	38,500	38,300	38,600	38,600	39,400	38,300	38,100	39,000	38,700	39,100	38,400	38,900	36,000	37,900
<b>Chemical Oxygen Demand by E410.4 (mg/L)</b>																	
Chemical Oxygen Demand	N/A	300	300	300	280 J	240 J	280 J	360	260 J	260 J	280 J	280 J	240 J	260 J	220 J	200 J	240 J

Sources:

<sup>1</sup> EPA. 2015. National Recommended Water Quality Criteria Aquatic Life Criteria Table. Available at: <http://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table>.

<sup>2</sup> EPA. 2004. National Recommended Water Quality Criteria. Available at: [http://www.epa.gov/sites/production/files/2015-09/documents/r3\\_btag\\_marine\\_benchmarks\\_07-06.pdf](http://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_benchmarks_07-06.pdf)

Key:

U = Non-detected  
J = Estimated

Represents total Concentration of analyte (mg/L)  
Represents concentration of dissolved analyte (mg/L)

## 6.2 Sediment Assessment

Collected sediment cores penetrated to a maximum depth of 56 inches, averaging 31 inches, before refusal within a dense clay layer (Appendix A). Generally, both visual and analytical assessment of grain size revealed all samples to be fine sand, mixed with silt and clay (Appendix C). Going from surface to depth, all cores exhibited a thin, firm, fine-sand surface layer, with subsequent fine-grained compositions as depth increased. At core refusal depth, the confining layer consisted of extremely dense clay, sometimes intermixed with fine shell particles or crusty, firm ‘nodules’. Because of the density of the refusal layer, on several occasions, the core could not be easily extruded from the tube and had to be removed by other mechanical means. The crusty nodules were rust colored—a clear indication of historical redox reaction of iron and oxygen in the deeper sediments. All cores, even as grain size changed by depth, were similar in color [Munsell Code: Gley 1 4/10Y – dark greenish gray] (see Appendices A and B).

Of note, none of the cores smelled of sulfides or other degradatory products. The formation of hydrogen sulfide generally occurs as a result of the reduction of sulfate and is associated with the anaerobic oxidation of organic matter during the respiratory process. The ‘rotten egg’ smell is considered a good ecological sign that organic material is being bio-processed and, thus, a healthy benthic infaunal community exists. Based on the olfactory response alone, this did not appear to be the case at any of the sampling locations addressed in this study.

Analytical results for sediment core samples are presented in Appendix D. As the visual, qualitative analysis indicated, analytical results showed that sediments found throughout the sampling area consisted of very limited quantities of TOC (mean of <0.5% by weight), low moisture content (mean of 26.7% by weight), and grain size distributions containing high percentages (>60%) of silt and clay.

As expected for a fine-grained soil matrix, inorganic compounds, including arsenic, chromium, and lead, were present in all samples (see Table 7). Cadmium was found at most locations; silver was detected at a few stations; and, not surprisingly, barium was found in all sediment samples. Silver was detected at less than half the sample locations, with the highest concentration of approximately 0.1 milligrams per kilogram (mg/kg). Mercury was detected at all sample locations and averaged 0.012 mg/kg. Except for a limited number of PAHs and numerous detections of dioxins and furans, all other organic compounds (pesticides, PCBs, volatiles) were not detected in sediments.

Although sediment benchmarks were limited for many of the compounds detected, except dioxins/furans, none exceeded the standards applied for this study (see Table 7). Applied benchmarks included probable effects levels (PEL), effects range medium (ERM), or interim sediment quality guidelines (ISQG). The PEL and ERM represent sediment concentration levels above which effects are likely, or at least the statistical analysis of toxicity data applied in the analysis revealed that a ‘substantial’ percentage of the tests showed toxic effects to the test organism. The ISQG was used only for dioxins/furans. A discussion on its application for this study is presented below.

For comparison of dioxins/furans concentrations to levels that have been shown to pose a risk to ecological receptors (fish), toxic equivalents (TEQs) were used to report the *toxicity-weighted masses* of mixtures of dioxins. The TEQ method of dioxin reporting is more meaningful than simply reporting the *total number of grams* of a mixture of variously toxic compounds because the TEQ method offers toxicity information about the mixture. Within the TEQ method, each dioxin compound is assigned a Toxic Equivalency Factor (TEF) (Table 8). The factor denotes a given dioxin/furan compound's toxicity relative to 2,3,7,8-TCDD, which is assigned the maximum toxicity designation of one. Other dioxin compounds are given equal or lower numbers, with each number roughly proportional to its toxicity relative to that of

2,3,7,8-TCDD. This approach was originally developed by the World Health Organization, and TEFs are used extensively by scientists and governments around the world (Van den Berg et al. 1998).

Based on the TEQ approach, dioxins/furans exceeded the Canadian ISQG used for assessing concentrations in sediments. The ISQG basically represents a threshold effects level (TEL) where the potential for biological effects to fish are possible. The ISQG is considered to meet its narrative objective when the incidence of adverse biological effects below the TEL is 25% or less. In the case of the TEL for dioxins/furans, the incidence below the TEL is 22% (Canadian Council of Ministers of the Environment [CCME] 2001). For a relative comparison of the conservative approach applied to development of these benchmarks, CCME (2001) notes that the PEL, a level that reflects 65% of the adverse effects observed will be greater, was much higher at 21.5. Importantly, development of both the ISQG (TEL) and PEL included a 10% safety factor (CCME 2001).

**Table 7 Detected Compounds in Sediment Compared to Screening Benchmarks**

Method-Units-Analyte	Sediment Screening Benchmarks	Bypass A	Bypass B	L1a-01	L1b-01	L1c-01	L2a-01	L2b-01	L2c-01	L3a-01	L3b-01	L3c-01	L4a-01	L4b-01	L4c-01	L4c-01-Dup
<b>Metals SW6020A (mg/kg)</b>																
Arsenic	41.6 <sup>1</sup>	0.695	1.87	4.79	4.68	4.21	5.26	3.86	4.33	4.35	5.90	4.97	5.05	5.17	5.09	9.44
Barium	N/A	34.9	80.5	105	47.0	80.9	47.4	76.8	144	79.8	51.4	69.8	65.6	108	68.2	46.2
Cadmium	4.21 <sup>1</sup>		0.360 J	0.0675 J	0.0797 J	0.0725 J		0.0931 J			0.191 J		0.127 J	0.258 J	0.208 J	0.136 J
Chromium	160 <sup>1</sup>	5.09	4.76	9.61	13.1	8.97	9.09	10.6	9.64	8.77	15.6	8.02	11.3	11.8	18.2	11.9
Lead	112 <sup>1</sup>	8.20	5.95	7.48	9.31	6.98	6.94	7.74	7.92	6.64	13.5	5.91	8.87	10.7	15.1	9.96
Selenium	N/A	0.414 J	0.434 J	0.553 J	0.642	0.461 J	0.464 J	0.527 J	0.537 J	0.440 J	0.925	0.446 J	0.609	0.891	0.964	0.684
Silver	1.77 <sup>1</sup>	0.0756 J									0.0863 J		0.0490 J	0.0640 J	0.107 J	0.0600 J
<b>Mercury SW7471B (mg/kg)</b>																
Mercury	.7 <sup>1</sup>	0.0149	0.00890	0.0142	0.00830	0.0137	0.0123	0.0106	0.0115	0.0127	0.0125	0.00733	0.0123	0.0176	0.0131	0.0106
<b>Low-Level PAHs (mg/kg)</b>																
Benzo(a)pyrene	1.6 <sup>2</sup>														0.0017 J	
Benzo(g,h,i)perylene	N/A														0.0016 J	0.0015 J
Chrysene	2.8 <sup>2</sup>														0.0017 J	0.0017 J
Fluoranthene	5.1 <sup>2</sup>														0.0023 J	0.0024 J
Indeno(1,2,3-cd)pyrene	N/A														0.0015 J	0.0017 J
Naphthalene	2.1 <sup>2</sup>									0.0014 J	0.0015 J					
Pyrene	2.6 <sup>2</sup>														0.0018 J	0.0022 J
<b>Dioxins and Furans 1613B (ng/Kg)</b>																
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N/A							0.143 JK								
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N/A	0.43 J	0.224 JK	0.219 J	0.121 JK	0.252 J	0.186 JK	0.387 JK	0.211 JK		0.108 JK	0.18 J		0.256 J		0.214 J
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N/A	0.457 J	0.205 JK	0.297 JK	0.166 JK	0.271 JK	0.262 J	0.511 J	0.397 J	0.163 JK	0.172 JK	0.272 J	0.189 JK	0.375 J		0.462 J

Table 7 Detected Compounds in Sediment Compared to Screening Benchmarks

Method-Units-Analyte	Sediment Screening Benchmarks	Bypass A	Bypass B	L1a-01	L1b-01	L1c-01	L2a-01	L2b-01	L2c-01	L3a-01	L3b-01	L3c-01	L4a-01	L4b-01	L4c-01	L4c-01-Dup
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N/A	0.924 J	0.602 J	0.684 J	0.335 JK	0.49 JK	0.455 JK	0.82 J	0.605 J	0.454 J	0.427 JK	0.446 JK	0.363 JK	0.716 JK		0.516 JK
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N/A	1.16 JK	0.891 JK	0.936 J	0.566 J	0.749 J	0.548 JK	1.05 J	1.18 J	0.812 J	0.616 J	0.789 J	0.643 J	0.954 J	0.945 J	1.12 J
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N/A	27.5	17.9	19.9	11	14.8	11.8	18.7	19.9	15.1	9.9	28.5	13.5	21.6	16	22.5
Octachlorodibenzo-p-dioxin (OCDD)	N/A	606	350	307	199	279	210	304	388	249	168	519	225	364	289	371
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N/A	0.322 JK					0.158 J									
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N/A	1.02 J	0.526 J	0.532 J	0.354 JK	0.567 J	0.527 J	0.728 J	0.571 J	0.474 J	0.425 J	0.505 J	0.371 JK	0.612 J		0.704 JK
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N/A	0.888 J		0.346 J	<0.198 U	0.323 JK	0.374 J	0.538 J						0.433 J		
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N/A	2.99 J	1.35 J	1.37 J	1.13 J	1.37 J	1.32 J	1.63 J	1.43 J	1.28 J	1.26 J	1.39 J	1.22 J	1.66 J	1.69 JK	1.82 J
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N/A	2.32 J	1.11 J	0.962 J	0.917 J	0.973 J	1.04 J	1.31 J	1.19 J	0.945 J	0.924 J	1.08 J	0.942 J	1.28 J	1.32 J	1.53 J
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N/A	0.958 JK	0.403 J	0.555 J	0.359 J	0.468 J	0.582 J	0.729 J	0.447 JK	0.509 J	0.461 J	0.469 J	0.42 JK	0.548 J	0.579 JK	0.696 JK
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N/A	1.31 J	0.541 J	0.556 J	0.442 J	0.647 J	0.593 J	0.828 J	0.703 J	0.559 J	0.479 J	0.703 J	0.53 J	0.711 J	0.685 J	0.862 J
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N/A	18.3	8.13	8.18	6.88	8.15	8.2	9.53	8.68	7.98	7.71	8.54	8.12	10.9	9.59	11.7
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N/A	5.66	2.87 J	3.05 J	2.45 J	2.68 J	2.76 J	3.34 J	3.26 J	2.65 J	2.63 J	3.49	2.83 J	3.86	3.1 J	3.88

**Table 7** Detected Compounds in Sediment Compared to Screening Benchmarks

Method-Units-Analyte	Sediment Screening Benchmarks	Bypass A	Bypass B	L1a-01	L1b-01	L1c-01	L2a-01	L2b-01	L2c-01	L3a-01	L3b-01	L3c-01	L4a-01	L4b-01	L4c-01	L4c-01-Dup
Octachlorodibenzofuran (OCDF)	N/A	112	59.3	55.9	47.7	56.2	56	64.9	67.9	53.1	58.6	58.6	59.7	79.4	71	82
Tetrachlorodibenzo-p-dioxins (TCDD), Total	N/A	8.79	7.89	12	10.8	6.32	7.66	11.3	10.5	4.39	10.2	3.89	5.13	10.9		12.4
Pentachlorodibenzo-p-dioxin (PeCDD), Total	N/A	15.2	12.2	13.2	14.8	10.7	9.96	15.4	12.5	10.8	13.3	10.2	8.44	11.6	7.52	16.9
Hexachlorodibenzo-p-dioxins (HxCDD), Total	N/A	66.6	50.2	64.6	41.9	34.7	34.5	61.1	64.8	43.1	37.6	35.8	29.4	55.1	42.4	61.5
Heptachlorodibenzo-p-dioxins (HpCDD), Total	N/A	127	89.8	109	63.1	65.9	57	108	110	70.7	57.9	87.2	52.8	103	77.7	104
Tetrachlorodibenzofurans (TCDF), Total	N/A		0.17 J	0.415 J			0.388 J	0.679 J		0.228 J	0.204 J			0.74		
Pentachlorodibenzofurans (PeCDF), Total	N/A	8.61	2.01 J	2.22 J	1.2 J	2.35 J	3.38	4.05	2.12 J	1.85 J	1.68 J	1.51 J	0.456 J	2.63 J		2.07 J
Hexachlorodibenzofurans (HxCDF), Total	N/A	14.1	6.28	4.67	5.91	6.63	6.71	9.2	5.34	5.94	5.59	6.56	4.82	6.68	3.14 J	8.33
Heptachlorodibenzofurans (HpCDF), Total	N/A	34.1	15.5	15.9	13.2	15.5	15.6	18	16.5	15.3	14.5	15.4	15.5	20.5	18.3	22
<b>Total TCDD TEQ</b>	<b>0.85<sup>3</sup></b>	<b>2.56</b>	<b>1.24</b>	<b>1.34</b>	<b>0.89</b>	<b>1.28</b>	<b>1.15</b>	<b>1.83</b>	<b>1.36</b>	<b>0.976</b>	<b>0.892</b>	<b>1.37</b>	<b>0.892</b>	<b>1.56</b>	<b>1.32</b>	<b>1.55</b>

Sources:

- <sup>1</sup> Ecotox. 1996, 5(4):253-. Accessable through the NOAA SQiRTs Screening Quick Reference Tables. Available at <http://response.restoration.noaa.gov/sites/default/files/SQIRTs.pdf>
- <sup>2</sup> NOAA. 1999. Sediment Quality Guidelines developed for the National Status and Trends Program. Available at [http://archive.orr.noaa.gov/book\\_shelf/121\\_sedi\\_qual\\_guide.pdf](http://archive.orr.noaa.gov/book_shelf/121_sedi_qual_guide.pdf)
- <sup>3</sup> CCME. 2001. Canadian sediment quality guidelines for the protection of aquatic life: Polychlorinated dioxins and furans (PCDD/Fs). In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg. Available at <http://cegg-rcqe.ccm.ca/download/en/245>. Benchmark represents the Interim Sediment Quality Guideline (ISQG) for marine waters. The ISQG generally represents the threshold effects level (TEL), but a probable effects level (PEL = 21.5) should also be considered when evaluating the potential for effects.

Key:

PEL
ERM
ISQG

J = Estimated value. The reported concentration is below the MRL.

K = The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. Reported concentration is a conservative estimate, however EMPC correction was not applied.

U = Compound was analyzed for, but was not detected.

TEQ = Toxicity Equivalency Quotient.

**Table 8 Toxic Equivalency Factors for Dioxins and Furans**

Dioxins	Toxic Equivalency Factor (TEF)
2,3,7,8-TCDD	1
1,2,3,7,8-PnCDD	1
1,2,3,4,7,8-HxCDD	0.1
1,2,3,6,7,8-HxCDD	0.1
1,2,3,7,8,9-HxCDD	0.1
1,2,3,4,6,7,8-HpCDD	0.01
OCDD	0.0001
2,3,7,8-TCDF	0.1
1,2,3,7,8-PnCDF	0.05
2,3,4,7,8-PnCDF	0.5
1,2,3,4,7,8-HxCDF	0.1
1,2,3,6,7,8-HxCDF	0.1
1,2,3,7,8,9-HxCDF	0.1
2,3,4,6,7,8-HxCDF	0.1
1,2,3,4,6,7,8-HpCDF	0.01
1,2,3,4,7,8,9-HpCDF	0.01
OCDF	0.0001

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## 7 Conclusions

Based on results from the field survey conducted in December 2015, water samples from both the surface and near the bottom revealed no significant contaminants of concern. This was not surprising considering the vast size of the GOM and the lack of specific sources for contamination near the proposed Project site.

It appears that there were limited, but specific (dioxins/furans), contaminants of concern found within sediments near the proposed Project site. However, from an overall perspective, dioxin concentrations do not appear to be of concern. Dioxins are formed from the incomplete combustion of organic material in the presence of chloride. Their extent throughout the GOM is likely derived from multiple sources associated with both the offshore oil and gas industry, and also from land-based sources, including waste handlers and combustion facilities. Dioxins can be emitted to the air via many sources, sequestered in sediment, and persist for long periods of time. Dioxins bioaccumulate and biomagnify and, thus, their persistence within higher orders of ecological food webs could result in negative consequences.

The potential for water quality impacts from inorganic or organic sediment constituents' re-entrainment during trenching or other sediment-disturbing activities is remote. As noted above, inorganic compounds are common to sediments, and the concentrations found suggest no critical potential for mobilization from the sediment. Generally, mobilization of inorganics into a dissolved phase requires the proper physicochemical conditions (reduced pH and low TSS) within the water column, and is more likely associated with large grain (i.e., sand) sediment types. The buffering capacity of seawater in concert with the fine-grained sediment structure near the proposed Project site will limit mobilization and likely result in dispersed sediments, with inorganic compounds remaining bound within the sediment matrix, to be redeposited with no biological impacts expected.

Mobilization and bioavailability of organic compounds (dioxins/furans) from sediment during trenching activities depends on the compound's octanol-water partitioning coefficient. The octanol/water partition coefficient ( $\log K_{ow}$ ) is defined as the ratio of a chemical's concentration in the octanol phase to its concentration in the aqueous phase of a two-phase octanol/water system. Numerous studies showed that  $\log K_{ow}$  is useful for correlating structural changes of chemicals with the change observed in some biological, biochemical, or toxic effect. It has been shown to be related to water solubility, soil/sediment adsorption coefficients, and bioconcentration factors for aquatic life (Lyman et al. 1990). Generally, the higher the  $K_{ow}$  the lower the likelihood that an organic chemical will disassociate within a sediment matrix in the presence of water. Reported  $\log K_{ow}$  factors for dioxins and furans range from approximately 6 to 9 (Lyman et al. 1990). Generally, shorter chain, and less complex organic compounds, will disassociate in water more readily than complex compounds. The  $\log K_{ow}$  for dioxins/furans is considered relatively high.

An important and relevant piece of information observed during the field survey was the lack of a viable benthic community within surficial sediments collected within all cores. In a healthy marine ecosystem, generally, even within a small cross-section of sediment, there will be an abundance of various infaunal species, such as polychaetes and amphipods, that would be observed during sampling. Delfin LNG's scientists actively sampled and evaluated each of the cores' surficial sediment for expected biota. None of the 15 cores exhibited any live (or dead) infaunal biota. These observations are critical for future evaluation of ecological effects that could occur from pipeline trenching or TYMS installation activities. Although under 'normal' conditions within a healthy environment one might expect minor (but recoverable) impacts to this community as a result of an action, the fact that the community does not exist makes this issue moot. Delfin LNG's scientists have conducted benthic macroinvertebrate studies in many healthy GOM ecosystems and were, thus, informed on what to expect within the samples collected. The

fact that no viable benthic community exists near the Project site was astounding. The observations validate the concern over historical and on-going conditions within the GOM Dead Zone.

Historic effects observed in the Dead Zone, in proximity to the Delfin LNG project, have resulted in periodic low oxygen events that appear to have degraded the abundance and diversity of the local benthic infauna. No live (or dead) benthic organisms were observed in any of the Delfin sediment samples collected. While benthic abundance and diversity evaluations were not the purpose of this investigation, observations regarding the lack of benthic infauna within the sediments collected during this cruise are consistent with past research in the GOM that have concluded that exposure to hypoxic conditions can adversely affect the local benthic community. Baustian and Rabalais (2009) found that the polychaete-dominated community was approximately three times less dense and diverse in post-hypoxic months compared to pre-hypoxic months. Similarly, Rabalais et al. (1995) found a dramatic reduction in diversity, abundance, and biomass of macroinfauna at sites exposed to severe and continuous hypoxia during mid-summer as opposed to the site exposed to intermittent and less severe oxygen depletion. In the case of the Delfin LNG project, temporary sediment displacement and localized turbidity resulting from component installation activities would not result in impacts to a healthy, well-established, benthic community. As such, impacts from short-term, localized activities associated with the installation of the Delfin LNG project would be extremely limited, given the observed lack of susceptible benthic communities.

## 8 References

- Baustian, M.M., and N.N. Rabalais. 2009. Seasonal composition of benthic macroinfauna exposed to hypoxia in the Northern Gulf of Mexico, *Estuaries and Coasts* 32:975-983.
- Caffey, R.H., P. Coreil, and D. Demcheck. 2002. *Mississippi River Water Quality: Implications for Coastal Restoration*, Interpretive Topic Series on Coastal Wetland Restoration in Louisiana, Coastal Wetland Planning, Protection, and Restoration Act (eds.), National Sea Grant Library No. LSU-G-02-002.
- Canadian Council of Ministers of the Environment (CCME). 2001. Canadian sediment quality guidelines for the protection of aquatic life: Polychlorinated dioxins and furans (PCDD/Fs). In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.
- Lyman, W.J., W.F. Reehl, and D.H. Rosenblatt. 1990. Handbook of chemical property estimation methods--Environmental behavior of organic compounds: Washington, DC, American Chemical Society, 960 p.
- Karnauskas, M., M.J. Schirripa, C.R. Kelble, G.S. Cook, and J.K. Craig (eds.). 2013. Ecosystem status report for the Gulf of Mexico. NOAA Technical Memorandum NMFS-SEFSC-653, 52 p.
- Measures C.I., B.C. Grant, B.J. Mangum and J.M. Edmond. 1981. The relationship of the distribution of dissolved selenium IV and VI in three oceans to physical and biological processes. In: Trace Metals in Seawater. C.S. Wong, E. Boyle, K. W. Bruland, J. D. Burton and E. D. Goldberg (editors), NATO Conference Series IV: Marine Sciences, Volume 9, Plenum Press, New York, pp. 73-83.
- Neff, J.M. 2005. *Composition, Environmental Fates, and Biological Effect of Water-Based Drilling Muds and Cuttings Discharged to the Marine Environment: A Synthesis and Annotated Bibliography*. Prepared by Battelle, Duxbury, Md., for the Petroleum Environmental Research Forum and American Petroleum Institute.
- Rabalais, N.N., L.E. Smith, D.E. Harper, Jr., and J. Dubravko. 1995. Effects of Bottom Water Hypoxia on the Benthic Communities of the Southeastern Louisiana Continental Shelf. U.S. Department of the Interior, OCS Study MMS 94-0054, 105 p.
- Turner, R.E., E.B. Overton, N.N. Rabalais, and B.K. Sen Gupta (eds.). 2003. *Historical Reconstruction of the Contaminant Loading and Biological Responses in the Central Gulf of Mexico Shelf Sediments*. OCS Study MMS 2003-063, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, Louisiana.
- U.S. Environmental Protection Agency (EPA). 2010. EPA Response to BP Spill in the Gulf of Mexico, Environmental Report. Available at: <http://www.epa.gov/BPSpill/sediment.html#sedimentdata>. Accessed on January 8, 2015.
- \_\_\_\_\_. 1999. *The Ecological Condition of Estuaries in the Gulf of Mexico*. EPA 620-R-98-004, July 1999, EPA, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, Florida. Available at: <http://www.epa.gov/ged/gulf.htm>.

- \_\_\_\_\_. 1995. Information Document on Aquatic Life Toxicity for: Di-2-Ethylhexyl Phthalate (DEHP). EPA-822-B-95-001. June 1995.
- Van den Berg. M., L. Birnbaum, A.T. Bosveld, B. Brunström, P. Cook, M. Feeley, J.P. Giesy, A. Hanberg, R. Hasegawa, S.W. Kennedy, T. Kubiak, J.C. Larsen, F.X. van Leeuwen, A.K. Liem, C. Nolt, R.E. Peterson, L. Poellinger, S. Safe, D. Schrenk, D. Tillitt, M. Tysklind, M. Younes, F. Waern, T. Zacharewski. 1998. Review Toxic equivalency factors (TEFs) for PCBs, PCDDs, PCDFs for humans and wildlife. *Environ Health Perspect.* 1998 Dec; 106(12):775-92.
- Wambaugh, Z.R. 2016. Selenium Cycling in Low Oxygen Water of the Equatorial Pacific Ocean presented at the Ocean Sciences Meeting 2016, New Orleans, Louisiana. February 21-16, 2016.

## Appendix A: Sediment Core Log

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Location	Date	Time	Latitude	Longitude	Water Depth (ft)	Sediment Depth Interval (in)	Munsell Color Code	Texture	Observations	Photo Number	Comments
L1a	12/15/15	1700	29° 07' 55.11" N	93° 31' 19.13" W	64	0-2	Gley 1 4/N	Sand		1-3	No H <sub>2</sub> S smell- no sign of biological activity on surface layer. Top 5" of core cut to remove core tube.
						2-56		Sandy clay			
L1b	12/15/15	1755	29° 08' 04.08" N	93° 31' 40.64" W	64	0-35	Gley 1 4/10Y	Fine sand	Shell hash throughout	4-6	No H <sub>2</sub> S smell- no sign of biological activity on surface layer.
						35-55		Silt clay			
L1c	12/16/15	655	29° 08' 13.10"N	93° 32' 02.20" W	63	0-13	Gley 1 4/10Y	Sandy silt	Shell hash throughout	7- 9	No H <sub>2</sub> S smell
						13-25		Clay silt	Redox features, chemical odor		
L3a	12/16/15	720	29° 06' 59.14" N	93° 30' 53.80" W	65	0-4	Gley 1 4/10Y	Fine sand	Shell hash throughout	10, 11	No H <sub>2</sub> S smell- no sign of biological activity.
						0-14		Fine sand	Pebbles throughout		
						14-22		Consolidated clay silt	Redox features: 7.5YR 4/6		
L3b	12/16/15	755	29° 06' 49.81" N	93° 30' 31.76" W	66	0-21	Gley 1 4/10Y	Silty sandy clay	Shell hash throughout	12-14	No H <sub>2</sub> S smell- no sign of biological activity. Core tube bent ~50" from bottom.
						21-25		Sand	Shell hash throughout		
						25-44		Clay	Very stiff clay		
L3c	12/16/15	825	29° 06' 40.70"N	93° 30' 10.10" W	66	0-4	Gley 1 4/10Y	Unconsolidated		15-17	No H <sub>2</sub> S smell- no sign of biological activity.
						4-19		Clayey silt			
						19-25		Clayey sand			
L2a	12/16/15	900	29° 05' 53.80" N	93° 32' 00.25" W	68	0-18	Gley 1 4/10Y	Silty sand		18	No H <sub>2</sub> S smell- no sign of biological activity.
						18-20	Gley 1 4/5GY	Silt			

Location	Date	Time	Latitude	Longitude	Water Depth (ft)	Sediment Depth Interval (in)	Munsell Color Code	Texture	Observations	Photo Number	Comments
L2b	12/16/15	930	29° 06' 03.85" N	93° 32' 21.65" W	68	0-8	Gley 1 4/10Y	Silty fine sand	Shell hash throughout	19	No H <sub>2</sub> S smell- no sign of biological activity.
						8-14		Silty clay	High plasticity. Redox features: 7.5YR 4/6		
L2c	12/16/15	1000	29° 06' 13.60"N	93° 32' 42.40" W	68	0-8	Gley 1 4/10Y	Silty fine sand	Shell hash throughout	20	No H <sub>2</sub> S smell- no sign of biological activity.
						8-18		Silty clay	High plasticity. Small redox features: 7.5YR 4/6.		
L4a	12/16/15	1030	29° 04' 58.65" N	93° 31' 35.23" W	70	0-11	Gley 1 4/10Y	Silty sand	Shell wash throughout	21	No H <sub>2</sub> S smell- no sign of biological activity.
						12-27		Silty clay	High plasticity. Faint redox features: 7.5YR 4/6.		
L4b	12/16/15	1100	29° 04' 49.72" N	93° 31' 13.58" W	70	0-6	Gley 1 4/10Y	Clayey sand		22, 23	No H <sub>2</sub> S smell
						6-44		Clayey silt			
L4c	12/16/15	1130	29° 04' 40.90" N	93° 30' 51.80" W	70	0-2		Fine sandy silt	Small amount of shell hash present.	24-26	No H <sub>2</sub> S smell
						3-9		Silty clay			
						9-50		Clay silt composite			
Bypass-b	12/16/15	1750	29° 23' 12.52" N	93° 26' 30.42" W	47	0-22	Gley 1 4/10Y	Silty sand	Clay clumps mixed in composite.	27, 28	No H <sub>2</sub> S smell
						22-24		Clay	High plasticity. Little silt mixed in composite.		
Bypass-a	12/16/15	1820	29° 23' 18.63" N	93° 26' 38.07" W	47	0-16	Gley 1 4/10Y	Silt	Clay nodules and shell hash mixed in composite.	29	No H <sub>2</sub> S smell

## Appendix B: Photograph Log

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Photograph Number: 1  
Direction: Down  
Description: Sediment core

Sample Location: L1a  
Date: 12/15/2015



Photograph Number: 2  
Direction: Down  
Description: Sediment core

Sample Location: L1a  
Date: 12/15/2015



Photograph Number: 3  
Direction: Down  
Description: Sediment core

Sample Location: L1a  
Date: 12/15/2015



Photograph Number: 4  
Direction: Down  
Description: Sediment core

Sample Location: L1b  
Date: 12/15/2015



Photograph Number: 5  
Direction: Down  
Description: Sediment core

Sample Location: L1b  
Date: 12/15/2015



Photograph Number: 6  
Direction: Down  
Description: Sediment core

Sample Location: L1b  
Date: 12/15/2015



Photograph Number: 7  
Direction: Down  
Description: Sediment core

Sample Location: L1c  
Date: 12/16/2015



Photograph Number: 8  
Direction: Down  
Description: Sediment core

Sample Location: L1c  
Date: 12/16/2015



Photograph Number: 9  
Direction: Down  
Description: Sediment core

Sample Location: L1c  
Date: 12/16/2015



Photograph Number: 10  
Direction: Down  
Description: Sediment core

Sample Location: L3a  
Date: 12/16/2015



Photograph Number: 11  
Direction: Down  
Description: Sediment core

Sample Location: L3a  
Date: 12/16/2015



Photograph Number: 12  
Direction: Down  
Description: Sediment core

Sample Location: L3b  
Date: 12/16/2015



Photograph Number: 13  
Direction: Down  
Description: Sediment core

Sample Location: L3b  
Date: 12/16/2015



Photograph Number: 14  
Direction: Down  
Description: Sediment core

Sample Location: L3b  
Date: 12/16/2015



Photograph Number: 15  
Direction: Down  
Description: Sediment core

Sample Location: L3c  
Date: 12/16/2015



Photograph Number: 16  
Direction: Down  
Description: Sediment core

Sample Location: L3c  
Date: 12/16/2015



Photograph Number: 17  
Direction: Down  
Description: Sediment core

Sample Location: L3c  
Date: 12/16/2015



Photograph Number: 18  
Direction: Down  
Description: Sediment core

Sample Location: L2a  
Date: 12/16/2015



Photograph Number: 19  
Direction: Down  
Description: Sediment core

Sample Location: L2b  
Date: 12/16/2015



Photograph Number: 20  
Direction: Down  
Description: Sediment core

Sample Location: L2c  
Date: 12/16/2015



Photograph Number: 21  
Direction: Down  
Description: Sediment core

Sample Location: L4a  
Date: 12/16/2015



Photograph Number: 22  
Direction: Down  
Description: Sediment core

Sample Location: L4b  
Date: 12/16/2015



Photograph Number: 23  
Direction: Down  
Description: Sediment core

Sample Location: L4b  
Date: 12/16/2015



Photograph Number: 24  
Direction: Down  
Description: Sediment core

Sample Location: L4c  
Date: 12/16/2015



Photograph Number: 25  
Direction: Down  
Description: Sediment core

Sample Location: L4c  
Date: 12/16/2015



Photograph Number: 26  
Direction: Down  
Description: Sediment core

Sample Location: L4c  
Date: 12/16/2015



Photograph Number: 27  
Direction: Down  
Description: Sediment core

Sample Location: Bypass B  
Date: 12/16/2015



Photograph Number: 28  
Direction: Down  
Description: Sediment core

Sample Location: Bypass B  
Date: 12/16/2015



Photograph Number: 29  
Direction: Down  
Description: Sediment core

Sample Location: Bypass A  
Date: 12/16/2015

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## **Appendix C: Water Sample Analysis**

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Method-Units-Analytes	L1-S	L1-B	L2A-S	L2A-B	L3-S	L3-S Dup	L3-B	L3-B Dup	L4A-S	L4A-B	L4B-S	L4B-B	L4C-S	L4C-B	Bypass-S	Bypass-B
Chrysene	<0.00080 U															
Dibenz(a,h)anthracene	<0.00060 U															
Diethyl phthalate	<0.00070 U															
Dimethyl phthalate	<0.00050 U															
Di-n-butyl phthalate	<0.00080 U															
Di-n-octyl phthalate	<0.0020 U															
Fluoranthene	<0.00040 U															
Fluorene	<0.00050 U															
Hexachlorobenzene	<0.00030 U															
Hexachlorobutadiene	<0.00050 U															
Hexachlorocyclopentadiene	<0.00040 U															
Hexachloroethane	<0.00080 U															
Indeno(1,2,3-cd)pyrene	<0.00060 U															
Isophorone	<0.00050 U															
Naphthalene	<0.00040 U															
Nitrobenzene	<0.00040 U															
N-Nitrosodimethylamine	<0.00060 U															
N-Nitrosodi-n-propylamine	<0.00050 U															
N-Nitrosodiphenylamine	<0.00040 U															
Pentachlorophenol	<0.00080 U															
Phenanthrene	<0.00040 U															
Phenol	<0.00040 U															
Pyrene	<0.00030 U															
<b>Total Dissolved Solids SM2540C (mg/L)</b>																
Total Dissolved Solids (Residue, Filterable)	39,600	39,000	38,500	38,300	38,600	38,600	39,400	38,300	38,100	39,000	38,700	39,100	38,400	38,900	36,000	37,900
<b>Total Suspended Solids SM 2540D (mg/L)</b>																
Suspended Solids (Residue, Non-Filterable)	3.68	6.32	4.90	5.40	6.40	6.44	5.30	5.20	5.70	6.30	15.6	16.6	6.70	8.25	7.26	9.60
<b>Ammonia as N SM4500 NH3-B-F (mg/L)</b>																
Nitrogen, Ammonia (as N)	0.025 J	0.043 J	0.034 J	<0.025 U	0.049 J	0.026 J	0.062	0.028 J	0.060	0.055	0.039 J	0.029 J	0.028 J	0.035 J	0.029 J	0.031 J
<b>Phosphorus by SM4500P E (mg/L)</b>																
Phosphorus, Total (As P)	<0.0200 U	<0.0200 U	<0.0200 U	0.0200 J	<0.0200 U											
<b>BOD (mg/L)</b>																
Biochemical Oxygen Demand	<2.00 U															
<b>Nitrate/Nitrite E300.0 (mg/L)</b>																
Nitrate/Nitrite (as N)	<0.600 U	1.87 J	<0.600 U	10.9												
<b>Chemical Oxygen Demand E410.4 (mg/L)</b>																
Chemical Oxygen Demand	300	300	300	280 J	240 J	280 J	360	260 J	260 J	280 J	280 J	240 J	260 J	220 J	200 J	240 J

Key:  
U- Non-detected  
J-Estimated

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## **Appendix D: Sediment Sample Analysis**

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Methods-Units-Analytes	Bypass A	Bypass B	L1a-01	L1b-01	L1c-01	L2a-01	L2b-01	L2c-01	L3a-01	L3b-01	L3c-01	L4a-01	L4b-01	L4c-01	L4c-01-Dup
<b>Metals SW6020A (mg/kg)</b>															
Arsenic	0.695	1.87	4.79	4.68	4.21	5.26	3.86	4.33	4.35	5.90	4.97	5.05	5.17	5.09	9.44
Barium	34.9	80.5	105	47.0	80.9	47.4	76.8	144	79.8	51.4	69.8	65.6	108	68.2	46.2
Cadmium	<0.0503 U	0.360 J	0.0675 J	0.0797 J	0.0725 J	<0.0561 U	0.0931 J	<0.0534 U	<0.0512 U	0.191 J	<0.0494 U	0.127 J	0.258 J	0.208 J	0.136 J
Chromium	5.09	4.76	9.61	13.1	8.97	9.09	10.6	9.64	8.77	15.6	8.02	11.3	11.8	18.2	11.9
Lead	8.20	5.95	7.48	9.31	6.98	6.94	7.74	7.92	6.64	13.5	5.91	8.87	10.7	15.1	9.96
Selenium	0.414 J	0.434 J	0.553 J	0.642	0.461 J	0.464 J	0.527 J	0.537 J	0.440 J	0.925	0.446 J	0.609	0.891	0.964	0.684
Silver	0.0756 J	<0.0502 U	<0.0565 U	<0.0506 U	<0.0500 U	<0.0561 U	<0.0508 U	<0.0534 U	<0.0512 U	0.0863 J	<0.0494 U	0.0490 J	0.0640 J	0.107 J	0.0600 J
<b>Mercury SW7471B (mg/kg)</b>															
Mercury	0.0149	0.00890	0.0142	0.00830	0.0137	0.0123	0.0106	0.0115	0.0127	0.0125	0.00733	0.0123	0.0176	0.0131	0.0106
<b>Organochlorine Pesticides SW8081B (mg/kg)</b>															
4,4'-DDD	<0.00066 U	<0.00067 U	<0.00071 U	<0.00068 U	<0.00065 U	<0.00071 U	<0.0010 U	<0.00070 U	<0.00065 U	<0.00071 U	<0.00076 U	<0.00066 U	<0.00069 U	<0.00078 U	<0.00068 U
4,4'-DDE	<0.00066 U	<0.00067 U	<0.00071 U	<0.00068 U	<0.00065 U	<0.00071 U	<0.0010 U	<0.00070 U	<0.00065 U	<0.00071 U	<0.00076 U	<0.00066 U	<0.00069 U	<0.00078 U	<0.00068 U
4,4'-DDT	<0.00066 U	<0.00067 U	<0.00071 U	<0.00068 U	<0.00065 U	<0.00071 U	<0.0010 U	<0.00070 U	<0.00065 U	<0.00071 U	<0.00076 U	<0.00066 U	<0.00069 U	<0.00078 U	<0.00068 U
Aldrin	<0.00040 U	<0.00040 U	<0.00042 U	<0.00041 U	<0.00039 U	<0.00042 U	<0.00060 U	<0.00042 U	<0.00039 U	<0.00043 U	<0.00046 U	<0.00040 U	<0.00041 U	<0.00047 U	<0.00041 U
alpha-BHC	<0.00040 U	<0.00040 U	<0.00042 U	<0.00041 U	<0.00039 U	<0.00042 U	<0.00060 U	<0.00042 U	<0.00039 U	<0.00043 U	<0.00046 U	<0.00040 U	<0.00041 U	<0.00047 U	<0.00041 U
beta-BHC	<0.00040 U	<0.00040 U	<0.00042 U	<0.00041 U	<0.00039 U	<0.00042 U	<0.00060 U	<0.00042 U	<0.00039 U	<0.00043 U	<0.00046 U	<0.00040 U	<0.00041 U	<0.00047 U	<0.00041 U
Chlordane	<0.0026 U	<0.0027 U	<0.0028 U	<0.0027 U	<0.0026 U	<0.0028 U	<0.0040 U	<0.0028 U	<0.0026 U	<0.0028 U	<0.0031 U	<0.0026 U	<0.0028 U	<0.0031 U	<0.0027 U
delta-BHC	<0.00026 U	<0.00027 U	<0.00028 U	<0.00027 U	<0.00026 U	<0.00028 U	<0.00040 U	<0.00028 U	<0.00026 U	<0.00028 U	<0.00031 U	<0.00026 U	<0.00028 U	<0.00031 U	<0.00027 U
Dieldrin	<0.00066 U	<0.00067 U	<0.00071 U	<0.00068 U	<0.00065 U	<0.00071 U	<0.0010 U	<0.00070 U	<0.00065 U	<0.00071 U	<0.00076 U	<0.00066 U	<0.00069 U	<0.00078 U	<0.00068 U
Endosulfan I	<0.00040 U	<0.00040 U	<0.00042 U	<0.00041 U	<0.00039 U	<0.00042 U	<0.00060 U	<0.00042 U	<0.00039 U	<0.00043 U	<0.00046 U	<0.00040 U	<0.00041 U	<0.00047 U	<0.00041 U
Endosulfan II	<0.00079 U	<0.00080 U	<0.00085 U	<0.00081 U	<0.00078 U	<0.00085 U	<0.0012 U	<0.00084 U	<0.00078 U	<0.00085 U	<0.00092 U	<0.00079 U	<0.00083 U	<0.00094 U	<0.00082 U
Endosulfan sulfate	<0.00079 U	<0.00080 U	<0.00085 U	<0.00081 U	<0.00078 U	<0.00085 U	<0.0012 U	<0.00084 U	<0.00078 U	<0.00085 U	<0.00092 U	<0.00079 U	<0.00083 U	<0.00094 U	<0.00082 U

Methods-Units-Analytes	Bypass A	Bypass B	L1a-01	L1b-01	L1c-01	L2a-01	L2b-01	L2c-01	L3a-01	L3b-01	L3c-01	L4a-01	L4b-01	L4c-01	L4c-01-Dup
			U	U	U	U	U	U	U	U		U	U	U	
Endrin	<0.00079 U	<0.00080 U	<0.00085 U	<0.00081 U	<0.00078 U	<0.00085 U	<0.0012 U	<0.00084 U	<0.00078 U	<0.00085 U	<0.00092 U	<0.00079 U	<0.00083 U	<0.00094 U	<0.00082 U
Endrin aldehyde	<0.00079 U	<0.00080 U	<0.00085 U	<0.00081 U	<0.00078 U	<0.00085 U	<0.0012 U	<0.00084 U	<0.00078 U	<0.00085 U	<0.00092 U	<0.00079 U	<0.00083 U	<0.00094 U	<0.00082 U
Endrin ketone	<0.00079 U	<0.00080 U	<0.00085 U	<0.00081 U	<0.00078 U	<0.00085 U	<0.0012 U	<0.00084 U	<0.00078 U	<0.00085 U	<0.00092 U	<0.00079 U	<0.00083 U	<0.00094 U	<0.00082 U
gamma-BHC	<0.00026 U	<0.00027 U	<0.00028 U	<0.00027 U	<0.00026 U	<0.00028 U	<0.00040 U	<0.00028 U	<0.00026 U	<0.00028 U	<0.00031 U	<0.00026 U	<0.00028 U	<0.00031 U	<0.00027 U
Heptachlor	<0.00040 U	<0.00040 U	<0.00042 U	<0.00041 U	<0.00039 U	<0.00042 U	<0.00060 U	<0.00042 U	<0.00039 U	<0.00043 U	<0.00046 U	<0.00040 U	<0.00041 U	<0.00047 U	<0.00041 U
Heptachlor epoxide	<0.00040 U	<0.00040 U	<0.00042 U	<0.00041 U	<0.00039 U	<0.00042 U	<0.00060 U	<0.00042 U	<0.00039 U	<0.00043 U	<0.00046 U	<0.00040 U	<0.00041 U	<0.00047 U	<0.00041 U
Methoxychlor	<0.0045 U	<0.0045 U	<0.0048 U	<0.0046 U	<0.0044 U	<0.0048 U	<0.0068 U	<0.0047 U	<0.0044 U	<0.0048 U	<0.0052 U	<0.0045 U	<0.0047 U	<0.0053 U	<0.0047 U
Toxaphene	<0.0064 U	<0.0064 U	<0.0068 U	<0.0065 U	<0.0062 U	<0.0068 U	<0.0096 U	<0.0067 U	<0.0063 U	<0.0068 U	<0.0073 U	<0.0063 U	<0.0066 U	<0.0075 U	<0.0066 U
<b>PCBs SW8082A (mg/kg)</b>															
Aroclor 1016	<0.0056 U	<0.0056 U	<0.0059 U	<0.0057 U	<0.0054 U	<0.0059 U	<0.0084 U	<0.0059 U	<0.0055 U	<0.0060 U	<0.0064 U	<0.0055 U	<0.0058 U	<0.0066 U	<0.0057 U
Aroclor 1221	<0.0074 U	<0.0075 U	<0.0079 U	<0.0076 U	<0.0072 U	<0.0079 U	<0.011 U	<0.0078 U	<0.0073 U	<0.0079 U	<0.0086 U	<0.0074 U	<0.0077 U	<0.0088 U	<0.0077 U
Aroclor 1232	<0.0060 U	<0.0060 U	<0.0064 U	<0.0061 U	<0.0058 U	<0.0064 U	<0.0090 U	<0.0063 U	<0.0059 U	<0.0064 U	<0.0069 U	<0.0059 U	<0.0062 U	<0.0070 U	<0.0062 U
Aroclor 1242	<0.0078 U	<0.0079 U	<0.0083 U	<0.0080 U	<0.0076 U	<0.0083 U	<0.012 U	<0.0082 U	<0.0077 U	<0.0084 U	<0.0090 U	<0.0078 U	<0.0081 U	<0.0092 U	<0.0081 U
Aroclor 1248	<0.0078 U	<0.0079 U	<0.0083 U	<0.0080 U	<0.0076 U	<0.0083 U	<0.012 U	<0.0082 U	<0.0077 U	<0.0084 U	<0.0090 U	<0.0078 U	<0.0081 U	<0.0092 U	<0.0081 U
Aroclor 1254	<0.0062 U	<0.0063 U	<0.0066 U	<0.0064 U	<0.0061 U	<0.0066 U	<0.0094 U	<0.0066 U	<0.0061 U	<0.0067 U	<0.0072 U	<0.0062 U	<0.0065 U	<0.0073 U	<0.0064 U
Aroclor 1260	<0.0032 U	<0.0032 U	<0.0034 U	<0.0032 U	<0.0031 U	<0.0034 U	<0.0048 U	<0.0033 U	<0.0031 U	<0.0034 U	<0.0037 U	<0.0032 U	<0.0033 U	<0.0038 U	<0.0033 U
<b>Volatiles SW8260C (mg/kg)</b>															
Benzene	<0.036 U	<0.034 U	<0.045 U	<0.050 U	<0.027 U	<0.037 U	<0.037 U	<0.031 U	<0.039 U	<0.029 U	<0.030 U	<0.030 U	<0.038 U	<0.038 U	<0.038 U
Ethylbenzene	<0.050 U	<0.048 U	<0.062 U	<0.070 U	<0.038 U	<0.052 U	<0.052 U	<0.044 U	<0.054 U	<0.041 U	<0.042 U	<0.042 U	<0.053 U	<0.053 U	<0.054 U
m,p-Xylene	<0.11 U	<0.11 U	<0.14 U	<0.16 U	<0.088 U	<0.12 U	<0.12 U	<0.10 U	<0.12 U	<0.094 U	<0.096 U	<0.096 U	<0.12 U	<0.12 U	<0.12 U
o-Xylene	<0.072 U	<0.068 U	<0.089 U	<0.10 U	<0.055 U	<0.074 U	<0.074 U	<0.063 U	<0.078 U	<0.059 U	<0.060 U	<0.060 U	<0.075 U	<0.075 U	<0.077 U

Methods-Units-Analytes	Bypass A	Bypass B	L1a-01	L1b-01	L1c-01	L2a-01	L2b-01	L2c-01	L3a-01	L3b-01	L3c-01	L4a-01	L4b-01	L4c-01	L4c-01-Dup
Toluene	<0.043 U	<0.041 U	<0.053 U	<0.060 U	<0.033 U	<0.045 U	<0.045 U	<0.038 U	<0.047 U	<0.035 U	<0.036 U	<0.036 U	<0.045 U	<0.045 U	<0.046 U
Xylenes, Total	<0.17 U	<0.16 U	<0.21 U	<0.24 U	<0.13 U	<0.18 U	<0.18 U	<0.15 U	<0.19 U	<0.14 U	<0.14 U	<0.14 U	<0.18 U	<0.18 U	<0.18 U
<b>Low-Level PAHs (mg/kg)</b>															
Acenaphthene	<0.00080 U	<0.00080 U	<0.00085 U	<0.00081 U	<0.00078 U	<0.00085 U	<0.00080 U	<0.00083 U	<0.00078 U	<0.00085 U	<0.00076 U	<0.00079 U	<0.00083 U	<0.00094 U	<0.00082 U
Acenaphthylene	<0.0016 U	<0.0016 U	<0.0017 U	<0.0016 U	<0.0016 U	<0.0017 U	<0.0016 U	<0.0017 U	<0.0016 U	<0.0017 U	<0.0015 U	<0.0016 U	<0.0017 U	<0.0019 U	<0.0016 U
Anthracene	<0.00080 U	<0.00080 U	<0.00085 U	<0.00081 U	<0.00078 U	<0.00085 U	<0.00080 U	<0.00083 U	<0.00078 U	<0.00085 U	<0.00076 U	<0.00079 U	<0.00083 U	<0.00094 U	<0.00082 U
Benz(a)anthracene	<0.0025 U	<0.0026 U	<0.0027 U	<0.0026 U	<0.0025 U	<0.0027 U	<0.0026 U	<0.0027 U	<0.0025 U	<0.0027 U	<0.0024 U	<0.0025 U	<0.0027 U	<0.0030 U	<0.0026 U
Benzo(a)pyrene	<0.0016 U	<0.0016 U	<0.0017 U	<0.0016 U	<0.0016 U	<0.0017 U	<0.0016 U	<0.0017 U	<0.0016 U	<0.0017 U	<0.0015 U	<0.0016 U	0.0017 J	<0.0019 U	<0.0016 U
Benzo(b)fluoranthene	<0.0019 U	<0.0019 U	<0.0020 U	<0.0019 U	<0.0019 U	<0.0020 U	<0.0019 U	<0.0020 U	<0.0019 U	<0.0020 U	<0.0018 U	<0.0019 U	<0.0020 U	<0.0023 U	<0.0020 U
Benzo(g,h,i)perylene	<0.0011 U	<0.0011 U	<0.0012 U	<0.0011 U	<0.0011 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0011 U	<0.0011 U	0.0016 J	0.0015 J	<0.0012 U
Benzo(k)fluoranthene	<0.0014 U	<0.0014 U	<0.0015 U	<0.0015 U	<0.0014 U	<0.0014 U	<0.0015 U	<0.0017 U	<0.0015 U						
Chrysene	<0.0013 U	<0.0013 U	<0.0014 U	<0.0013 U	<0.0012 U	<0.0014 U	<0.0013 U	<0.0013 U	<0.0012 U	<0.0014 U	<0.0012 U	<0.0013 U	0.0017 J	0.0017 J	<0.0013 U
Dibenz(a,h)anthracene	<0.0025 U	<0.0026 U	<0.0027 U	<0.0026 U	<0.0025 U	<0.0027 U	<0.0026 U	<0.0027 U	<0.0025 U	<0.0027 U	<0.0024 U	<0.0025 U	<0.0027 U	<0.0030 U	<0.0026 U
Fluoranthene	<0.0017 U	<0.0018 U	<0.0019 U	<0.0018 U	<0.0017 U	<0.0019 U	<0.0018 U	<0.0018 U	<0.0017 U	<0.0019 U	<0.0017 U	<0.0017 U	0.0023 J	0.0024 J	<0.0018 U
Fluorene	<0.0017 U	<0.0018 U	<0.0019 U	<0.0018 U	<0.0017 U	<0.0019 U	<0.0018 U	<0.0018 U	<0.0017 U	<0.0019 U	<0.0017 U	<0.0017 U	<0.0018 U	<0.0021 U	<0.0018 U
Indeno(1,2,3-cd)pyrene	<0.0013 U	<0.0013 U	<0.0014 U	<0.0013 U	<0.0012 U	<0.0014 U	<0.0013 U	<0.0013 U	<0.0012 U	<0.0014 U	<0.0012 U	<0.0013 U	0.0015 J	0.0017 J	<0.0013 U
Naphthalene	<0.00095 U	0.0016 J	0.0012 J	<0.00097 U	<0.00094 U	<0.0010 U	<0.00096 U	<0.0010 U	0.0014 J	0.0015 J	<0.00092 U	<0.00095 U	<0.00099 U	<0.0011 U	<0.00099 U
Phenanthrene	<0.0024 U	<0.0024 U	<0.0025 U	<0.0024 U	<0.0023 U	<0.0025 U	<0.0024 U	<0.0025 U	<0.0023 U	<0.0025 U	<0.0023 U	<0.0024 U	<0.0025 U	<0.0028 U	<0.0025 U
Pyrene	<0.00095 U	<0.00096 U	<0.0010 U	<0.00097 U	<0.00094 U	<0.0010 U	<0.00096 U	<0.0010 U	<0.00094 U	<0.0010 U	<0.00092 U	<0.00095 U	0.0018 J	0.0022 J	<0.00099 U
<b>Dioxins and Furans 1613B (ng/Kg)</b>															
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	<0.126 U	<0.0859 U	<0.0754 U	<0.107 U	<0.102 U	<0.066 U	0.143 JK	<0.0916 U	<0.0794 U	<0.0896 U	<0.104 U	<0.0591 U	<0.0605 U	<0.299 U	<0.0954 U

Methods-Units-Analytes	Bypass A	Bypass B	L1a-01	L1b-01	L1c-01	L2a-01	L2b-01	L2c-01	L3a-01	L3b-01	L3c-01	L4a-01	L4b-01	L4c-01	L4c-01-Dup
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	0.43 J	0.224 JK	0.219 J	0.121 JK	0.252 J	0.186 JK	0.387 JK	0.211 JK	<0.127 U	0.108 JK	0.18 J	<0.103 U	0.256 J	<0.297 U	0.214 J
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.457 J	0.205 JK	0.297 JK	0.166 JK	0.271 JK	0.262 J	0.511 J	0.397 J	0.163 JK	0.172 JK	0.272 J	0.189 JK	0.375 J	<0.267 U	0.462 J
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.924 J	0.602 J	0.684 J	0.335 JK	0.49 JK	0.455 JK	0.82 J	0.605 J	0.454 J	0.427 JK	0.446 JK	0.363 JK	0.716 JK	<0.249 U	0.516 JK
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	1.16 JK	0.891 JK	0.936 J	0.566 J	0.749 J	0.548 JK	1.05 J	1.18 J	0.812 J	0.616 J	0.789 J	0.643 J	0.954 J	0.945 J	1.12 J
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	27.5	17.9	19.9	11	14.8	11.8	18.7	19.9	15.1	9.9	28.5	13.5	21.6	16	22.5
Octachlorodibenzo-p-dioxin (OCDD)	606	350	307	199	279	210	304	388	249	168	519	225	364	289	371
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.322 JK	<0.0889 U	<0.0596 U	<0.122 U	<0.16 U	0.158 J	<0.0869 U	<0.0621 U	<0.0702 U	<0.122 U	<0.138 U	<0.0804 U	<0.0979 U	<0.308 U	<0.117 U
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	1.02 J	0.526 J	0.532 J	0.354 JK	0.567 J	0.527 J	0.728 J	0.571 J	0.474 J	0.425 J	0.505 J	0.371 JK	0.612 J	<0.419 U	0.704 JK
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.888 J	<0.204 U	0.346 J	<0.198 U	0.323 JK	0.374 J	0.538 J	<0.195 U	<0.233 U	<0.103 U	<0.178 U	<0.235 U	0.433 J	<0.402 U	<0.278 U
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	2.99 J	1.35 J	1.37 J	1.13 J	1.37 J	1.32 J	1.63 J	1.43 J	1.28 J	1.26 J	1.39 J	1.22 J	1.66 J	1.69 JK	1.82 J
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	2.32 J	1.11 J	0.962 J	0.917 J	0.973 J	1.04 J	1.31 J	1.19 J	0.945 J	0.924 J	1.08 J	0.942 J	1.28 J	1.32 J	1.53 J
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.958 JK	0.403 J	0.555 J	0.359 J	0.468 J	0.582 J	0.729 J	0.447 JK	0.509 J	0.461 J	0.469 J	0.42 JK	0.548 J	0.579 JK	0.696 JK
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	1.31 J	0.541 J	0.556 J	0.442 J	0.647 J	0.593 J	0.828 J	0.703 J	0.559 J	0.479 J	0.703 J	0.53 J	0.711 J	0.685 J	0.862 J
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	18.3	8.13	8.18	6.88	8.15	8.2	9.53	8.68	7.98	7.71	8.54	8.12	10.9	9.59	11.7
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	5.66	2.87 J	3.05 J	2.45 J	2.68 J	2.76 J	3.34 J	3.26 J	2.65 J	2.63 J	3.49	2.83 J	3.86	3.1 J	3.88
Octachlorodibenzofuran (OCDF)	112	59.3	55.9	47.7	56.2	56	64.9	67.9	53.1	58.6	58.6	59.7	79.4	71	82
Tetrachlorodibenzo-p-dioxins (TCDD), Total	8.79	7.89	12	10.8	6.32	7.66	11.3	10.5	4.39	10.2	3.89	5.13	10.9	<0.299 U	12.4
Pentachlorodibenzo-p-dioxin (PeCDD), Total	15.2	12.2	13.2	14.8	10.7	9.96	15.4	12.5	10.8	13.3	10.2	8.44	11.6	7.52	16.9
Hexachlorodibenzo-p-dioxins (HxCDD), Total	66.6	50.2	64.6	41.9	34.7	34.5	61.1	64.8	43.1	37.6	35.8	29.4	55.1	42.4	61.5
Heptachlorodibenzo-p-dioxins (HpCDD), Total	127	89.8	109	63.1	65.9	57	108	110	70.7	57.9	87.2	52.8	103	77.7	104

Methods-Units-Analytes	Bypass A	Bypass B	L1a-01	L1b-01	L1c-01	L2a-01	L2b-01	L2c-01	L3a-01	L3b-01	L3c-01	L4a-01	L4b-01	L4c-01	L4c-01-Dup
Tetrachlorodibenzofurans (TCDF), Total	<0.181 U	0.17 J	0.415 J	<0.122 U	<0.16 U	0.388 J	0.679 J	<0.0621 U	0.228 J	0.204 J	<0.138 U	<0.0804 U	0.74	<0.308 U	<0.117 U
Pentachlorodibenzofurans (PeCDF), Total	8.61	2.01 J	2.22 J	1.2 J	2.35 J	3.38	4.05	2.12 J	1.85 J	1.68 J	1.51 J	0.456 J	2.63 J	<0.41 U	2.07 J
Hexachlorodibenzofurans (HxCDF), Total	14.1	6.28	4.67	5.91	6.63	6.71	9.2	5.34	5.94	5.59	6.56	4.82	6.68	3.14 J	8.33
Heptachlorodibenzofurans (HpCDF), Total	34.1	15.5	15.9	13.2	15.5	15.6	18	16.5	15.3	14.5	15.4	15.5	20.5	18.3	22
<b>Total Organic Carbon SW9060A (wt%)</b>															
Total Organic Carbon	0.295	0.347	0.560	0.244	0.306	0.428	0.423	0.510	0.309	0.424	0.283	0.241	0.564	0.451	0.660
<b>Moisture (wt%)</b>															
Percent Moisture	24.6	25.2	29.3	26.3	23.2	29.3	25.2	28.4	23.3	29.5	21.6	24.3	27.6	36.1	27.1
<b>Specific Conductivity, Soil 10x Extract (umhos/cm)</b>															
Conductance, Soil Extract	20,700	25,200	24,800	22,000	20,700	28,800	22,600	18,600	22,000	15,100	19,700	19,900	28,300	24,200	20,100
<b>Total Solids ALS SOP (%)</b>															
Total Solids	62.7	73.4	71.6	73.1	79.2	78.1	71.8	69.8	74.8	73.9	77.3	75.3	71	65.1	71.1
<b>Grain Size Analysis ASTM D 422 (%)</b>															
Medium Grain Sand	3.1	2.2	1.4	1.8	2.4	2.2	1	1.8	0.7	0.8	2.4	0.4	0.6	1.4	0.4
Fine Grain Sand	27.4	38.6	40.5	39.2	42.4	51.4	43.3	34.3	42.2	23.1	61.9	45.1	35.3	44.1	29.7
Silt	30.5	33.6	27.8	33.7	30	26.5	25.4	29.6	29.9	39.8	18.5	25.3	34.7	27.1	38.8
Clay	39	25.6	30.3	25.3	25.2	19.9	30.3	34.3	27.2	36.3	17.2	29.2	29.4	27.4	31.1

Key:  
 J- Estimated  
 K- The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. Reported concentration is a conservative estimate, however EMPC correction was not applied  
 U- Non-detected

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## **Attachment 1: Laboratory Results for: Delfin LNG Work Order: HS15120773**

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10450 Stancliff Rd. Suite 210  
Houston, TX 77099  
T: +1 281 530 5656  
F: +1 281 530 5887  
www.alsglobal.com

January 22, 2016

Will Farrar  
Ecology & Environment, Inc  
2900 Westfork Dr. Suite 401  
Baton Rouge, LA 70827

Work Order: **HS15120773**

Laboratory Results for: **Delfin LNG**

Dear Will,

ALS Environmental received 17 sample(s) on Dec 17, 2015 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "Dane J. Wacasey".

Generated By: Dayna.Fisher  
Dane J. Wacasey

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120773

**SAMPLE SUMMARY**

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS15120773-01	Bypass A	Soil		16-Dec-2015 18:20	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-02	L2b-01	Soil		16-Dec-2015 09:30	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-03	L3c-01	Soil		16-Dec-2015 08:25	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-04	L2a-01	Soil		16-Dec-2015 09:00	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-05	L1c-01	Soil		16-Dec-2015 06:55	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-06	L3b-01	Soil		16-Dec-2015 07:55	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-07	L1b-01	Soil		16-Dec-2015 17:55	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-08	L3a-01	Soil		16-Dec-2015 07:20	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-09	L1a-01	Soil		16-Dec-2015 17:00	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-10	L4c-01-Dup	Soil		16-Dec-2015 11:30	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-11	L4a-01	Soil		16-Dec-2015 10:30	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-12	Bypass B	Soil		16-Dec-2015 18:05	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-13	L4c-01	Soil		16-Dec-2015 11:30	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-14	L4b-01	Soil		16-Dec-2015 11:00	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-15	L2c-01	Soil		16-Dec-2015 10:00	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120773-16	Trip Blank - 120315-07	Water		16-Dec-2015 00:00	17-Dec-2015 19:00	<input checked="" type="checkbox"/>
HS15120773-17	Trip Blank - 120315-11	Water		16-Dec-2015 00:00	17-Dec-2015 19:00	<input checked="" type="checkbox"/>

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120773

**CASE NARRATIVE****Work Order Comments**

- The analyses for Dioxins/Furans were subcontracted to our ALS Houston TX, High Resolution Lab. Final report attached.
- The analyses for Grainsize were subcontracted to Tolunay-Wong Engineers, Inc. Final report attached.

**ECD Organics by Method SW8081****Batch ID: 100013**

Sample ID: **HS15120730-28**

- MS and MSD are for an unrelated sample

Sample ID: **LCS-100013**

- The multi-response compounds toxaphene and chlordane were not included in the spiking solution for the LCS.

**ECD Organics by Method SW8082****Batch ID: 100012**

Sample ID: **Bypass A (HS15120773-01)**

Sample ID: **L1c-01 (HS15120773-05)**

Sample ID: **L2a-01 (HS15120773-04)**

Sample ID: **L2b-01 (HS15120773-02)**

Sample ID: **L3b-01 (HS15120773-06)**

Sample ID: **L3c-01 (HS15120773-03)**

Sample ID: **MBLK-100012**

- One or more surrogate recoveries were above the upper control limits. No target analytes were detected in the sample. The high surrogate recoveries did not impact the non-detect results for target analytes.

Sample ID: **Bypass A (HS15120773-01MS/MSD)**

- The MS and/or MSD recovery was above the upper control limit. The corresponding result in the parent sample was non-detect.

Sample ID: **LCS-100012**

- The LCS and/or LCSD recovery was above the upper control limit. All sample results in the batch were non-detect. No qualification is required for this analyte:

**GCMS Semivolatiles by Method SW8270****Batch ID: 100111**

Sample ID: **HS15120461-11**

- MS and MSD are for an unrelated sample

**Batch ID: 100044**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Sample ID: **L4c-01-Dup (HS15120773-10)**

- One or more surrogate recoveries were above the upper control limits. The sample results may be biased high.

**GCMS Volatiles by Method SW8260****Batch ID: R266813**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**Metals by Method SW6020****Batch ID: 99964**

Sample ID: **Bypass A (HS15120773-01MS/MSD)**

- Barium failed on the MS/MSD but passed on the PDS.

Sample ID: **Bypass A (HS15120773-01MSD)**

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**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120773

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**CASE NARRATIVE**

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**Metals by Method SW6020**

**Batch ID: 99964**

- Due to non-homogeneity of the soil sample matrix the MSD RPD were outside the control limits for Barium.

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**Metals by Method SW7471A**

**Batch ID: 100250**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

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**WetChemistry by Method SW9050M**

**Batch ID: R266820**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

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**WetChemistry by Method SW3550**

**Batch ID: R266710**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

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**WetChemistry by Method SW9060**

**Batch ID: 99813**

Sample ID: **HS15120546-02**

- MS and MSD are for an unrelated sample
-

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass A  
 Collection Date: 16-Dec-2015 18:20

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-01  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00066	0.0044	mg/Kg-dry	1	29-Dec-2015 03:13
4,4'-DDE	U		0.00066	0.0044	mg/Kg-dry	1	29-Dec-2015 03:13
4,4'-DDT	U		0.00066	0.0044	mg/Kg-dry	1	29-Dec-2015 03:13
Aldrin	U		0.00040	0.0022	mg/Kg-dry	1	29-Dec-2015 03:13
alpha-BHC	U		0.00040	0.0022	mg/Kg-dry	1	29-Dec-2015 03:13
beta-BHC	U		0.00040	0.0022	mg/Kg-dry	1	29-Dec-2015 03:13
Chlordane	U		0.0026	0.022	mg/Kg-dry	1	29-Dec-2015 03:13
delta-BHC	U		0.00026	0.0022	mg/Kg-dry	1	29-Dec-2015 03:13
Dieldrin	U		0.00066	0.0044	mg/Kg-dry	1	29-Dec-2015 03:13
Endosulfan I	U		0.00040	0.0022	mg/Kg-dry	1	29-Dec-2015 03:13
Endosulfan II	U		0.00079	0.0044	mg/Kg-dry	1	29-Dec-2015 03:13
Endosulfan sulfate	U		0.00079	0.0044	mg/Kg-dry	1	29-Dec-2015 03:13
Endrin	U		0.00079	0.0044	mg/Kg-dry	1	29-Dec-2015 03:13
Endrin aldehyde	U		0.00079	0.0044	mg/Kg-dry	1	29-Dec-2015 03:13
Endrin ketone	U		0.00079	0.0044	mg/Kg-dry	1	29-Dec-2015 03:13
gamma-BHC	U		0.00026	0.0022	mg/Kg-dry	1	29-Dec-2015 03:13
Heptachlor	U		0.00040	0.0022	mg/Kg-dry	1	29-Dec-2015 03:13
Heptachlor epoxide	U		0.00040	0.0022	mg/Kg-dry	1	29-Dec-2015 03:13
Methoxychlor	U		0.0045	0.022	mg/Kg-dry	1	29-Dec-2015 03:13
Toxaphene	U		0.0064	0.022	mg/Kg-dry	1	29-Dec-2015 03:13
Surr: Decachlorobiphenyl		93.4		59-144	%REC	1	29-Dec-2015 03:13
Surr: Tetrachloro-m-xylene		112		56.9-130	%REC	1	29-Dec-2015 03:13

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass A  
 Collection Date: 16-Dec-2015 18:20

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-01  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene		U	0.00080	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Acenaphthylene		U	0.0016	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Anthracene		U	0.00080	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Benz(a)anthracene		U	0.0025	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Benzo(a)pyrene		U	0.0016	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Benzo(b)fluoranthene		U	0.0019	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Benzo(g,h,i)perylene		U	0.0011	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Benzo(k)fluoranthene		U	0.0014	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Chrysene		U	0.0013	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Dibenz(a,h)anthracene		U	0.0025	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Fluoranthene		U	0.0017	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Fluorene		U	0.0017	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Indeno(1,2,3-cd)pyrene		U	0.0013	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Naphthalene		U	0.00095	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Phenanthrene		U	0.0024	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Pyrene		U	0.00095	0.0052	mg/Kg-dry	1	23-Dec-2015 21:58
Surr: 2-Fluorobiphenyl	59.0			43-125	%REC	1	23-Dec-2015 21:58
Surr: 4-Terphenyl-d14	99.7			32-125	%REC	1	23-Dec-2015 21:58
Surr: Nitrobenzene-d5	70.5			37-125	%REC	1	23-Dec-2015 21:58
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0056	0.022	mg/Kg-dry	1	07-Jan-2016 11:01
Aroclor 1221		U	0.0074	0.022	mg/Kg-dry	1	07-Jan-2016 11:01
Aroclor 1232		U	0.0060	0.022	mg/Kg-dry	1	07-Jan-2016 11:01
Aroclor 1242		U	0.0078	0.022	mg/Kg-dry	1	07-Jan-2016 11:01
Aroclor 1248		U	0.0078	0.022	mg/Kg-dry	1	07-Jan-2016 11:01
Aroclor 1254		U	0.0062	0.022	mg/Kg-dry	1	07-Jan-2016 11:01
Aroclor 1260		U	0.0032	0.022	mg/Kg-dry	1	07-Jan-2016 11:01
Surr: Decachlorobiphenyl	167	S		54-143	%REC	1	07-Jan-2016 11:01
Surr: Tetrachloro-m-xylene	172	S		50-140	%REC	1	07-Jan-2016 11:01
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
Arsenic	0.695		0.0755	0.629	mg/Kg-dry	1	21-Dec-2015 22:09
Barium	34.9		0.101	0.629	mg/Kg-dry	1	21-Dec-2015 22:09
Cadmium		U	0.0503	0.629	mg/Kg-dry	1	21-Dec-2015 22:09
Chromium	5.09		0.0629	0.629	mg/Kg-dry	1	21-Dec-2015 22:09
Lead	8.20		0.0629	0.629	mg/Kg-dry	1	21-Dec-2015 22:09
Selenium	0.414	J	0.314	0.629	mg/Kg-dry	1	21-Dec-2015 22:09
Silver	0.0756	J	0.0503	0.629	mg/Kg-dry	1	21-Dec-2015 22:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass A  
 Collection Date: 16-Dec-2015 18:20

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-01  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.036	0.36	mg/Kg-dry	50	23-Dec-2015 13:14
Ethylbenzene	U		0.050	0.36	mg/Kg-dry	50	23-Dec-2015 13:14
m,p-Xylene	U		0.11	0.72	mg/Kg-dry	50	23-Dec-2015 13:14
o-Xylene	U		0.072	0.36	mg/Kg-dry	50	23-Dec-2015 13:14
Toluene	U		0.043	0.36	mg/Kg-dry	50	23-Dec-2015 13:14
Xylenes, Total	U		0.17	0.72	mg/Kg-dry	50	23-Dec-2015 13:14
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>110</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 13:14</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>98.1</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 13:14</i>
<i>Surr: Dibromofluoromethane</i>	<i>109</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 13:14</i>
<i>Surr: Toluene-d8</i>	<i>97.6</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 13:14</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	20,700		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.0149		0.000635	0.00449	mg/Kg-dry	1	31-Dec-2015 13:09
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	24.6		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 03-Jan-2016		Analyst: KMU	
Total Organic Carbon	0.295		0.0600	0.0600	wt%-dry	1	04-Jan-2016 16:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2b-01  
 Collection Date: 16-Dec-2015 09:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-02  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.0010	0.0066	mg/Kg-dry	1	29-Dec-2015 03:26
4,4'-DDE	U		0.0010	0.0066	mg/Kg-dry	1	29-Dec-2015 03:26
4,4'-DDT	U		0.0010	0.0066	mg/Kg-dry	1	29-Dec-2015 03:26
Aldrin	U		0.00060	0.0033	mg/Kg-dry	1	29-Dec-2015 03:26
alpha-BHC	U		0.00060	0.0033	mg/Kg-dry	1	29-Dec-2015 03:26
beta-BHC	U		0.00060	0.0033	mg/Kg-dry	1	29-Dec-2015 03:26
Chlordane	U		0.0040	0.033	mg/Kg-dry	1	29-Dec-2015 03:26
delta-BHC	U		0.00040	0.0033	mg/Kg-dry	1	29-Dec-2015 03:26
Dieldrin	U		0.0010	0.0066	mg/Kg-dry	1	29-Dec-2015 03:26
Endosulfan I	U		0.00060	0.0033	mg/Kg-dry	1	29-Dec-2015 03:26
Endosulfan II	U		0.0012	0.0066	mg/Kg-dry	1	29-Dec-2015 03:26
Endosulfan sulfate	U		0.0012	0.0066	mg/Kg-dry	1	29-Dec-2015 03:26
Endrin	U		0.0012	0.0066	mg/Kg-dry	1	29-Dec-2015 03:26
Endrin aldehyde	U		0.0012	0.0066	mg/Kg-dry	1	29-Dec-2015 03:26
Endrin ketone	U		0.0012	0.0066	mg/Kg-dry	1	29-Dec-2015 03:26
gamma-BHC	U		0.00040	0.0033	mg/Kg-dry	1	29-Dec-2015 03:26
Heptachlor	U		0.00060	0.0033	mg/Kg-dry	1	29-Dec-2015 03:26
Heptachlor epoxide	U		0.00060	0.0033	mg/Kg-dry	1	29-Dec-2015 03:26
Methoxychlor	U		0.0068	0.033	mg/Kg-dry	1	29-Dec-2015 03:26
Toxaphene	U		0.0096	0.033	mg/Kg-dry	1	29-Dec-2015 03:26
<i>Surr: Decachlorobiphenyl</i>		101		59-144	%REC	1	29-Dec-2015 03:26
<i>Surr: Tetrachloro-m-xylene</i>		104		56.9-130	%REC	1	29-Dec-2015 03:26

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2b-01  
 Collection Date: 16-Dec-2015 09:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-02  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene	U		0.00080	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Acenaphthylene	U		0.0016	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Anthracene	U		0.00080	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Benz(a)anthracene	U		0.0026	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Benzo(a)pyrene	U		0.0016	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Benzo(b)fluoranthene	U		0.0019	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Benzo(g,h,i)perylene	U		0.0011	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Benzo(k)fluoranthene	U		0.0014	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Chrysene	U		0.0013	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Dibenz(a,h)anthracene	U		0.0026	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Fluoranthene	U		0.0018	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Fluorene	U		0.0018	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Indeno(1,2,3-cd)pyrene	U		0.0013	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Naphthalene	U		0.00096	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Phenanthrene	U		0.0024	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Pyrene	U		0.00096	0.0053	mg/Kg-dry	1	23-Dec-2015 22:16
Surr: 2-Fluorobiphenyl	75.3			43-125	%REC	1	23-Dec-2015 22:16
Surr: 4-Terphenyl-d14	101			32-125	%REC	1	23-Dec-2015 22:16
Surr: Nitrobenzene-d5	96.2			37-125	%REC	1	23-Dec-2015 22:16
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016	U		0.0084	0.033	mg/Kg-dry	1	07-Jan-2016 11:50
Aroclor 1221	U		0.011	0.033	mg/Kg-dry	1	07-Jan-2016 11:50
Aroclor 1232	U		0.0090	0.033	mg/Kg-dry	1	07-Jan-2016 11:50
Aroclor 1242	U		0.012	0.033	mg/Kg-dry	1	07-Jan-2016 11:50
Aroclor 1248	U		0.012	0.033	mg/Kg-dry	1	07-Jan-2016 11:50
Aroclor 1254	U		0.0094	0.033	mg/Kg-dry	1	07-Jan-2016 11:50
Aroclor 1260	U		0.0048	0.033	mg/Kg-dry	1	07-Jan-2016 11:50
Surr: Decachlorobiphenyl	214	S		54-143	%REC	1	07-Jan-2016 11:50
Surr: Tetrachloro-m-xylene	237	S		50-140	%REC	1	07-Jan-2016 11:50
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
Arsenic	3.86		0.0762	0.635	mg/Kg-dry	1	21-Dec-2015 22:32
Barium	76.8		0.102	0.635	mg/Kg-dry	1	21-Dec-2015 22:32
Cadmium	0.0931	J	0.0508	0.635	mg/Kg-dry	1	21-Dec-2015 22:32
Chromium	10.6		0.0635	0.635	mg/Kg-dry	1	21-Dec-2015 22:32
Lead	7.74		0.0635	0.635	mg/Kg-dry	1	21-Dec-2015 22:32
Selenium	0.527	J	0.318	0.635	mg/Kg-dry	1	21-Dec-2015 22:32
Silver	U		0.0508	0.635	mg/Kg-dry	1	21-Dec-2015 22:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2b-01  
 Collection Date: 16-Dec-2015 09:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-02  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>			Analyst: WLR		
Benzene	U		0.037	0.37	mg/Kg-dry	50	23-Dec-2015 13:38
Ethylbenzene	U		0.052	0.37	mg/Kg-dry	50	23-Dec-2015 13:38
m,p-Xylene	U		0.12	0.74	mg/Kg-dry	50	23-Dec-2015 13:38
o-Xylene	U		0.074	0.37	mg/Kg-dry	50	23-Dec-2015 13:38
Toluene	U		0.045	0.37	mg/Kg-dry	50	23-Dec-2015 13:38
Xylenes, Total	U		0.18	0.74	mg/Kg-dry	50	23-Dec-2015 13:38
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>110</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 13:38</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>98.9</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 13:38</i>
<i>Surr: Dibromofluoromethane</i>	<i>108</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 13:38</i>
<i>Surr: Toluene-d8</i>	<i>98.9</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 13:38</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>			Analyst: AP		
Conductance, Soil Extract	22,600		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>			Prep:SW7471A / 31-Dec-2015		Analyst: OFO
Mercury	0.0106		0.000651	0.00460	mg/Kg-dry	1	31-Dec-2015 13:23
<b>MOISTURE</b>		<b>Method:SW3550</b>			Analyst: DFF		
Percent Moisture	25.2		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>			Analyst: SUB		
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>			Analyst: SUB		
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>			Prep:SW9060 / 03-Jan-2016		Analyst: KMU
Total Organic Carbon	0.423		0.0600	0.0600	wt%-dry	1	04-Jan-2016 16:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3c-01  
 Collection Date: 16-Dec-2015 08:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-03  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00076	0.0050	mg/Kg-dry	1	29-Dec-2015 03:39
4,4'-DDE	U		0.00076	0.0050	mg/Kg-dry	1	29-Dec-2015 03:39
4,4'-DDT	U		0.00076	0.0050	mg/Kg-dry	1	29-Dec-2015 03:39
Aldrin	U		0.00046	0.0026	mg/Kg-dry	1	29-Dec-2015 03:39
alpha-BHC	U		0.00046	0.0026	mg/Kg-dry	1	29-Dec-2015 03:39
beta-BHC	U		0.00046	0.0026	mg/Kg-dry	1	29-Dec-2015 03:39
Chlordane	U		0.0031	0.026	mg/Kg-dry	1	29-Dec-2015 03:39
delta-BHC	U		0.00031	0.0026	mg/Kg-dry	1	29-Dec-2015 03:39
Dieldrin	U		0.00076	0.0050	mg/Kg-dry	1	29-Dec-2015 03:39
Endosulfan I	U		0.00046	0.0026	mg/Kg-dry	1	29-Dec-2015 03:39
Endosulfan II	U		0.00092	0.0050	mg/Kg-dry	1	29-Dec-2015 03:39
Endosulfan sulfate	U		0.00092	0.0050	mg/Kg-dry	1	29-Dec-2015 03:39
Endrin	U		0.00092	0.0050	mg/Kg-dry	1	29-Dec-2015 03:39
Endrin aldehyde	U		0.00092	0.0050	mg/Kg-dry	1	29-Dec-2015 03:39
Endrin ketone	U		0.00092	0.0050	mg/Kg-dry	1	29-Dec-2015 03:39
gamma-BHC	U		0.00031	0.0026	mg/Kg-dry	1	29-Dec-2015 03:39
Heptachlor	U		0.00046	0.0026	mg/Kg-dry	1	29-Dec-2015 03:39
Heptachlor epoxide	U		0.00046	0.0026	mg/Kg-dry	1	29-Dec-2015 03:39
Methoxychlor	U		0.0052	0.026	mg/Kg-dry	1	29-Dec-2015 03:39
Toxaphene	U		0.0073	0.026	mg/Kg-dry	1	29-Dec-2015 03:39
Surr: Decachlorobiphenyl		94.8		59-144	%REC	1	29-Dec-2015 03:39
Surr: Tetrachloro-m-xylene		103		56.9-130	%REC	1	29-Dec-2015 03:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3c-01  
 Collection Date: 16-Dec-2015 08:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-03  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene	U		0.00076	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Acenaphthylene	U		0.0015	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Anthracene	U		0.00076	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Benz(a)anthracene	U		0.0024	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Benzo(a)pyrene	U		0.0015	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Benzo(b)fluoranthene	U		0.0018	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Benzo(g,h,i)perylene	U		0.0011	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Benzo(k)fluoranthene	U		0.0014	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Chrysene	U		0.0012	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Dibenz(a,h)anthracene	U		0.0024	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Fluoranthene	U		0.0017	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Fluorene	U		0.0017	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Indeno(1,2,3-cd)pyrene	U		0.0012	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Naphthalene	U		0.00092	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Phenanthrene	U		0.0023	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Pyrene	U		0.00092	0.0050	mg/Kg-dry	1	23-Dec-2015 22:34
Surr: 2-Fluorobiphenyl	63.7			43-125	%REC	1	23-Dec-2015 22:34
Surr: 4-Terphenyl-d14	81.8			32-125	%REC	1	23-Dec-2015 22:34
Surr: Nitrobenzene-d5	106			37-125	%REC	1	23-Dec-2015 22:34
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016	U		0.0064	0.026	mg/Kg-dry	1	07-Jan-2016 12:06
Aroclor 1221	U		0.0086	0.026	mg/Kg-dry	1	07-Jan-2016 12:06
Aroclor 1232	U		0.0069	0.026	mg/Kg-dry	1	07-Jan-2016 12:06
Aroclor 1242	U		0.0090	0.026	mg/Kg-dry	1	07-Jan-2016 12:06
Aroclor 1248	U		0.0090	0.026	mg/Kg-dry	1	07-Jan-2016 12:06
Aroclor 1254	U		0.0072	0.026	mg/Kg-dry	1	07-Jan-2016 12:06
Aroclor 1260	U		0.0037	0.026	mg/Kg-dry	1	07-Jan-2016 12:06
Surr: Decachlorobiphenyl	159	S		54-143	%REC	1	07-Jan-2016 12:06
Surr: Tetrachloro-m-xylene	160	S		50-140	%REC	1	07-Jan-2016 12:06
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
Arsenic	4.97		0.0740	0.617	mg/Kg-dry	1	21-Dec-2015 22:36
Barium	69.8		0.0987	0.617	mg/Kg-dry	1	21-Dec-2015 22:36
Cadmium	U		0.0494	0.617	mg/Kg-dry	1	21-Dec-2015 22:36
Chromium	8.02		0.0617	0.617	mg/Kg-dry	1	21-Dec-2015 22:36
Lead	5.91		0.0617	0.617	mg/Kg-dry	1	21-Dec-2015 22:36
Selenium	0.446	J	0.308	0.617	mg/Kg-dry	1	21-Dec-2015 22:36
Silver	U		0.0494	0.617	mg/Kg-dry	1	21-Dec-2015 22:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3c-01  
 Collection Date: 16-Dec-2015 08:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-03  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.030	0.30	mg/Kg-dry	50	23-Dec-2015 14:01
Ethylbenzene	U		0.042	0.30	mg/Kg-dry	50	23-Dec-2015 14:01
m,p-Xylene	U		0.096	0.60	mg/Kg-dry	50	23-Dec-2015 14:01
o-Xylene	U		0.060	0.30	mg/Kg-dry	50	23-Dec-2015 14:01
Toluene	U		0.036	0.30	mg/Kg-dry	50	23-Dec-2015 14:01
Xylenes, Total	U		0.14	0.60	mg/Kg-dry	50	23-Dec-2015 14:01
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>110</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 14:01</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>98.4</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 14:01</i>
<i>Surr: Dibromofluoromethane</i>	<i>109</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 14:01</i>
<i>Surr: Toluene-d8</i>	<i>97.2</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 14:01</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	19,700		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.00733		0.000615	0.00435	mg/Kg-dry	1	31-Dec-2015 13:25
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	21.6		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	0.283		0.0600	0.0600	wt%-dry	1	04-Jan-2016 18:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2a-01  
 Collection Date: 16-Dec-2015 09:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-04  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 21:11
4,4'-DDE	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 21:11
4,4'-DDT	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 21:11
Aldrin	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 21:11
alpha-BHC	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 21:11
beta-BHC	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 21:11
Chlordane	U		0.0028	0.024	mg/Kg-dry	1	24-Dec-2015 21:11
delta-BHC	U		0.00028	0.0024	mg/Kg-dry	1	24-Dec-2015 21:11
Dieldrin	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 21:11
Endosulfan I	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 21:11
Endosulfan II	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:11
Endosulfan sulfate	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:11
Endrin	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:11
Endrin aldehyde	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:11
Endrin ketone	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:11
gamma-BHC	U		0.00028	0.0024	mg/Kg-dry	1	24-Dec-2015 21:11
Heptachlor	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 21:11
Heptachlor epoxide	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 21:11
Methoxychlor	U		0.0048	0.024	mg/Kg-dry	1	24-Dec-2015 21:11
Toxaphene	U		0.0068	0.024	mg/Kg-dry	1	24-Dec-2015 21:11
<i>Surr: Decachlorobiphenyl</i>		88.3		59-144	%REC	1	24-Dec-2015 21:11
<i>Surr: Tetrachloro-m-xylene</i>		88.4		56.9-130	%REC	1	24-Dec-2015 21:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2a-01  
 Collection Date: 16-Dec-2015 09:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-04  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene		U	0.00085	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Acenaphthylene		U	0.0017	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Anthracene		U	0.00085	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Benz(a)anthracene		U	0.0027	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Benzo(a)pyrene		U	0.0017	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Benzo(b)fluoranthene		U	0.0020	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Benzo(g,h,i)perylene		U	0.0012	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Benzo(k)fluoranthene		U	0.0015	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Chrysene		U	0.0014	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Dibenz(a,h)anthracene		U	0.0027	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Fluoranthene		U	0.0019	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Fluorene		U	0.0019	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Indeno(1,2,3-cd)pyrene		U	0.0014	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Naphthalene		U	0.0010	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Phenanthrene		U	0.0025	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
Pyrene		U	0.0010	0.0056	mg/Kg-dry	1	23-Dec-2015 22:53
<i>Surr: 2-Fluorobiphenyl</i>	59.6			43-125	%REC	1	23-Dec-2015 22:53
<i>Surr: 4-Terphenyl-d14</i>	86.5			32-125	%REC	1	23-Dec-2015 22:53
<i>Surr: Nitrobenzene-d5</i>	89.0			37-125	%REC	1	23-Dec-2015 22:53
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0059	0.024	mg/Kg-dry	1	07-Jan-2016 12:22
Aroclor 1221		U	0.0079	0.024	mg/Kg-dry	1	07-Jan-2016 12:22
Aroclor 1232		U	0.0064	0.024	mg/Kg-dry	1	07-Jan-2016 12:22
Aroclor 1242		U	0.0083	0.024	mg/Kg-dry	1	07-Jan-2016 12:22
Aroclor 1248		U	0.0083	0.024	mg/Kg-dry	1	07-Jan-2016 12:22
Aroclor 1254		U	0.0066	0.024	mg/Kg-dry	1	07-Jan-2016 12:22
Aroclor 1260		U	0.0034	0.024	mg/Kg-dry	1	07-Jan-2016 12:22
<i>Surr: Decachlorobiphenyl</i>	157	S		54-143	%REC	1	07-Jan-2016 12:22
<i>Surr: Tetrachloro-m-xylene</i>	178	S		50-140	%REC	1	07-Jan-2016 12:22
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
<b>Arsenic</b>	<b>5.26</b>		<b>0.0841</b>	<b>0.701</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 22:41
<b>Barium</b>	<b>47.4</b>		<b>0.112</b>	<b>0.701</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 22:41
Cadmium		U	0.0561	0.701	mg/Kg-dry	1	21-Dec-2015 22:41
<b>Chromium</b>	<b>9.09</b>		<b>0.0701</b>	<b>0.701</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 22:41
<b>Lead</b>	<b>6.94</b>		<b>0.0701</b>	<b>0.701</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 22:41
<b>Selenium</b>	<b>0.464</b>	J	<b>0.350</b>	<b>0.701</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 22:41
Silver		U	0.0561	0.701	mg/Kg-dry	1	21-Dec-2015 22:41

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2a-01  
 Collection Date: 16-Dec-2015 09:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-04  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>			Analyst: WLR		
Benzene	U		0.037	0.37	mg/Kg-dry	50	23-Dec-2015 14:25
Ethylbenzene	U		0.052	0.37	mg/Kg-dry	50	23-Dec-2015 14:25
m,p-Xylene	U		0.12	0.74	mg/Kg-dry	50	23-Dec-2015 14:25
o-Xylene	U		0.074	0.37	mg/Kg-dry	50	23-Dec-2015 14:25
Toluene	U		0.045	0.37	mg/Kg-dry	50	23-Dec-2015 14:25
Xylenes, Total	U		0.18	0.74	mg/Kg-dry	50	23-Dec-2015 14:25
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>111</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 14:25</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>98.3</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 14:25</i>
<i>Surr: Dibromofluoromethane</i>	<i>109</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 14:25</i>
<i>Surr: Toluene-d8</i>	<i>98.4</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 14:25</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>			Analyst: AP		
Conductance, Soil Extract	28,800		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>			Prep:SW7471A / 31-Dec-2015		Analyst: OFO
Mercury	0.0123		0.000666	0.00471	mg/Kg-dry	1	31-Dec-2015 13:27
<b>MOISTURE</b>		<b>Method:SW3550</b>			Analyst: DFF		
Percent Moisture	29.3		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>			Analyst: SUB		
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>			Analyst: SUB		
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>			Prep:SW9060 / 15-Dec-2015		Analyst: KMU
Total Organic Carbon	0.428		0.0600	0.0600	wt%-dry	1	04-Jan-2016 18:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1c-01  
 Collection Date: 16-Dec-2015 06:55

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-05  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00065	0.0043	mg/Kg-dry	1	24-Dec-2015 21:24
4,4'-DDE	U		0.00065	0.0043	mg/Kg-dry	1	24-Dec-2015 21:24
4,4'-DDT	U		0.00065	0.0043	mg/Kg-dry	1	24-Dec-2015 21:24
Aldrin	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 21:24
alpha-BHC	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 21:24
beta-BHC	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 21:24
Chlordane	U		0.0026	0.022	mg/Kg-dry	1	24-Dec-2015 21:24
delta-BHC	U		0.00026	0.0022	mg/Kg-dry	1	24-Dec-2015 21:24
Dieldrin	U		0.00065	0.0043	mg/Kg-dry	1	24-Dec-2015 21:24
Endosulfan I	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 21:24
Endosulfan II	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 21:24
Endosulfan sulfate	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 21:24
Endrin	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 21:24
Endrin aldehyde	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 21:24
Endrin ketone	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 21:24
gamma-BHC	U		0.00026	0.0022	mg/Kg-dry	1	24-Dec-2015 21:24
Heptachlor	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 21:24
Heptachlor epoxide	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 21:24
Methoxychlor	U		0.0044	0.022	mg/Kg-dry	1	24-Dec-2015 21:24
Toxaphene	U		0.0062	0.022	mg/Kg-dry	1	24-Dec-2015 21:24
<i>Surr: Decachlorobiphenyl</i>		79.7		59-144	%REC	1	24-Dec-2015 21:24
<i>Surr: Tetrachloro-m-xylene</i>		104		56.9-130	%REC	1	24-Dec-2015 21:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1c-01  
 Collection Date: 16-Dec-2015 06:55

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-05  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene	U		0.00078	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Acenaphthylene	U		0.0016	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Anthracene	U		0.00078	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Benz(a)anthracene	U		0.0025	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Benzo(a)pyrene	U		0.0016	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Benzo(b)fluoranthene	U		0.0019	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Benzo(g,h,i)perylene	U		0.0011	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Benzo(k)fluoranthene	U		0.0014	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Chrysene	U		0.0012	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Dibenz(a,h)anthracene	U		0.0025	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Fluoranthene	U		0.0017	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Fluorene	U		0.0017	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Indeno(1,2,3-cd)pyrene	U		0.0012	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Naphthalene	U		0.00094	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Phenanthrene	U		0.0023	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
Pyrene	U		0.00094	0.0052	mg/Kg-dry	1	28-Dec-2015 16:08
<i>Surr: 2-Fluorobiphenyl</i>	77.5			43-125	%REC	1	28-Dec-2015 16:08
<i>Surr: 4-Terphenyl-d14</i>	94.4			32-125	%REC	1	28-Dec-2015 16:08
<i>Surr: Nitrobenzene-d5</i>	85.8			37-125	%REC	1	28-Dec-2015 16:08
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016	U		0.0054	0.022	mg/Kg-dry	1	07-Jan-2016 12:38
Aroclor 1221	U		0.0072	0.022	mg/Kg-dry	1	07-Jan-2016 12:38
Aroclor 1232	U		0.0058	0.022	mg/Kg-dry	1	07-Jan-2016 12:38
Aroclor 1242	U		0.0076	0.022	mg/Kg-dry	1	07-Jan-2016 12:38
Aroclor 1248	U		0.0076	0.022	mg/Kg-dry	1	07-Jan-2016 12:38
Aroclor 1254	U		0.0061	0.022	mg/Kg-dry	1	07-Jan-2016 12:38
Aroclor 1260	U		0.0031	0.022	mg/Kg-dry	1	07-Jan-2016 12:38
<i>Surr: Decachlorobiphenyl</i>	158	S		54-143	%REC	1	07-Jan-2016 12:38
<i>Surr: Tetrachloro-m-xylene</i>	171	S		50-140	%REC	1	07-Jan-2016 12:38
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
Arsenic	4.21		0.0750	0.625	mg/Kg-dry	1	21-Dec-2015 22:55
Barium	80.9		0.100	0.625	mg/Kg-dry	1	21-Dec-2015 22:55
Cadmium	0.0725	J	0.0500	0.625	mg/Kg-dry	1	21-Dec-2015 22:55
Chromium	8.97		0.0625	0.625	mg/Kg-dry	1	21-Dec-2015 22:55
Lead	6.98		0.0625	0.625	mg/Kg-dry	1	21-Dec-2015 22:55
Selenium	0.461	J	0.313	0.625	mg/Kg-dry	1	21-Dec-2015 22:55
Silver	U		0.0500	0.625	mg/Kg-dry	1	21-Dec-2015 22:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1c-01  
 Collection Date: 16-Dec-2015 06:55

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-05  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.027	0.27	mg/Kg-dry	50	23-Dec-2015 16:01
Ethylbenzene	U		0.038	0.27	mg/Kg-dry	50	23-Dec-2015 16:01
m,p-Xylene	U		0.088	0.55	mg/Kg-dry	50	23-Dec-2015 16:01
o-Xylene	U		0.055	0.27	mg/Kg-dry	50	23-Dec-2015 16:01
Toluene	U		0.033	0.27	mg/Kg-dry	50	23-Dec-2015 16:01
Xylenes, Total	U		0.13	0.55	mg/Kg-dry	50	23-Dec-2015 16:01
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>104</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 16:01</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>93.6</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 16:01</i>
<i>Surr: Dibromofluoromethane</i>	<i>106</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 16:01</i>
<i>Surr: Toluene-d8</i>	<i>99.4</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 16:01</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	20,700		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.0137		0.000639	0.00452	mg/Kg-dry	1	31-Dec-2015 13:29
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	23.2		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	0.306		0.0600	0.0600	wt%-dry	1	04-Jan-2016 18:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3b-01  
 Collection Date: 16-Dec-2015 07:55

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-06  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 21:37
4,4'-DDE	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 21:37
4,4'-DDT	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 21:37
Aldrin	U		0.00043	0.0024	mg/Kg-dry	1	24-Dec-2015 21:37
alpha-BHC	U		0.00043	0.0024	mg/Kg-dry	1	24-Dec-2015 21:37
beta-BHC	U		0.00043	0.0024	mg/Kg-dry	1	24-Dec-2015 21:37
Chlordane	U		0.0028	0.024	mg/Kg-dry	1	24-Dec-2015 21:37
delta-BHC	U		0.00028	0.0024	mg/Kg-dry	1	24-Dec-2015 21:37
Dieldrin	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 21:37
Endosulfan I	U		0.00043	0.0024	mg/Kg-dry	1	24-Dec-2015 21:37
Endosulfan II	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:37
Endosulfan sulfate	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:37
Endrin	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:37
Endrin aldehyde	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:37
Endrin ketone	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 21:37
gamma-BHC	U		0.00028	0.0024	mg/Kg-dry	1	24-Dec-2015 21:37
Heptachlor	U		0.00043	0.0024	mg/Kg-dry	1	24-Dec-2015 21:37
Heptachlor epoxide	U		0.00043	0.0024	mg/Kg-dry	1	24-Dec-2015 21:37
Methoxychlor	U		0.0048	0.024	mg/Kg-dry	1	24-Dec-2015 21:37
Toxaphene	U		0.0068	0.024	mg/Kg-dry	1	24-Dec-2015 21:37
<i>Surr: Decachlorobiphenyl</i>		75.0		59-144	%REC	1	24-Dec-2015 21:37
<i>Surr: Tetrachloro-m-xylene</i>		75.5		56.9-130	%REC	1	24-Dec-2015 21:37

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3b-01  
 Collection Date: 16-Dec-2015 07:55

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-06  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene		U	0.00085	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Acenaphthylene		U	0.0017	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Anthracene		U	0.00085	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Benz(a)anthracene		U	0.0027	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Benzo(a)pyrene		U	0.0017	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Benzo(b)fluoranthene		U	0.0020	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Benzo(g,h,i)perylene		U	0.0012	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Benzo(k)fluoranthene		U	0.0015	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Chrysene		U	0.0014	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Dibenz(a,h)anthracene		U	0.0027	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Fluoranthene		U	0.0019	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Fluorene		U	0.0019	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Indeno(1,2,3-cd)pyrene		U	0.0014	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
<b>Naphthalene</b>	<b>0.0015</b>	J	<b>0.0010</b>	<b>0.0056</b>	<b>mg/Kg-dry</b>	1	23-Dec-2015 23:30
Phenanthrene		U	0.0025	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
Pyrene		U	0.0010	0.0056	mg/Kg-dry	1	23-Dec-2015 23:30
<i>Surr: 2-Fluorobiphenyl</i>	<i>92.1</i>			<i>43-125</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 23:30</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>81.1</i>			<i>32-125</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 23:30</i>
<i>Surr: Nitrobenzene-d5</i>	<i>98.7</i>			<i>37-125</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 23:30</i>
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0060	0.024	mg/Kg-dry	1	07-Jan-2016 12:55
Aroclor 1221		U	0.0079	0.024	mg/Kg-dry	1	07-Jan-2016 12:55
Aroclor 1232		U	0.0064	0.024	mg/Kg-dry	1	07-Jan-2016 12:55
Aroclor 1242		U	0.0084	0.024	mg/Kg-dry	1	07-Jan-2016 12:55
Aroclor 1248		U	0.0084	0.024	mg/Kg-dry	1	07-Jan-2016 12:55
Aroclor 1254		U	0.0067	0.024	mg/Kg-dry	1	07-Jan-2016 12:55
Aroclor 1260		U	0.0034	0.024	mg/Kg-dry	1	07-Jan-2016 12:55
<i>Surr: Decachlorobiphenyl</i>	<i>156</i>	S		<i>54-143</i>	<i>%REC</i>	<i>1</i>	<i>07-Jan-2016 12:55</i>
<i>Surr: Tetrachloro-m-xylene</i>	<i>156</i>	S		<i>50-140</i>	<i>%REC</i>	<i>1</i>	<i>07-Jan-2016 12:55</i>
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
<b>Arsenic</b>	<b>5.90</b>		<b>0.0823</b>	<b>0.686</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:00
<b>Barium</b>	<b>51.4</b>		<b>0.110</b>	<b>0.686</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:00
<b>Cadmium</b>	<b>0.191</b>	J	<b>0.0549</b>	<b>0.686</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:00
<b>Chromium</b>	<b>15.6</b>		<b>0.0686</b>	<b>0.686</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:00
<b>Lead</b>	<b>13.5</b>		<b>0.0686</b>	<b>0.686</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:00
<b>Selenium</b>	<b>0.925</b>		<b>0.343</b>	<b>0.686</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:00
<b>Silver</b>	<b>0.0863</b>	J	<b>0.0549</b>	<b>0.686</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3b-01  
 Collection Date: 16-Dec-2015 07:55

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-06  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.029	0.29	mg/Kg-dry	50	23-Dec-2015 16:24
Ethylbenzene	U		0.041	0.29	mg/Kg-dry	50	23-Dec-2015 16:24
m,p-Xylene	U		0.094	0.59	mg/Kg-dry	50	23-Dec-2015 16:24
o-Xylene	U		0.059	0.29	mg/Kg-dry	50	23-Dec-2015 16:24
Toluene	U		0.035	0.29	mg/Kg-dry	50	23-Dec-2015 16:24
Xylenes, Total	U		0.14	0.59	mg/Kg-dry	50	23-Dec-2015 16:24
Surr: 1,2-Dichloroethane-d4	109			70-128	%REC	50	23-Dec-2015 16:24
Surr: 4-Bromofluorobenzene	99.3			73-126	%REC	50	23-Dec-2015 16:24
Surr: Dibromofluoromethane	108			71-128	%REC	50	23-Dec-2015 16:24
Surr: Toluene-d8	98.1			73-127	%REC	50	23-Dec-2015 16:24
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	15,100		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.0125		0.000667	0.00472	mg/Kg-dry	1	31-Dec-2015 13:31
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	29.5		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	0.424		0.0600	0.0600	wt%-dry	1	04-Jan-2016 18:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1b-01  
 Collection Date: 16-Dec-2015 17:55

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-07  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00068	0.0045	mg/Kg-dry	1	24-Dec-2015 21:50
4,4'-DDE	U		0.00068	0.0045	mg/Kg-dry	1	24-Dec-2015 21:50
4,4'-DDT	U		0.00068	0.0045	mg/Kg-dry	1	24-Dec-2015 21:50
Aldrin	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 21:50
alpha-BHC	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 21:50
beta-BHC	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 21:50
Chlordane	U		0.0027	0.023	mg/Kg-dry	1	24-Dec-2015 21:50
delta-BHC	U		0.00027	0.0023	mg/Kg-dry	1	24-Dec-2015 21:50
Dieldrin	U		0.00068	0.0045	mg/Kg-dry	1	24-Dec-2015 21:50
Endosulfan I	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 21:50
Endosulfan II	U		0.00081	0.0045	mg/Kg-dry	1	24-Dec-2015 21:50
Endosulfan sulfate	U		0.00081	0.0045	mg/Kg-dry	1	24-Dec-2015 21:50
Endrin	U		0.00081	0.0045	mg/Kg-dry	1	24-Dec-2015 21:50
Endrin aldehyde	U		0.00081	0.0045	mg/Kg-dry	1	24-Dec-2015 21:50
Endrin ketone	U		0.00081	0.0045	mg/Kg-dry	1	24-Dec-2015 21:50
gamma-BHC	U		0.00027	0.0023	mg/Kg-dry	1	24-Dec-2015 21:50
Heptachlor	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 21:50
Heptachlor epoxide	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 21:50
Methoxychlor	U		0.0046	0.023	mg/Kg-dry	1	24-Dec-2015 21:50
Toxaphene	U		0.0065	0.023	mg/Kg-dry	1	24-Dec-2015 21:50
<i>Surr: Decachlorobiphenyl</i>		86.5		59-144	%REC	1	24-Dec-2015 21:50
<i>Surr: Tetrachloro-m-xylene</i>		83.3		56.9-130	%REC	1	24-Dec-2015 21:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1b-01  
 Collection Date: 16-Dec-2015 17:55

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-07  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene	U		0.00081	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Acenaphthylene	U		0.0016	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Anthracene	U		0.00081	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Benz(a)anthracene	U		0.0026	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Benzo(a)pyrene	U		0.0016	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Benzo(b)fluoranthene	U		0.0019	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Benzo(g,h,i)perylene	U		0.0011	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Benzo(k)fluoranthene	U		0.0015	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Chrysene	U		0.0013	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Dibenz(a,h)anthracene	U		0.0026	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Fluoranthene	U		0.0018	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Fluorene	U		0.0018	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Indeno(1,2,3-cd)pyrene	U		0.0013	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Naphthalene	U		0.00097	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Phenanthrene	U		0.0024	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
Pyrene	U		0.00097	0.0054	mg/Kg-dry	1	23-Dec-2015 23:48
<i>Surr: 2-Fluorobiphenyl</i>	54.5			43-125	%REC	1	23-Dec-2015 23:48
<i>Surr: 4-Terphenyl-d14</i>	79.0			32-125	%REC	1	23-Dec-2015 23:48
<i>Surr: Nitrobenzene-d5</i>	69.7			37-125	%REC	1	23-Dec-2015 23:48
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016	U		0.0057	0.023	mg/Kg-dry	1	23-Dec-2015 00:48
Aroclor 1221	U		0.0076	0.023	mg/Kg-dry	1	23-Dec-2015 00:48
Aroclor 1232	U		0.0061	0.023	mg/Kg-dry	1	23-Dec-2015 00:48
Aroclor 1242	U		0.0080	0.023	mg/Kg-dry	1	23-Dec-2015 00:48
Aroclor 1248	U		0.0080	0.023	mg/Kg-dry	1	23-Dec-2015 00:48
Aroclor 1254	U		0.0064	0.023	mg/Kg-dry	1	23-Dec-2015 00:48
Aroclor 1260	U		0.0032	0.023	mg/Kg-dry	1	23-Dec-2015 00:48
<i>Surr: Decachlorobiphenyl</i>	121			54-143	%REC	1	23-Dec-2015 00:48
<i>Surr: Tetrachloro-m-xylene</i>	118			50-140	%REC	1	23-Dec-2015 00:48
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
Arsenic	4.68		0.0759	0.633	mg/Kg-dry	1	21-Dec-2015 23:04
Barium	47.0		0.101	0.633	mg/Kg-dry	1	21-Dec-2015 23:04
Cadmium	0.0797	J	0.0506	0.633	mg/Kg-dry	1	21-Dec-2015 23:04
Chromium	13.1		0.0633	0.633	mg/Kg-dry	1	21-Dec-2015 23:04
Lead	9.31		0.0633	0.633	mg/Kg-dry	1	21-Dec-2015 23:04
Selenium	0.642		0.316	0.633	mg/Kg-dry	1	21-Dec-2015 23:04
Silver	U		0.0506	0.633	mg/Kg-dry	1	21-Dec-2015 23:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1b-01  
 Collection Date: 16-Dec-2015 17:55

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-07  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>			Analyst: WLR		
Benzene	U		0.050	0.50	mg/Kg-dry	50	23-Dec-2015 16:48
Ethylbenzene	U		0.070	0.50	mg/Kg-dry	50	23-Dec-2015 16:48
m,p-Xylene	U		0.16	1.0	mg/Kg-dry	50	23-Dec-2015 16:48
o-Xylene	U		0.10	0.50	mg/Kg-dry	50	23-Dec-2015 16:48
Toluene	U		0.060	0.50	mg/Kg-dry	50	23-Dec-2015 16:48
Xylenes, Total	U		0.24	1.0	mg/Kg-dry	50	23-Dec-2015 16:48
Surr: 1,2-Dichloroethane-d4	109			70-128	%REC	50	23-Dec-2015 16:48
Surr: 4-Bromofluorobenzene	97.7			73-126	%REC	50	23-Dec-2015 16:48
Surr: Dibromofluoromethane	107			71-128	%REC	50	23-Dec-2015 16:48
Surr: Toluene-d8	97.4			73-127	%REC	50	23-Dec-2015 16:48
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>			Analyst: AP		
Conductance, Soil Extract	22,000		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>			Prep:SW7471A / 31-Dec-2015		Analyst: OFO
Mercury	0.00830		0.000650	0.00460	mg/Kg-dry	1	31-Dec-2015 13:32
<b>MOISTURE</b>		<b>Method:SW3550</b>			Analyst: DFF		
Percent Moisture	26.3		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>			Analyst: SUB		
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>			Analyst: SUB		
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>			Prep:SW9060 / 15-Dec-2015		Analyst: KMU
Total Organic Carbon	0.244		0.0600	0.0600	wt%-dry	1	04-Jan-2016 19:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3a-01  
 Collection Date: 16-Dec-2015 07:20

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-08  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00065	0.0043	mg/Kg-dry	1	24-Dec-2015 22:04
4,4'-DDE	U		0.00065	0.0043	mg/Kg-dry	1	24-Dec-2015 22:04
4,4'-DDT	U		0.00065	0.0043	mg/Kg-dry	1	24-Dec-2015 22:04
Aldrin	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 22:04
alpha-BHC	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 22:04
beta-BHC	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 22:04
Chlordane	U		0.0026	0.022	mg/Kg-dry	1	24-Dec-2015 22:04
delta-BHC	U		0.00026	0.0022	mg/Kg-dry	1	24-Dec-2015 22:04
Dieldrin	U		0.00065	0.0043	mg/Kg-dry	1	24-Dec-2015 22:04
Endosulfan I	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 22:04
Endosulfan II	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 22:04
Endosulfan sulfate	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 22:04
Endrin	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 22:04
Endrin aldehyde	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 22:04
Endrin ketone	U		0.00078	0.0043	mg/Kg-dry	1	24-Dec-2015 22:04
gamma-BHC	U		0.00026	0.0022	mg/Kg-dry	1	24-Dec-2015 22:04
Heptachlor	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 22:04
Heptachlor epoxide	U		0.00039	0.0022	mg/Kg-dry	1	24-Dec-2015 22:04
Methoxychlor	U		0.0044	0.022	mg/Kg-dry	1	24-Dec-2015 22:04
Toxaphene	U		0.0063	0.022	mg/Kg-dry	1	24-Dec-2015 22:04
<i>Surr: Decachlorobiphenyl</i>		83.1		59-144	%REC	1	24-Dec-2015 22:04
<i>Surr: Tetrachloro-m-xylene</i>		83.7		56.9-130	%REC	1	24-Dec-2015 22:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3a-01  
 Collection Date: 16-Dec-2015 07:20

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-08  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene		U	0.00078	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Acenaphthylene		U	0.0016	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Anthracene		U	0.00078	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Benz(a)anthracene		U	0.0025	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Benzo(a)pyrene		U	0.0016	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Benzo(b)fluoranthene		U	0.0019	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Benzo(g,h,i)perylene		U	0.0011	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Benzo(k)fluoranthene		U	0.0014	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Chrysene		U	0.0012	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Dibenz(a,h)anthracene		U	0.0025	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Fluoranthene		U	0.0017	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Fluorene		U	0.0017	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Indeno(1,2,3-cd)pyrene		U	0.0012	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
<b>Naphthalene</b>	<b>0.0014</b>	J	<b>0.00094</b>	<b>0.0051</b>	<b>mg/Kg-dry</b>	1	24-Dec-2015 00:07
Phenanthrene		U	0.0023	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
Pyrene		U	0.00094	0.0051	mg/Kg-dry	1	24-Dec-2015 00:07
<i>Surr: 2-Fluorobiphenyl</i>	<i>69.7</i>			<i>43-125</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 00:07</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>90.5</i>			<i>32-125</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 00:07</i>
<i>Surr: Nitrobenzene-d5</i>	<i>71.5</i>			<i>37-125</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 00:07</i>
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0055	0.022	mg/Kg-dry	1	23-Dec-2015 01:04
Aroclor 1221		U	0.0073	0.022	mg/Kg-dry	1	23-Dec-2015 01:04
Aroclor 1232		U	0.0059	0.022	mg/Kg-dry	1	23-Dec-2015 01:04
Aroclor 1242		U	0.0077	0.022	mg/Kg-dry	1	23-Dec-2015 01:04
Aroclor 1248		U	0.0077	0.022	mg/Kg-dry	1	23-Dec-2015 01:04
Aroclor 1254		U	0.0061	0.022	mg/Kg-dry	1	23-Dec-2015 01:04
Aroclor 1260		U	0.0031	0.022	mg/Kg-dry	1	23-Dec-2015 01:04
<i>Surr: Decachlorobiphenyl</i>	<i>101</i>			<i>54-143</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 01:04</i>
<i>Surr: Tetrachloro-m-xylene</i>	<i>103</i>			<i>50-140</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 01:04</i>
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
<b>Arsenic</b>	<b>4.35</b>		<b>0.0767</b>	<b>0.639</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:09
<b>Barium</b>	<b>79.8</b>		<b>0.102</b>	<b>0.639</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:09
Cadmium		U	0.0512	0.639	mg/Kg-dry	1	21-Dec-2015 23:09
<b>Chromium</b>	<b>8.77</b>		<b>0.0639</b>	<b>0.639</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:09
<b>Lead</b>	<b>6.64</b>		<b>0.0639</b>	<b>0.639</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:09
<b>Selenium</b>	<b>0.440</b>	J	<b>0.320</b>	<b>0.639</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:09
Silver		U	0.0512	0.639	mg/Kg-dry	1	21-Dec-2015 23:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3a-01  
 Collection Date: 16-Dec-2015 07:20

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-08  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.039	0.39	mg/Kg-dry	50	23-Dec-2015 17:12
Ethylbenzene	U		0.054	0.39	mg/Kg-dry	50	23-Dec-2015 17:12
m,p-Xylene	U		0.12	0.78	mg/Kg-dry	50	23-Dec-2015 17:12
o-Xylene	U		0.078	0.39	mg/Kg-dry	50	23-Dec-2015 17:12
Toluene	U		0.047	0.39	mg/Kg-dry	50	23-Dec-2015 17:12
Xylenes, Total	U		0.19	0.78	mg/Kg-dry	50	23-Dec-2015 17:12
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>108</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:12</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.4</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:12</i>
<i>Surr: Dibromofluoromethane</i>	<i>103</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:12</i>
<i>Surr: Toluene-d8</i>	<i>97.6</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:12</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	22,000		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.0127		0.000640	0.00453	mg/Kg-dry	1	31-Dec-2015 13:34
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	23.3		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	0.309		0.0600	0.0600	wt%-dry	1	04-Jan-2016 19:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1a-01  
 Collection Date: 16-Dec-2015 17:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-09  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 22:17
4,4'-DDE	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 22:17
4,4'-DDT	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 22:17
Aldrin	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 22:17
alpha-BHC	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 22:17
beta-BHC	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 22:17
Chlordane	U		0.0028	0.024	mg/Kg-dry	1	24-Dec-2015 22:17
delta-BHC	U		0.00028	0.0024	mg/Kg-dry	1	24-Dec-2015 22:17
Dieldrin	U		0.00071	0.0047	mg/Kg-dry	1	24-Dec-2015 22:17
Endosulfan I	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 22:17
Endosulfan II	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 22:17
Endosulfan sulfate	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 22:17
Endrin	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 22:17
Endrin aldehyde	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 22:17
Endrin ketone	U		0.00085	0.0047	mg/Kg-dry	1	24-Dec-2015 22:17
gamma-BHC	U		0.00028	0.0024	mg/Kg-dry	1	24-Dec-2015 22:17
Heptachlor	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 22:17
Heptachlor epoxide	U		0.00042	0.0024	mg/Kg-dry	1	24-Dec-2015 22:17
Methoxychlor	U		0.0048	0.024	mg/Kg-dry	1	24-Dec-2015 22:17
Toxaphene	U		0.0068	0.024	mg/Kg-dry	1	24-Dec-2015 22:17
<i>Surr: Decachlorobiphenyl</i>		83.4		59-144	%REC	1	24-Dec-2015 22:17
<i>Surr: Tetrachloro-m-xylene</i>		85.6		56.9-130	%REC	1	24-Dec-2015 22:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1a-01  
 Collection Date: 16-Dec-2015 17:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-09  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene		U	0.00085	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Acenaphthylene		U	0.0017	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Anthracene		U	0.00085	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Benz(a)anthracene		U	0.0027	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Benzo(a)pyrene		U	0.0017	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Benzo(b)fluoranthene		U	0.0020	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Benzo(g,h,i)perylene		U	0.0012	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Benzo(k)fluoranthene		U	0.0015	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Chrysene		U	0.0014	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Dibenz(a,h)anthracene		U	0.0027	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Fluoranthene		U	0.0019	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Fluorene		U	0.0019	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Indeno(1,2,3-cd)pyrene		U	0.0014	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
<b>Naphthalene</b>	<b>0.0012</b>	J	<b>0.0010</b>	<b>0.0056</b>	<b>mg/Kg-dry</b>	1	24-Dec-2015 00:25
Phenanthrene		U	0.0025	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
Pyrene		U	0.0010	0.0056	mg/Kg-dry	1	24-Dec-2015 00:25
<i>Surr: 2-Fluorobiphenyl</i>	<i>77.5</i>			<i>43-125</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 00:25</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>109</i>			<i>32-125</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 00:25</i>
<i>Surr: Nitrobenzene-d5</i>	<i>101</i>			<i>37-125</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 00:25</i>
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0059	0.024	mg/Kg-dry	1	23-Dec-2015 01:21
Aroclor 1221		U	0.0079	0.024	mg/Kg-dry	1	23-Dec-2015 01:21
Aroclor 1232		U	0.0064	0.024	mg/Kg-dry	1	23-Dec-2015 01:21
Aroclor 1242		U	0.0083	0.024	mg/Kg-dry	1	23-Dec-2015 01:21
Aroclor 1248		U	0.0083	0.024	mg/Kg-dry	1	23-Dec-2015 01:21
Aroclor 1254		U	0.0066	0.024	mg/Kg-dry	1	23-Dec-2015 01:21
Aroclor 1260		U	0.0034	0.024	mg/Kg-dry	1	23-Dec-2015 01:21
<i>Surr: Decachlorobiphenyl</i>	<i>136</i>			<i>54-143</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 01:21</i>
<i>Surr: Tetrachloro-m-xylene</i>	<i>102</i>			<i>50-140</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 01:21</i>
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
<b>Arsenic</b>	<b>4.79</b>		<b>0.0847</b>	<b>0.706</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:13
<b>Barium</b>	<b>105</b>		<b>0.113</b>	<b>0.706</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:13
<b>Cadmium</b>	<b>0.0675</b>	J	<b>0.0565</b>	<b>0.706</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:13
<b>Chromium</b>	<b>9.61</b>		<b>0.0706</b>	<b>0.706</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:13
<b>Lead</b>	<b>7.48</b>		<b>0.0706</b>	<b>0.706</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:13
<b>Selenium</b>	<b>0.553</b>	J	<b>0.353</b>	<b>0.706</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:13
Silver		U	0.0565	0.706	mg/Kg-dry	1	21-Dec-2015 23:13

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1a-01  
 Collection Date: 16-Dec-2015 17:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-09  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene		U	0.045	0.45	mg/Kg-dry	50	23-Dec-2015 17:35
Ethylbenzene		U	0.062	0.45	mg/Kg-dry	50	23-Dec-2015 17:35
m,p-Xylene		U	0.14	0.89	mg/Kg-dry	50	23-Dec-2015 17:35
o-Xylene		U	0.089	0.45	mg/Kg-dry	50	23-Dec-2015 17:35
Toluene		U	0.053	0.45	mg/Kg-dry	50	23-Dec-2015 17:35
Xylenes, Total		U	0.21	0.89	mg/Kg-dry	50	23-Dec-2015 17:35
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>106</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:35</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>96.2</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:35</i>
<i>Surr: Dibromofluoromethane</i>	<i>108</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:35</i>
<i>Surr: Toluene-d8</i>	<i>97.2</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:35</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	<b>24,800</b>		<b>50.0</b>	<b>50.0</b>	<b>umhos/cm</b>	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	<b>0.0142</b>		<b>0.000694</b>	<b>0.00491</b>	<b>mg/Kg-dry</b>	1	31-Dec-2015 13:36
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	<b>29.3</b>		<b>0.0100</b>	<b>0.0100</b>	<b>wt%</b>	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	<b>0.560</b>		<b>0.0600</b>	<b>0.0600</b>	<b>wt%-dry</b>	1	04-Jan-2016 19:37

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4c-01-Dup  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-10  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00068	0.0045	mg/Kg-dry	1	24-Dec-2015 22:30
4,4'-DDE	U		0.00068	0.0045	mg/Kg-dry	1	24-Dec-2015 22:30
4,4'-DDT	U		0.00068	0.0045	mg/Kg-dry	1	24-Dec-2015 22:30
Aldrin	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 22:30
alpha-BHC	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 22:30
beta-BHC	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 22:30
Chlordane	U		0.0027	0.023	mg/Kg-dry	1	24-Dec-2015 22:30
delta-BHC	U		0.00027	0.0023	mg/Kg-dry	1	24-Dec-2015 22:30
Dieldrin	U		0.00068	0.0045	mg/Kg-dry	1	24-Dec-2015 22:30
Endosulfan I	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 22:30
Endosulfan II	U		0.00082	0.0045	mg/Kg-dry	1	24-Dec-2015 22:30
Endosulfan sulfate	U		0.00082	0.0045	mg/Kg-dry	1	24-Dec-2015 22:30
Endrin	U		0.00082	0.0045	mg/Kg-dry	1	24-Dec-2015 22:30
Endrin aldehyde	U		0.00082	0.0045	mg/Kg-dry	1	24-Dec-2015 22:30
Endrin ketone	U		0.00082	0.0045	mg/Kg-dry	1	24-Dec-2015 22:30
gamma-BHC	U		0.00027	0.0023	mg/Kg-dry	1	24-Dec-2015 22:30
Heptachlor	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 22:30
Heptachlor epoxide	U		0.00041	0.0023	mg/Kg-dry	1	24-Dec-2015 22:30
Methoxychlor	U		0.0047	0.023	mg/Kg-dry	1	24-Dec-2015 22:30
Toxaphene	U		0.0066	0.023	mg/Kg-dry	1	24-Dec-2015 22:30
<i>Surr: Decachlorobiphenyl</i>		<i>87.7</i>		<i>59-144</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 22:30</i>
<i>Surr: Tetrachloro-m-xylene</i>		<i>85.9</i>		<i>56.9-130</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 22:30</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4c-01-Dup  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-10  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene	U		0.00082	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Acenaphthylene	U		0.0016	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Anthracene	U		0.00082	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Benz(a)anthracene	U		0.0026	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Benzo(a)pyrene	U		0.0016	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Benzo(b)fluoranthene	U		0.0020	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Benzo(g,h,i)perylene	U		0.0012	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Benzo(k)fluoranthene	U		0.0015	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Chrysene	U		0.0013	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Dibenz(a,h)anthracene	U		0.0026	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Fluoranthene	U		0.0018	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Fluorene	U		0.0018	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Indeno(1,2,3-cd)pyrene	U		0.0013	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Naphthalene	U		0.00099	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Phenanthrene	U		0.0025	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Pyrene	U		0.00099	0.0054	mg/Kg-dry	1	24-Dec-2015 00:44
Surr: 2-Fluorobiphenyl	96.3			43-125	%REC	1	24-Dec-2015 00:44
Surr: 4-Terphenyl-d14	144	S		32-125	%REC	1	24-Dec-2015 00:44
Surr: Nitrobenzene-d5	110			37-125	%REC	1	24-Dec-2015 00:44
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016	U		0.0057	0.023	mg/Kg-dry	1	23-Dec-2015 01:37
Aroclor 1221	U		0.0077	0.023	mg/Kg-dry	1	23-Dec-2015 01:37
Aroclor 1232	U		0.0062	0.023	mg/Kg-dry	1	23-Dec-2015 01:37
Aroclor 1242	U		0.0081	0.023	mg/Kg-dry	1	23-Dec-2015 01:37
Aroclor 1248	U		0.0081	0.023	mg/Kg-dry	1	23-Dec-2015 01:37
Aroclor 1254	U		0.0064	0.023	mg/Kg-dry	1	23-Dec-2015 01:37
Aroclor 1260	U		0.0033	0.023	mg/Kg-dry	1	23-Dec-2015 01:37
Surr: Decachlorobiphenyl	136			54-143	%REC	1	23-Dec-2015 01:37
Surr: Tetrachloro-m-xylene	118			50-140	%REC	1	23-Dec-2015 01:37
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
Arsenic	9.44		0.0751	0.625	mg/Kg-dry	1	21-Dec-2015 23:18
Barium	46.2		0.100	0.625	mg/Kg-dry	1	21-Dec-2015 23:18
Cadmium	0.136	J	0.0500	0.625	mg/Kg-dry	1	21-Dec-2015 23:18
Chromium	11.9		0.0625	0.625	mg/Kg-dry	1	21-Dec-2015 23:18
Lead	9.96		0.0625	0.625	mg/Kg-dry	1	21-Dec-2015 23:18
Selenium	0.684		0.313	0.625	mg/Kg-dry	1	21-Dec-2015 23:18
Silver	0.0600	J	0.0500	0.625	mg/Kg-dry	1	21-Dec-2015 23:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4c-01-Dup  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-10  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.038	0.38	mg/Kg-dry	50	23-Dec-2015 17:59
Ethylbenzene	U		0.054	0.38	mg/Kg-dry	50	23-Dec-2015 17:59
m,p-Xylene	U		0.12	0.77	mg/Kg-dry	50	23-Dec-2015 17:59
o-Xylene	U		0.077	0.38	mg/Kg-dry	50	23-Dec-2015 17:59
Toluene	U		0.046	0.38	mg/Kg-dry	50	23-Dec-2015 17:59
Xylenes, Total	U		0.18	0.77	mg/Kg-dry	50	23-Dec-2015 17:59
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>105</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:59</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>96.0</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:59</i>
<i>Surr: Dibromofluoromethane</i>	<i>105</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:59</i>
<i>Surr: Toluene-d8</i>	<i>98.4</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 17:59</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	20,100		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.0106		0.000658	0.00466	mg/Kg-dry	1	31-Dec-2015 13:38
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	27.1		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	0.660		0.0600	0.0600	wt%-dry	1	04-Jan-2016 19:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4a-01  
 Collection Date: 16-Dec-2015 10:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-11  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00066	0.0044	mg/Kg-dry	1	24-Dec-2015 23:23
4,4'-DDE	U		0.00066	0.0044	mg/Kg-dry	1	24-Dec-2015 23:23
4,4'-DDT	U		0.00066	0.0044	mg/Kg-dry	1	24-Dec-2015 23:23
Aldrin	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:23
alpha-BHC	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:23
beta-BHC	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:23
Chlordane	U		0.0026	0.022	mg/Kg-dry	1	24-Dec-2015 23:23
delta-BHC	U	P	0.00026	0.0022	mg/Kg-dry	1	24-Dec-2015 23:23
Dieldrin	U		0.00066	0.0044	mg/Kg-dry	1	24-Dec-2015 23:23
Endosulfan I	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:23
Endosulfan II	U		0.00079	0.0044	mg/Kg-dry	1	24-Dec-2015 23:23
Endosulfan sulfate	U		0.00079	0.0044	mg/Kg-dry	1	24-Dec-2015 23:23
Endrin	U		0.00079	0.0044	mg/Kg-dry	1	24-Dec-2015 23:23
Endrin aldehyde	U		0.00079	0.0044	mg/Kg-dry	1	24-Dec-2015 23:23
Endrin ketone	U		0.00079	0.0044	mg/Kg-dry	1	24-Dec-2015 23:23
gamma-BHC	U		0.00026	0.0022	mg/Kg-dry	1	24-Dec-2015 23:23
Heptachlor	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:23
Heptachlor epoxide	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:23
Methoxychlor	U		0.0045	0.022	mg/Kg-dry	1	24-Dec-2015 23:23
Toxaphene	U		0.0063	0.022	mg/Kg-dry	1	24-Dec-2015 23:23
<i>Surr: Decachlorobiphenyl</i>		89.8		59-144	%REC	1	24-Dec-2015 23:23
<i>Surr: Tetrachloro-m-xylene</i>		91.2		56.9-130	%REC	1	24-Dec-2015 23:23

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4a-01  
 Collection Date: 16-Dec-2015 10:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-11  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene		U	0.00079	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Acenaphthylene		U	0.0016	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Anthracene		U	0.00079	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Benz(a)anthracene		U	0.0025	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Benzo(a)pyrene		U	0.0016	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Benzo(b)fluoranthene		U	0.0019	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Benzo(g,h,i)perylene		U	0.0011	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Benzo(k)fluoranthene		U	0.0014	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Chrysene		U	0.0013	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Dibenz(a,h)anthracene		U	0.0025	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Fluoranthene		U	0.0017	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Fluorene		U	0.0017	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Indeno(1,2,3-cd)pyrene		U	0.0013	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Naphthalene		U	0.00095	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Phenanthrene		U	0.0024	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Pyrene		U	0.00095	0.0052	mg/Kg-dry	1	28-Dec-2015 16:26
Surr: 2-Fluorobiphenyl	69.1			43-125	%REC	1	28-Dec-2015 16:26
Surr: 4-Terphenyl-d14	81.7			32-125	%REC	1	28-Dec-2015 16:26
Surr: Nitrobenzene-d5	64.6			37-125	%REC	1	28-Dec-2015 16:26
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0055	0.022	mg/Kg-dry	1	23-Dec-2015 01:53
Aroclor 1221		U	0.0074	0.022	mg/Kg-dry	1	23-Dec-2015 01:53
Aroclor 1232		U	0.0059	0.022	mg/Kg-dry	1	23-Dec-2015 01:53
Aroclor 1242		U	0.0078	0.022	mg/Kg-dry	1	23-Dec-2015 01:53
Aroclor 1248		U	0.0078	0.022	mg/Kg-dry	1	23-Dec-2015 01:53
Aroclor 1254		U	0.0062	0.022	mg/Kg-dry	1	23-Dec-2015 01:53
Aroclor 1260		U	0.0032	0.022	mg/Kg-dry	1	23-Dec-2015 01:53
Surr: Decachlorobiphenyl	107			54-143	%REC	1	23-Dec-2015 01:53
Surr: Tetrachloro-m-xylene	126			50-140	%REC	1	23-Dec-2015 01:53
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
Arsenic	5.05		0.0723	0.602	mg/Kg-dry	1	21-Dec-2015 23:23
Barium	65.6		0.0963	0.602	mg/Kg-dry	1	21-Dec-2015 23:23
Cadmium	0.127	J	0.0482	0.602	mg/Kg-dry	1	21-Dec-2015 23:23
Chromium	11.3		0.0602	0.602	mg/Kg-dry	1	21-Dec-2015 23:23
Lead	8.87		0.0602	0.602	mg/Kg-dry	1	21-Dec-2015 23:23
Selenium	0.609		0.301	0.602	mg/Kg-dry	1	21-Dec-2015 23:23
Silver	0.0490	J	0.0482	0.602	mg/Kg-dry	1	21-Dec-2015 23:23

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4a-01  
 Collection Date: 16-Dec-2015 10:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-11  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.030	0.30	mg/Kg-dry	50	23-Dec-2015 18:23
Ethylbenzene	U		0.042	0.30	mg/Kg-dry	50	23-Dec-2015 18:23
m,p-Xylene	U		0.096	0.60	mg/Kg-dry	50	23-Dec-2015 18:23
o-Xylene	U		0.060	0.30	mg/Kg-dry	50	23-Dec-2015 18:23
Toluene	U		0.036	0.30	mg/Kg-dry	50	23-Dec-2015 18:23
Xylenes, Total	U		0.14	0.60	mg/Kg-dry	50	23-Dec-2015 18:23
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>104</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 18:23</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.7</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 18:23</i>
<i>Surr: Dibromofluoromethane</i>	<i>105</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 18:23</i>
<i>Surr: Toluene-d8</i>	<i>98.2</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 18:23</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	19,900		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.0123		0.000648	0.00458	mg/Kg-dry	1	31-Dec-2015 13:44
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	24.3		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	0.241		0.0600	0.0600	wt%-dry	1	05-Jan-2016 11:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass B  
 Collection Date: 16-Dec-2015 18:05

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-12  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00067	0.0044	mg/Kg-dry	1	24-Dec-2015 23:36
4,4'-DDE	U	P	0.00067	0.0044	mg/Kg-dry	1	24-Dec-2015 23:36
4,4'-DDT	U		0.00067	0.0044	mg/Kg-dry	1	24-Dec-2015 23:36
Aldrin	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:36
alpha-BHC	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:36
beta-BHC	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:36
Chlordane	U		0.0027	0.022	mg/Kg-dry	1	24-Dec-2015 23:36
delta-BHC	U		0.00027	0.0022	mg/Kg-dry	1	24-Dec-2015 23:36
Dieldrin	U		0.00067	0.0044	mg/Kg-dry	1	24-Dec-2015 23:36
Endosulfan I	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:36
Endosulfan II	U		0.00080	0.0044	mg/Kg-dry	1	24-Dec-2015 23:36
Endosulfan sulfate	U		0.00080	0.0044	mg/Kg-dry	1	24-Dec-2015 23:36
Endrin	U		0.00080	0.0044	mg/Kg-dry	1	24-Dec-2015 23:36
Endrin aldehyde	U		0.00080	0.0044	mg/Kg-dry	1	24-Dec-2015 23:36
Endrin ketone	U		0.00080	0.0044	mg/Kg-dry	1	24-Dec-2015 23:36
gamma-BHC	U		0.00027	0.0022	mg/Kg-dry	1	24-Dec-2015 23:36
Heptachlor	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:36
Heptachlor epoxide	U		0.00040	0.0022	mg/Kg-dry	1	24-Dec-2015 23:36
Methoxychlor	U		0.0045	0.022	mg/Kg-dry	1	24-Dec-2015 23:36
Toxaphene	U		0.0064	0.022	mg/Kg-dry	1	24-Dec-2015 23:36
<i>Surr: Decachlorobiphenyl</i>		86.6		59-144	%REC	1	24-Dec-2015 23:36
<i>Surr: Tetrachloro-m-xylene</i>		89.1		56.9-130	%REC	1	24-Dec-2015 23:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass B  
 Collection Date: 16-Dec-2015 18:05

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-12  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 22-Dec-2015		Analyst: LG
Acenaphthene		U	0.00080	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Acenaphthylene		U	0.0016	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Anthracene		U	0.00080	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Benz(a)anthracene		U	0.0026	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Benzo(a)pyrene		U	0.0016	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Benzo(b)fluoranthene		U	0.0019	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Benzo(g,h,i)perylene		U	0.0011	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Benzo(k)fluoranthene		U	0.0014	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Chrysene		U	0.0013	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Dibenz(a,h)anthracene		U	0.0026	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Fluoranthene		U	0.0018	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Fluorene		U	0.0018	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Indeno(1,2,3-cd)pyrene		U	0.0013	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
<b>Naphthalene</b>	<b>0.0016</b>	J	<b>0.00096</b>	<b>0.0053</b>	<b>mg/Kg-dry</b>	1	24-Dec-2015 01:21
Phenanthrene		U	0.0024	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
Pyrene		U	0.00096	0.0053	mg/Kg-dry	1	24-Dec-2015 01:21
<i>Surr: 2-Fluorobiphenyl</i>	<i>62.6</i>			<i>43-125</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 01:21</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>91.3</i>			<i>32-125</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 01:21</i>
<i>Surr: Nitrobenzene-d5</i>	<i>83.4</i>			<i>37-125</i>	<i>%REC</i>	<i>1</i>	<i>24-Dec-2015 01:21</i>
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0056	0.022	mg/Kg-dry	1	23-Dec-2015 02:10
Aroclor 1221		U	0.0075	0.022	mg/Kg-dry	1	23-Dec-2015 02:10
Aroclor 1232		U	0.0060	0.022	mg/Kg-dry	1	23-Dec-2015 02:10
Aroclor 1242		U	0.0079	0.022	mg/Kg-dry	1	23-Dec-2015 02:10
Aroclor 1248		U	0.0079	0.022	mg/Kg-dry	1	23-Dec-2015 02:10
Aroclor 1254		U	0.0063	0.022	mg/Kg-dry	1	23-Dec-2015 02:10
Aroclor 1260		U	0.0032	0.022	mg/Kg-dry	1	23-Dec-2015 02:10
<i>Surr: Decachlorobiphenyl</i>	<i>129</i>			<i>54-143</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 02:10</i>
<i>Surr: Tetrachloro-m-xylene</i>	<i>111</i>			<i>50-140</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 02:10</i>
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
<b>Arsenic</b>	<b>1.87</b>		<b>0.0753</b>	<b>0.628</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:27
<b>Barium</b>	<b>80.5</b>		<b>0.100</b>	<b>0.628</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:27
<b>Cadmium</b>	<b>0.360</b>	J	<b>0.0502</b>	<b>0.628</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:27
<b>Chromium</b>	<b>4.76</b>		<b>0.0628</b>	<b>0.628</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:27
<b>Lead</b>	<b>5.95</b>		<b>0.0628</b>	<b>0.628</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:27
<b>Selenium</b>	<b>0.434</b>	J	<b>0.314</b>	<b>0.628</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:27
Silver		U	0.0502	0.628	mg/Kg-dry	1	21-Dec-2015 23:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass B  
 Collection Date: 16-Dec-2015 18:05

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-12  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.034	0.34	mg/Kg-dry	50	23-Dec-2015 18:46
Ethylbenzene	U		0.048	0.34	mg/Kg-dry	50	23-Dec-2015 18:46
m,p-Xylene	U		0.11	0.68	mg/Kg-dry	50	23-Dec-2015 18:46
o-Xylene	U		0.068	0.34	mg/Kg-dry	50	23-Dec-2015 18:46
Toluene	U		0.041	0.34	mg/Kg-dry	50	23-Dec-2015 18:46
Xylenes, Total	U		0.16	0.68	mg/Kg-dry	50	23-Dec-2015 18:46
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>109</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 18:46</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.6</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 18:46</i>
<i>Surr: Dibromofluoromethane</i>	<i>107</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 18:46</i>
<i>Surr: Toluene-d8</i>	<i>98.4</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 18:46</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	25,200		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.00890		0.000640	0.00453	mg/Kg-dry	1	31-Dec-2015 13:46
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	25.2		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	0.347		0.0600	0.0600	wt%-dry	1	05-Jan-2016 11:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4c-01  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-13  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00078	0.0052	mg/Kg-dry	1	24-Dec-2015 23:49
4,4'-DDE	U		0.00078	0.0052	mg/Kg-dry	1	24-Dec-2015 23:49
4,4'-DDT	U		0.00078	0.0052	mg/Kg-dry	1	24-Dec-2015 23:49
Aldrin	U		0.00047	0.0026	mg/Kg-dry	1	24-Dec-2015 23:49
alpha-BHC	U		0.00047	0.0026	mg/Kg-dry	1	24-Dec-2015 23:49
beta-BHC	U		0.00047	0.0026	mg/Kg-dry	1	24-Dec-2015 23:49
Chlordane	U		0.0031	0.026	mg/Kg-dry	1	24-Dec-2015 23:49
delta-BHC	U		0.00031	0.0026	mg/Kg-dry	1	24-Dec-2015 23:49
Dieldrin	U		0.00078	0.0052	mg/Kg-dry	1	24-Dec-2015 23:49
Endosulfan I	U		0.00047	0.0026	mg/Kg-dry	1	24-Dec-2015 23:49
Endosulfan II	U		0.00094	0.0052	mg/Kg-dry	1	24-Dec-2015 23:49
Endosulfan sulfate	U		0.00094	0.0052	mg/Kg-dry	1	24-Dec-2015 23:49
Endrin	U		0.00094	0.0052	mg/Kg-dry	1	24-Dec-2015 23:49
Endrin aldehyde	U		0.00094	0.0052	mg/Kg-dry	1	24-Dec-2015 23:49
Endrin ketone	U		0.00094	0.0052	mg/Kg-dry	1	24-Dec-2015 23:49
gamma-BHC	U		0.00031	0.0026	mg/Kg-dry	1	24-Dec-2015 23:49
Heptachlor	U		0.00047	0.0026	mg/Kg-dry	1	24-Dec-2015 23:49
Heptachlor epoxide	U		0.00047	0.0026	mg/Kg-dry	1	24-Dec-2015 23:49
Methoxychlor	U		0.0053	0.026	mg/Kg-dry	1	24-Dec-2015 23:49
Toxaphene	U		0.0075	0.026	mg/Kg-dry	1	24-Dec-2015 23:49
<i>Surr: Decachlorobiphenyl</i>		85.1		59-144	%REC	1	24-Dec-2015 23:49
<i>Surr: Tetrachloro-m-xylene</i>		80.9		56.9-130	%REC	1	24-Dec-2015 23:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4c-01  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-13  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 23-Dec-2015		Analyst: LG
Acenaphthene		U	0.00094	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
Acenaphthylene		U	0.0019	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
Anthracene		U	0.00094	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
Benz(a)anthracene		U	0.0030	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
Benzo(a)pyrene		U	0.0019	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
Benzo(b)fluoranthene		U	0.0023	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
<b>Benzo(g,h,i)perylene</b>	<b>0.0015</b>	J	<b>0.0013</b>	<b>0.0062</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:35
Benzo(k)fluoranthene		U	0.0017	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
<b>Chrysene</b>	<b>0.0017</b>	J	<b>0.0015</b>	<b>0.0062</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:35
Dibenz(a,h)anthracene		U	0.0030	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
<b>Fluoranthene</b>	<b>0.0024</b>	J	<b>0.0021</b>	<b>0.0062</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:35
Fluorene		U	0.0021	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
<b>Indeno(1,2,3-cd)pyrene</b>	<b>0.0017</b>	J	<b>0.0015</b>	<b>0.0062</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:35
Naphthalene		U	0.0011	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
Phenanthrene		U	0.0028	0.0062	mg/Kg-dry	1	30-Dec-2015 12:35
<b>Pyrene</b>	<b>0.0022</b>	J	<b>0.0011</b>	<b>0.0062</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:35
<i>Surr: 2-Fluorobiphenyl</i>	<i>81.7</i>			<i>43-125</i>	<i>%REC</i>	<i>1</i>	<i>30-Dec-2015 12:35</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>90.3</i>			<i>32-125</i>	<i>%REC</i>	<i>1</i>	<i>30-Dec-2015 12:35</i>
<i>Surr: Nitrobenzene-d5</i>	<i>77.0</i>			<i>37-125</i>	<i>%REC</i>	<i>1</i>	<i>30-Dec-2015 12:35</i>
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0066	0.026	mg/Kg-dry	1	23-Dec-2015 02:42
Aroclor 1221		U	0.0088	0.026	mg/Kg-dry	1	23-Dec-2015 02:42
Aroclor 1232		U	0.0070	0.026	mg/Kg-dry	1	23-Dec-2015 02:42
Aroclor 1242		U	0.0092	0.026	mg/Kg-dry	1	23-Dec-2015 02:42
Aroclor 1248		U	0.0092	0.026	mg/Kg-dry	1	23-Dec-2015 02:42
Aroclor 1254		U	0.0073	0.026	mg/Kg-dry	1	23-Dec-2015 02:42
Aroclor 1260		U	0.0038	0.026	mg/Kg-dry	1	23-Dec-2015 02:42
<i>Surr: Decachlorobiphenyl</i>	<i>108</i>			<i>54-143</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 02:42</i>
<i>Surr: Tetrachloro-m-xylene</i>	<i>104</i>			<i>50-140</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 02:42</i>
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
<b>Arsenic</b>	<b>5.09</b>		<b>0.0863</b>	<b>0.719</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:41
<b>Barium</b>	<b>68.2</b>		<b>0.115</b>	<b>0.719</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:41
<b>Cadmium</b>	<b>0.208</b>	J	<b>0.0576</b>	<b>0.719</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:41
<b>Chromium</b>	<b>18.2</b>		<b>0.0719</b>	<b>0.719</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:41
<b>Lead</b>	<b>15.1</b>		<b>0.0719</b>	<b>0.719</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:41
<b>Selenium</b>	<b>0.964</b>		<b>0.360</b>	<b>0.719</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:41
<b>Silver</b>	<b>0.107</b>	J	<b>0.0576</b>	<b>0.719</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:41

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4c-01  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-13  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.038	0.38	mg/Kg-dry	50	23-Dec-2015 19:10
Ethylbenzene	U		0.053	0.38	mg/Kg-dry	50	23-Dec-2015 19:10
m,p-Xylene	U		0.12	0.75	mg/Kg-dry	50	23-Dec-2015 19:10
o-Xylene	U		0.075	0.38	mg/Kg-dry	50	23-Dec-2015 19:10
Toluene	U		0.045	0.38	mg/Kg-dry	50	23-Dec-2015 19:10
Xylenes, Total	U		0.18	0.75	mg/Kg-dry	50	23-Dec-2015 19:10
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>109</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:10</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>96.8</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:10</i>
<i>Surr: Dibromofluoromethane</i>	<i>108</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:10</i>
<i>Surr: Toluene-d8</i>	<i>97.8</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:10</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	24,200		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.0131		0.000755	0.00534	mg/Kg-dry	1	31-Dec-2015 13:48
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	36.1		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	0.451		0.0600	0.0600	wt%-dry	1	05-Jan-2016 11:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4b-01  
 Collection Date: 16-Dec-2015 11:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-14  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00069	0.0046	mg/Kg-dry	1	25-Dec-2015 00:03
4,4'-DDE	U		0.00069	0.0046	mg/Kg-dry	1	25-Dec-2015 00:03
4,4'-DDT	U		0.00069	0.0046	mg/Kg-dry	1	25-Dec-2015 00:03
Aldrin	U		0.00041	0.0023	mg/Kg-dry	1	25-Dec-2015 00:03
alpha-BHC	U		0.00041	0.0023	mg/Kg-dry	1	25-Dec-2015 00:03
beta-BHC	U		0.00041	0.0023	mg/Kg-dry	1	25-Dec-2015 00:03
Chlordane	U		0.0028	0.023	mg/Kg-dry	1	25-Dec-2015 00:03
delta-BHC	U		0.00028	0.0023	mg/Kg-dry	1	25-Dec-2015 00:03
Dieldrin	U		0.00069	0.0046	mg/Kg-dry	1	25-Dec-2015 00:03
Endosulfan I	U		0.00041	0.0023	mg/Kg-dry	1	25-Dec-2015 00:03
Endosulfan II	U		0.00083	0.0046	mg/Kg-dry	1	25-Dec-2015 00:03
Endosulfan sulfate	U		0.00083	0.0046	mg/Kg-dry	1	25-Dec-2015 00:03
Endrin	U		0.00083	0.0046	mg/Kg-dry	1	25-Dec-2015 00:03
Endrin aldehyde	U		0.00083	0.0046	mg/Kg-dry	1	25-Dec-2015 00:03
Endrin ketone	U		0.00083	0.0046	mg/Kg-dry	1	25-Dec-2015 00:03
gamma-BHC	U		0.00028	0.0023	mg/Kg-dry	1	25-Dec-2015 00:03
Heptachlor	U		0.00041	0.0023	mg/Kg-dry	1	25-Dec-2015 00:03
Heptachlor epoxide	U		0.00041	0.0023	mg/Kg-dry	1	25-Dec-2015 00:03
Methoxychlor	U		0.0047	0.023	mg/Kg-dry	1	25-Dec-2015 00:03
Toxaphene	U		0.0066	0.023	mg/Kg-dry	1	25-Dec-2015 00:03
<i>Surr: Decachlorobiphenyl</i>		79.8		59-144	%REC	1	25-Dec-2015 00:03
<i>Surr: Tetrachloro-m-xylene</i>		80.3		56.9-130	%REC	1	25-Dec-2015 00:03

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4b-01  
 Collection Date: 16-Dec-2015 11:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-14  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 23-Dec-2015		Analyst: LG
Acenaphthene		U	0.00083	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
Acenaphthylene		U	0.0017	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
Anthracene		U	0.00083	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
Benz(a)anthracene		U	0.0027	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
<b>Benzo(a)pyrene</b>	<b>0.0017</b>	J	<b>0.0017</b>	<b>0.0055</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:54
Benzo(b)fluoranthene		U	0.0020	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
<b>Benzo(g,h,i)perylene</b>	<b>0.0016</b>	J	<b>0.0012</b>	<b>0.0055</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:54
Benzo(k)fluoranthene		U	0.0015	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
<b>Chrysene</b>	<b>0.0017</b>	J	<b>0.0013</b>	<b>0.0055</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:54
Dibenz(a,h)anthracene		U	0.0027	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
<b>Fluoranthene</b>	<b>0.0023</b>	J	<b>0.0018</b>	<b>0.0055</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:54
Fluorene		U	0.0018	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
<b>Indeno(1,2,3-cd)pyrene</b>	<b>0.0015</b>	J	<b>0.0013</b>	<b>0.0055</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:54
Naphthalene		U	0.00099	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
Phenanthrene		U	0.0025	0.0055	mg/Kg-dry	1	30-Dec-2015 12:54
<b>Pyrene</b>	<b>0.0018</b>	J	<b>0.00099</b>	<b>0.0055</b>	<b>mg/Kg-dry</b>	1	30-Dec-2015 12:54
<i>Surr: 2-Fluorobiphenyl</i>	<i>81.0</i>			<i>43-125</i>	<i>%REC</i>	<i>1</i>	<i>30-Dec-2015 12:54</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>97.0</i>			<i>32-125</i>	<i>%REC</i>	<i>1</i>	<i>30-Dec-2015 12:54</i>
<i>Surr: Nitrobenzene-d5</i>	<i>76.2</i>			<i>37-125</i>	<i>%REC</i>	<i>1</i>	<i>30-Dec-2015 12:54</i>
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0058	0.023	mg/Kg-dry	1	23-Dec-2015 02:26
Aroclor 1221		U	0.0077	0.023	mg/Kg-dry	1	23-Dec-2015 02:26
Aroclor 1232		U	0.0062	0.023	mg/Kg-dry	1	23-Dec-2015 02:26
Aroclor 1242		U	0.0081	0.023	mg/Kg-dry	1	23-Dec-2015 02:26
Aroclor 1248		U	0.0081	0.023	mg/Kg-dry	1	23-Dec-2015 02:26
Aroclor 1254		U	0.0065	0.023	mg/Kg-dry	1	23-Dec-2015 02:26
Aroclor 1260		U	0.0033	0.023	mg/Kg-dry	1	23-Dec-2015 02:26
<i>Surr: Decachlorobiphenyl</i>	<i>94.7</i>			<i>54-143</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 02:26</i>
<i>Surr: Tetrachloro-m-xylene</i>	<i>104</i>			<i>50-140</i>	<i>%REC</i>	<i>1</i>	<i>23-Dec-2015 02:26</i>
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
<b>Arsenic</b>	<b>5.17</b>		<b>0.0811</b>	<b>0.675</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:46
<b>Barium</b>	<b>108</b>		<b>0.108</b>	<b>0.675</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:46
<b>Cadmium</b>	<b>0.258</b>	J	<b>0.0540</b>	<b>0.675</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:46
<b>Chromium</b>	<b>11.8</b>		<b>0.0675</b>	<b>0.675</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:46
<b>Lead</b>	<b>10.7</b>		<b>0.0675</b>	<b>0.675</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:46
<b>Selenium</b>	<b>0.891</b>		<b>0.338</b>	<b>0.675</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:46
<b>Silver</b>	<b>0.0640</b>	J	<b>0.0540</b>	<b>0.675</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4b-01  
 Collection Date: 16-Dec-2015 11:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-14  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>			Analyst: WLR		
Benzene	U		0.038	0.38	mg/Kg-dry	50	23-Dec-2015 19:34
Ethylbenzene	U		0.053	0.38	mg/Kg-dry	50	23-Dec-2015 19:34
m,p-Xylene	U		0.12	0.75	mg/Kg-dry	50	23-Dec-2015 19:34
o-Xylene	U		0.075	0.38	mg/Kg-dry	50	23-Dec-2015 19:34
Toluene	U		0.045	0.38	mg/Kg-dry	50	23-Dec-2015 19:34
Xylenes, Total	U		0.18	0.75	mg/Kg-dry	50	23-Dec-2015 19:34
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>105</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:34</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>93.0</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:34</i>
<i>Surr: Dibromofluoromethane</i>	<i>103</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:34</i>
<i>Surr: Toluene-d8</i>	<i>100</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:34</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>			Analyst: AP		
Conductance, Soil Extract	28,300		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>			Prep:SW7471A / 31-Dec-2015		Analyst: OFO
Mercury	0.0176		0.000674	0.00477	mg/Kg-dry	1	31-Dec-2015 13:50
<b>MOISTURE</b>		<b>Method:SW3550</b>			Analyst: DFF		
Percent Moisture	27.6		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>			Analyst: SUB		
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>			Analyst: SUB		
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>			Prep:SW9060 / 15-Dec-2015		Analyst: KMU
Total Organic Carbon	0.564		0.0600	0.0600	wt%-dry	1	05-Jan-2016 12:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2c-01  
 Collection Date: 16-Dec-2015 10:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-15  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ORGANOCHLORINE PESTICIDES BY SW8081B</b>		<b>Method:SW8081</b>			Prep:SW3541 / 21-Dec-2015		Analyst: STH
4,4'-DDD	U		0.00070	0.0046	mg/Kg-dry	1	25-Dec-2015 00:16
4,4'-DDE	U		0.00070	0.0046	mg/Kg-dry	1	25-Dec-2015 00:16
4,4'-DDT	U		0.00070	0.0046	mg/Kg-dry	1	25-Dec-2015 00:16
Aldrin	U		0.00042	0.0023	mg/Kg-dry	1	25-Dec-2015 00:16
alpha-BHC	U		0.00042	0.0023	mg/Kg-dry	1	25-Dec-2015 00:16
beta-BHC	U		0.00042	0.0023	mg/Kg-dry	1	25-Dec-2015 00:16
Chlordane	U		0.0028	0.023	mg/Kg-dry	1	25-Dec-2015 00:16
delta-BHC	U		0.00028	0.0023	mg/Kg-dry	1	25-Dec-2015 00:16
Dieldrin	U		0.00070	0.0046	mg/Kg-dry	1	25-Dec-2015 00:16
Endosulfan I	U		0.00042	0.0023	mg/Kg-dry	1	25-Dec-2015 00:16
Endosulfan II	U		0.00084	0.0046	mg/Kg-dry	1	25-Dec-2015 00:16
Endosulfan sulfate	U		0.00084	0.0046	mg/Kg-dry	1	25-Dec-2015 00:16
Endrin	U		0.00084	0.0046	mg/Kg-dry	1	25-Dec-2015 00:16
Endrin aldehyde	U		0.00084	0.0046	mg/Kg-dry	1	25-Dec-2015 00:16
Endrin ketone	U		0.00084	0.0046	mg/Kg-dry	1	25-Dec-2015 00:16
gamma-BHC	U		0.00028	0.0023	mg/Kg-dry	1	25-Dec-2015 00:16
Heptachlor	U		0.00042	0.0023	mg/Kg-dry	1	25-Dec-2015 00:16
Heptachlor epoxide	U		0.00042	0.0023	mg/Kg-dry	1	25-Dec-2015 00:16
Methoxychlor	U		0.0047	0.023	mg/Kg-dry	1	25-Dec-2015 00:16
Toxaphene	U		0.0067	0.023	mg/Kg-dry	1	25-Dec-2015 00:16
Surr: Decachlorobiphenyl		78.3		59-144	%REC	1	25-Dec-2015 00:16
Surr: Tetrachloro-m-xylene		75.9		56.9-130	%REC	1	25-Dec-2015 00:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2c-01  
 Collection Date: 16-Dec-2015 10:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-15  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL PAHS</b>		<b>Method:SW8270</b>			Prep:SW3541 / 23-Dec-2015		Analyst: LG
Acenaphthene		U	0.00083	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Acenaphthylene		U	0.0017	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Anthracene		U	0.00083	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Benz(a)anthracene		U	0.0027	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Benzo(a)pyrene		U	0.0017	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Benzo(b)fluoranthene		U	0.0020	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Benzo(g,h,i)perylene		U	0.0012	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Benzo(k)fluoranthene		U	0.0015	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Chrysene		U	0.0013	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Dibenz(a,h)anthracene		U	0.0027	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Fluoranthene		U	0.0018	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Fluorene		U	0.0018	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Indeno(1,2,3-cd)pyrene		U	0.0013	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Naphthalene		U	0.0010	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Phenanthrene		U	0.0025	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
Pyrene		U	0.0010	0.0055	mg/Kg-dry	1	30-Dec-2015 13:13
<i>Surr: 2-Fluorobiphenyl</i>	70.3			43-125	%REC	1	30-Dec-2015 13:13
<i>Surr: 4-Terphenyl-d14</i>	88.9			32-125	%REC	1	30-Dec-2015 13:13
<i>Surr: Nitrobenzene-d5</i>	63.8			37-125	%REC	1	30-Dec-2015 13:13
<b>PCBS BY SW8082A</b>		<b>Method:SW8082</b>			Prep:SW3541/3665A / 21-Dec-2015		Analyst: KMB
Aroclor 1016		U	0.0059	0.023	mg/Kg-dry	1	23-Dec-2015 02:58
Aroclor 1221		U	0.0078	0.023	mg/Kg-dry	1	23-Dec-2015 02:58
Aroclor 1232		U	0.0063	0.023	mg/Kg-dry	1	23-Dec-2015 02:58
Aroclor 1242		U	0.0082	0.023	mg/Kg-dry	1	23-Dec-2015 02:58
Aroclor 1248		U	0.0082	0.023	mg/Kg-dry	1	23-Dec-2015 02:58
Aroclor 1254		U	0.0066	0.023	mg/Kg-dry	1	23-Dec-2015 02:58
Aroclor 1260		U	0.0033	0.023	mg/Kg-dry	1	23-Dec-2015 02:58
<i>Surr: Decachlorobiphenyl</i>	108			54-143	%REC	1	23-Dec-2015 02:58
<i>Surr: Tetrachloro-m-xylene</i>	106			50-140	%REC	1	23-Dec-2015 02:58
<b>METALS BY SW6020A</b>		<b>Method:SW6020</b>			Prep:SW3050A / 18-Dec-2015		Analyst: JCJ
<b>Arsenic</b>	<b>4.33</b>		<b>0.0802</b>	<b>0.668</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:51
<b>Barium</b>	<b>144</b>		<b>0.107</b>	<b>0.668</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:51
Cadmium		U	0.0534	0.668	mg/Kg-dry	1	21-Dec-2015 23:51
<b>Chromium</b>	<b>9.64</b>		<b>0.0668</b>	<b>0.668</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:51
<b>Lead</b>	<b>7.92</b>		<b>0.0668</b>	<b>0.668</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:51
<b>Selenium</b>	<b>0.537</b>	J	<b>0.334</b>	<b>0.668</b>	<b>mg/Kg-dry</b>	1	21-Dec-2015 23:51
Silver		U	0.0534	0.668	mg/Kg-dry	1	21-Dec-2015 23:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2c-01  
 Collection Date: 16-Dec-2015 10:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120773  
 Lab ID:HS15120773-15  
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>		Analyst: WLR			
Benzene	U		0.031	0.31	mg/Kg-dry	50	23-Dec-2015 19:57
Ethylbenzene	U		0.044	0.31	mg/Kg-dry	50	23-Dec-2015 19:57
m,p-Xylene	U		0.10	0.63	mg/Kg-dry	50	23-Dec-2015 19:57
o-Xylene	U		0.063	0.31	mg/Kg-dry	50	23-Dec-2015 19:57
Toluene	U		0.038	0.31	mg/Kg-dry	50	23-Dec-2015 19:57
Xylenes, Total	U		0.15	0.63	mg/Kg-dry	50	23-Dec-2015 19:57
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>107</i>			<i>70-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:57</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>95.7</i>			<i>73-126</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:57</i>
<i>Surr: Dibromofluoromethane</i>	<i>106</i>			<i>71-128</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:57</i>
<i>Surr: Toluene-d8</i>	<i>99.5</i>			<i>73-127</i>	<i>%REC</i>	<i>50</i>	<i>23-Dec-2015 19:57</i>
<b>SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT</b>		<b>Method:SW9050M</b>		Analyst: AP			
Conductance, Soil Extract	18,600		50.0	50.0	umhos/cm	10	23-Dec-2015 14:49
<b>MERCURY BY SW7471B</b>		<b>Method:SW7471A</b>		Prep:SW7471A / 31-Dec-2015		Analyst: OFO	
Mercury	0.0115		0.000662	0.00468	mg/Kg-dry	1	31-Dec-2015 13:52
<b>MOISTURE</b>		<b>Method:SW3550</b>		Analyst: DFF			
Percent Moisture	28.4		0.0100	0.0100	wt%	1	21-Dec-2015 11:26
<b>SUBCONTRACT ANALYSIS - GRAIN SIZE</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	22-Jan-2016 12:38
<b>SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A</b>		<b>Method:NA</b>		Analyst: SUB			
Subcontract Analysis	See Attached		0			1	11-Jan-2016 12:19
<b>TOTAL ORGANIC CARBON BY SW9060A</b>		<b>Method:SW9060</b>		Prep:SW9060 / 15-Dec-2015		Analyst: KMU	
Total Organic Carbon	0.510		0.0600	0.0600	wt%-dry	1	05-Jan-2016 12:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

## WEIGHT LOG

Client: Ecology &amp; Environment, Inc

Project: Delfin LNG

WorkOrder: HS15120773

Batch ID: 709 Method: VOLATILES BY SW8260C

SampleID	Container	Sample Wt/Vol	Final Volume	Weight Factor	Container Type
HS15120773-01	1	4.619 (g)	5 (mL)	1.08	TerraCore (5035A)
HS15120773-02	1	4.522 (g)	5 (mL)	1.11	TerraCore (5035A)
HS15120773-03	1	5.311 (g)	5 (mL)	0.94	TerraCore (5035A)
HS15120773-04	1	4.748 (g)	5 (mL)	1.05	TerraCore (5035A)
HS15120773-05	1	5.971 (g)	5 (mL)	0.84	TerraCore (5035A)
HS15120773-06	1	6.001 (g)	5 (mL)	0.83	TerraCore (5035A)
HS15120773-07	1	3.402 (g)	5 (mL)	1.47	TerraCore (5035A)
HS15120773-08	1	4.215 (g)	5 (mL)	1.19	TerraCore (5035A)
HS15120773-09	1	3.968 (g)	5 (mL)	1.26	TerraCore (5035A)
HS15120773-10	1	4.484 (g)	5 (mL)	1.12	TerraCore (5035A)
HS15120773-11	1	5.475 (g)	5 (mL)	0.91	TerraCore (5035A)
HS15120773-12	1	4.916 (g)	5 (mL)	1.02	TerraCore (5035A)
HS15120773-13	1	5.222 (g)	5 (mL)	0.96	TerraCore (5035A)
HS15120773-14	1	4.588 (g)	5 (mL)	1.09	TerraCore (5035A)
HS15120773-15	1	5.54 (g)	5 (mL)	0.9	TerraCore (5035A)

Batch ID: 99813 Method: TOTAL ORGANIC CARBON BY SW9060A Prep: TOC\_SOLID\_PR

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120773-01	1	0.5	0.5 (mL)	1
HS15120773-02	1	0.5	0.5 (mL)	1
HS15120773-03	1	0.5	0.5 (mL)	1
HS15120773-04	1	0.5	0.5 (mL)	1
HS15120773-05	1	0.5	0.5 (mL)	1
HS15120773-06	1	0.5	0.5 (mL)	1
HS15120773-07	1	0.5	0.5 (mL)	1
HS15120773-08	1	0.5	0.5 (mL)	1
HS15120773-09	1	0.5	0.5 (mL)	1
HS15120773-10	1	0.5	0.5 (mL)	1
HS15120773-11	1	0.5	0.5 (mL)	1
HS15120773-12	1	0.5	0.5 (mL)	1
HS15120773-13	1	0.5	0.5 (mL)	1
HS15120773-14	1	0.5	0.5 (mL)	1
HS15120773-15	1	0.5	0.5 (mL)	1

## WEIGHT LOG

Client: Ecology &amp; Environment, Inc

Project: Delfin LNG

WorkOrder: HS15120773

Batch ID: 99964 Method: METALS BY SW6020A Prep: 3050\_I\_LOW

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120773-01	1	0.5272	50 (mL)	94.84
HS15120773-02	1	0.5263	50 (mL)	95
HS15120773-03	1	0.5169	50 (mL)	96.73
HS15120773-04	1	0.5047	50 (mL)	99.07
HS15120773-05	1	0.5208	50 (mL)	96.01
HS15120773-06	1	0.5171	50 (mL)	96.69
HS15120773-07	1	0.5362	50 (mL)	93.25
HS15120773-08	1	0.5097	50 (mL)	98.1
HS15120773-09	1	0.5009	50 (mL)	99.82
HS15120773-10	1	0.5483	50 (mL)	91.19
HS15120773-11	1	0.5485	50 (mL)	91.16
HS15120773-12	1	0.5324	50 (mL)	93.91
HS15120773-13	1	0.5438	50 (mL)	91.95
HS15120773-14	1	0.5112	50 (mL)	97.81
HS15120773-15	1	0.5226	50 (mL)	95.68

Batch ID: 100012 Method: PCBs BY SW8082A Prep: PCBPR\_SOX

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120773-01	1	30.03	10 (mL)	0.333
HS15120773-02	1	20.03	10 (mL)	0.4993
HS15120773-03	1	25.01	10 (mL)	0.3998
HS15120773-04	1	30.04	10 (mL)	0.3329
HS15120773-05	1	30.2	10 (mL)	0.3311
HS15120773-06	1	30.03	10 (mL)	0.333
HS15120773-07	1	30.07	10 (mL)	0.3326
HS15120773-08	1	30.01	10 (mL)	0.3332
HS15120773-09	1	30.03	10 (mL)	0.333
HS15120773-10	1	30.07	10 (mL)	0.3326
HS15120773-11	1	30.02	10 (mL)	0.3331
HS15120773-12	1	30.05	10 (mL)	0.3328
HS15120773-13	1	30.03	10 (mL)	0.333
HS15120773-14	1	30.01	10 (mL)	0.3332
HS15120773-15	1	30.04	10 (mL)	0.3329

## WEIGHT LOG

Client: Ecology &amp; Environment, Inc

Project: Delfin LNG

WorkOrder: HS15120773

**Batch ID:** 100013      **Method:** ORGANOCHLORINE PESTICIDES BY SW8081B      **Prep:** PESTPR\_SOX

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120773-01	1	30.03	10 (mL)	0.333
HS15120773-02	1	20.03	10 (mL)	0.4993
HS15120773-03	1	25.01	10 (mL)	0.3998
HS15120773-04	1	30.04	10 (mL)	0.3329
HS15120773-05	1	30.2	10 (mL)	0.3311
HS15120773-06	1	30.03	10 (mL)	0.333
HS15120773-07	1	30.07	10 (mL)	0.3326
HS15120773-08	1	30.01	10 (mL)	0.3332
HS15120773-09	1	30.03	10 (mL)	0.333
HS15120773-10	1	30.07	10 (mL)	0.3326
HS15120773-11	1	30.02	10 (mL)	0.3331
HS15120773-12	1	30.05	10 (mL)	0.3328
HS15120773-13	1	30.03	10 (mL)	0.333
HS15120773-14	1	30.01	10 (mL)	0.3332
HS15120773-15	1	30.04	10 (mL)	0.3329

**Batch ID:** 100044      **Method:** LOW-LEVEL PAHS      **Prep:** 3541\_B\_LOW

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120773-01	1	25.01	1 (mL)	0.03998
HS15120773-02	1	25.02	1 (mL)	0.03997
HS15120773-03	1	25.01	1 (mL)	0.03998
HS15120773-04	1	25.09	1 (mL)	0.03986
HS15120773-05	1	25.02	1 (mL)	0.03997
HS15120773-06	1	25.04	1 (mL)	0.03994
HS15120773-07	1	25.08	1 (mL)	0.03987
HS15120773-08	1	25.09	1 (mL)	0.03986
HS15120773-09	1	25.08	1 (mL)	0.03987
HS15120773-10	1	25.01	1 (mL)	0.03998
HS15120773-11	1	25.07	1 (mL)	0.03989
HS15120773-12	1	25.02	1 (mL)	0.03997

**Batch ID:** 100111      **Method:** LOW-LEVEL PAHS      **Prep:** 3541\_B\_LOW

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120773-13	1	25.03	1 (mL)	0.03995
HS15120773-14	1	25.01	1 (mL)	0.03998
HS15120773-15	1	25.09	1 (mL)	0.03986

## WEIGHT LOG

Client: Ecology &amp; Environment, Inc

Project: Delfin LNG

WorkOrder: HS15120773

Batch ID: 100250

Method: MERCURY BY SW7471B

Prep: HG\_S\_LOWPR

SamplID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120773-01	1	0.5887	40 (mL)	67.95
HS15120773-02	1	0.5795	40 (mL)	69.03
HS15120773-03	1	0.5848	40 (mL)	68.4
HS15120773-04	1	0.5987	40 (mL)	66.81
HS15120773-05	1	0.5748	40 (mL)	69.59
HS15120773-06	1	0.5998	40 (mL)	66.69
HS15120773-07	1	0.5887	40 (mL)	67.95
HS15120773-08	1	0.5748	40 (mL)	69.59
HS15120773-09	1	0.5747	40 (mL)	69.6
HS15120773-10	1	0.5877	40 (mL)	68.06
HS15120773-11	1	0.5748	40 (mL)	69.59
HS15120773-12	1	0.5889	40 (mL)	67.92
HS15120773-13	1	0.5847	40 (mL)	68.41
HS15120773-14	1	0.5778	40 (mL)	69.23
HS15120773-15	1	0.5949	40 (mL)	67.24

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> 100012		<b>Test Name :</b> PCBS BY SW8082A		<b>Matrix:</b> Soil		
HS15120773-01	Bypass A	16 Dec 2015 18:20		21 Dec 2015 16:37	07 Jan 2016 11:01	1
HS15120773-02	L2b-01	16 Dec 2015 09:30		21 Dec 2015 16:37	07 Jan 2016 11:50	1
HS15120773-03	L3c-01	16 Dec 2015 08:25		21 Dec 2015 16:37	07 Jan 2016 12:06	1
HS15120773-04	L2a-01	16 Dec 2015 09:00		21 Dec 2015 16:37	07 Jan 2016 12:22	1
HS15120773-05	L1c-01	16 Dec 2015 06:55		21 Dec 2015 16:37	07 Jan 2016 12:38	1
HS15120773-06	L3b-01	16 Dec 2015 07:55		21 Dec 2015 16:37	07 Jan 2016 12:55	1
HS15120773-07	L1b-01	16 Dec 2015 17:55		21 Dec 2015 16:37	23 Dec 2015 00:48	1
HS15120773-08	L3a-01	16 Dec 2015 07:20		21 Dec 2015 16:37	23 Dec 2015 01:04	1
HS15120773-09	L1a-01	16 Dec 2015 17:00		21 Dec 2015 16:37	23 Dec 2015 01:21	1
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30		21 Dec 2015 16:37	23 Dec 2015 01:37	1
HS15120773-11	L4a-01	16 Dec 2015 10:30		21 Dec 2015 16:37	23 Dec 2015 01:53	1
HS15120773-12	Bypass B	16 Dec 2015 18:05		21 Dec 2015 16:37	23 Dec 2015 02:10	1
HS15120773-13	L4c-01	16 Dec 2015 11:30		21 Dec 2015 16:37	23 Dec 2015 02:42	1
HS15120773-14	L4b-01	16 Dec 2015 11:00		21 Dec 2015 16:37	23 Dec 2015 02:26	1
HS15120773-15	L2c-01	16 Dec 2015 10:00		21 Dec 2015 16:37	23 Dec 2015 02:58	1
<b>Batch ID</b> 100013		<b>Test Name :</b> ORGANOCHLORINE PESTICIDES BY SW8081B		<b>Matrix:</b> Soil		
HS15120773-01	Bypass A	16 Dec 2015 18:20		21 Dec 2015 16:37	29 Dec 2015 03:13	1
HS15120773-02	L2b-01	16 Dec 2015 09:30		21 Dec 2015 16:37	29 Dec 2015 03:26	1
HS15120773-03	L3c-01	16 Dec 2015 08:25		21 Dec 2015 16:37	29 Dec 2015 03:39	1
HS15120773-04	L2a-01	16 Dec 2015 09:00		21 Dec 2015 16:37	24 Dec 2015 21:11	1
HS15120773-05	L1c-01	16 Dec 2015 06:55		21 Dec 2015 16:37	24 Dec 2015 21:24	1
HS15120773-06	L3b-01	16 Dec 2015 07:55		21 Dec 2015 16:37	24 Dec 2015 21:37	1
HS15120773-07	L1b-01	16 Dec 2015 17:55		21 Dec 2015 16:37	24 Dec 2015 21:50	1
HS15120773-08	L3a-01	16 Dec 2015 07:20		21 Dec 2015 16:37	24 Dec 2015 22:04	1
HS15120773-09	L1a-01	16 Dec 2015 17:00		21 Dec 2015 16:37	24 Dec 2015 22:17	1
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30		21 Dec 2015 16:37	24 Dec 2015 22:30	1
HS15120773-11	L4a-01	16 Dec 2015 10:30		21 Dec 2015 16:37	24 Dec 2015 23:23	1
HS15120773-12	Bypass B	16 Dec 2015 18:05		21 Dec 2015 16:37	24 Dec 2015 23:36	1
HS15120773-13	L4c-01	16 Dec 2015 11:30		21 Dec 2015 16:37	24 Dec 2015 23:49	1
HS15120773-14	L4b-01	16 Dec 2015 11:00		21 Dec 2015 16:37	25 Dec 2015 00:03	1
HS15120773-15	L2c-01	16 Dec 2015 10:00		21 Dec 2015 16:37	25 Dec 2015 00:16	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID 100044</b>		<b>Test Name : LOW-LEVEL PAHS</b>		<b>Matrix: Soil</b>		
HS15120773-01	Bypass A	16 Dec 2015 18:20		22 Dec 2015 09:45	23 Dec 2015 21:58	1
HS15120773-02	L2b-01	16 Dec 2015 09:30		22 Dec 2015 09:45	23 Dec 2015 22:16	1
HS15120773-03	L3c-01	16 Dec 2015 08:25		22 Dec 2015 09:45	23 Dec 2015 22:34	1
HS15120773-04	L2a-01	16 Dec 2015 09:00		22 Dec 2015 09:45	23 Dec 2015 22:53	1
HS15120773-05	L1c-01	16 Dec 2015 06:55		22 Dec 2015 09:45	28 Dec 2015 16:08	1
HS15120773-06	L3b-01	16 Dec 2015 07:55		22 Dec 2015 09:45	23 Dec 2015 23:30	1
HS15120773-07	L1b-01	16 Dec 2015 17:55		22 Dec 2015 09:45	23 Dec 2015 23:48	1
HS15120773-08	L3a-01	16 Dec 2015 07:20		22 Dec 2015 09:45	24 Dec 2015 00:07	1
HS15120773-09	L1a-01	16 Dec 2015 17:00		22 Dec 2015 09:45	24 Dec 2015 00:25	1
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30		22 Dec 2015 09:45	24 Dec 2015 00:44	1
HS15120773-11	L4a-01	16 Dec 2015 10:30		22 Dec 2015 09:45	28 Dec 2015 16:26	1
HS15120773-12	Bypass B	16 Dec 2015 18:05		22 Dec 2015 09:45	24 Dec 2015 01:21	1
<b>Batch ID 100111</b>		<b>Test Name : LOW-LEVEL PAHS</b>		<b>Matrix: Soil</b>		
HS15120773-13	L4c-01	16 Dec 2015 11:30		23 Dec 2015 19:18	30 Dec 2015 12:35	1
HS15120773-14	L4b-01	16 Dec 2015 11:00		23 Dec 2015 19:18	30 Dec 2015 12:54	1
HS15120773-15	L2c-01	16 Dec 2015 10:00		23 Dec 2015 19:18	30 Dec 2015 13:13	1
<b>Batch ID 100250</b>		<b>Test Name : MERCURY BY SW7471B</b>		<b>Matrix: Soil</b>		
HS15120773-01	Bypass A	16 Dec 2015 18:20		31 Dec 2015 10:05	31 Dec 2015 13:09	1
HS15120773-02	L2b-01	16 Dec 2015 09:30		31 Dec 2015 10:05	31 Dec 2015 13:23	1
HS15120773-03	L3c-01	16 Dec 2015 08:25		31 Dec 2015 10:05	31 Dec 2015 13:25	1
HS15120773-04	L2a-01	16 Dec 2015 09:00		31 Dec 2015 10:05	31 Dec 2015 13:27	1
HS15120773-05	L1c-01	16 Dec 2015 06:55		31 Dec 2015 10:05	31 Dec 2015 13:29	1
HS15120773-06	L3b-01	16 Dec 2015 07:55		31 Dec 2015 10:05	31 Dec 2015 13:31	1
HS15120773-07	L1b-01	16 Dec 2015 17:55		31 Dec 2015 10:05	31 Dec 2015 13:32	1
HS15120773-08	L3a-01	16 Dec 2015 07:20		31 Dec 2015 10:05	31 Dec 2015 13:34	1
HS15120773-09	L1a-01	16 Dec 2015 17:00		31 Dec 2015 10:05	31 Dec 2015 13:36	1
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30		31 Dec 2015 10:05	31 Dec 2015 13:38	1
HS15120773-11	L4a-01	16 Dec 2015 10:30		31 Dec 2015 10:05	31 Dec 2015 13:44	1
HS15120773-12	Bypass B	16 Dec 2015 18:05		31 Dec 2015 10:05	31 Dec 2015 13:46	1
HS15120773-13	L4c-01	16 Dec 2015 11:30		31 Dec 2015 10:05	31 Dec 2015 13:48	1
HS15120773-14	L4b-01	16 Dec 2015 11:00		31 Dec 2015 10:05	31 Dec 2015 13:50	1
HS15120773-15	L2c-01	16 Dec 2015 10:00		31 Dec 2015 10:05	31 Dec 2015 13:52	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> 99813	<b>Test Name :</b> TOTAL ORGANIC CARBON BY SW9060A			<b>Matrix:</b> Soil		
HS15120773-01	Bypass A	16 Dec 2015 18:20		03 Jan 2016 16:14	04 Jan 2016 16:39	1
HS15120773-02	L2b-01	16 Dec 2015 09:30		03 Jan 2016 16:14	04 Jan 2016 16:57	1
HS15120773-03	L3c-01	16 Dec 2015 08:25		15 Dec 2015 15:50	04 Jan 2016 18:06	1
HS15120773-04	L2a-01	16 Dec 2015 09:00		15 Dec 2015 15:50	04 Jan 2016 18:24	1
HS15120773-05	L1c-01	16 Dec 2015 06:55		15 Dec 2015 15:50	04 Jan 2016 18:39	1
HS15120773-06	L3b-01	16 Dec 2015 07:55		15 Dec 2015 15:50	04 Jan 2016 18:53	1
HS15120773-07	L1b-01	16 Dec 2015 17:55		15 Dec 2015 15:50	04 Jan 2016 19:10	1
HS15120773-08	L3a-01	16 Dec 2015 07:20		15 Dec 2015 15:50	04 Jan 2016 19:22	1
HS15120773-09	L1a-01	16 Dec 2015 17:00		15 Dec 2015 15:50	04 Jan 2016 19:37	1
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30		15 Dec 2015 15:50	04 Jan 2016 19:48	1
HS15120773-11	L4a-01	16 Dec 2015 10:30		15 Dec 2015 15:50	05 Jan 2016 11:27	1
HS15120773-12	Bypass B	16 Dec 2015 18:05		15 Dec 2015 15:50	05 Jan 2016 11:39	1
HS15120773-13	L4c-01	16 Dec 2015 11:30		15 Dec 2015 15:50	05 Jan 2016 11:55	1
HS15120773-14	L4b-01	16 Dec 2015 11:00		15 Dec 2015 15:50	05 Jan 2016 12:17	1
HS15120773-15	L2c-01	16 Dec 2015 10:00		15 Dec 2015 15:50	05 Jan 2016 12:29	1
<b>Batch ID</b> 99964	<b>Test Name :</b> METALS BY SW6020A			<b>Matrix:</b> Soil		
HS15120773-01	Bypass A	16 Dec 2015 18:20		18 Dec 2015 21:34	21 Dec 2015 22:09	1
HS15120773-02	L2b-01	16 Dec 2015 09:30		18 Dec 2015 21:34	21 Dec 2015 22:32	1
HS15120773-03	L3c-01	16 Dec 2015 08:25		18 Dec 2015 21:34	21 Dec 2015 22:36	1
HS15120773-04	L2a-01	16 Dec 2015 09:00		18 Dec 2015 21:34	21 Dec 2015 22:41	1
HS15120773-05	L1c-01	16 Dec 2015 06:55		18 Dec 2015 21:34	21 Dec 2015 22:55	1
HS15120773-06	L3b-01	16 Dec 2015 07:55		18 Dec 2015 21:34	21 Dec 2015 23:00	1
HS15120773-07	L1b-01	16 Dec 2015 17:55		18 Dec 2015 21:34	21 Dec 2015 23:04	1
HS15120773-08	L3a-01	16 Dec 2015 07:20		18 Dec 2015 21:34	21 Dec 2015 23:09	1
HS15120773-09	L1a-01	16 Dec 2015 17:00		18 Dec 2015 21:34	21 Dec 2015 23:13	1
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30		18 Dec 2015 21:34	21 Dec 2015 23:18	1
HS15120773-11	L4a-01	16 Dec 2015 10:30		18 Dec 2015 21:34	21 Dec 2015 23:23	1
HS15120773-12	Bypass B	16 Dec 2015 18:05		18 Dec 2015 21:34	21 Dec 2015 23:27	1
HS15120773-13	L4c-01	16 Dec 2015 11:30		18 Dec 2015 21:34	21 Dec 2015 23:41	1
HS15120773-14	L4b-01	16 Dec 2015 11:00		18 Dec 2015 21:34	21 Dec 2015 23:46	1
HS15120773-15	L2c-01	16 Dec 2015 10:00		18 Dec 2015 21:34	21 Dec 2015 23:51	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID R266710</b>		<b>Test Name : MOISTURE</b>			<b>Matrix: Soil</b>	
HS15120773-01	Bypass A	16 Dec 2015 18:20			21 Dec 2015 11:26	1
HS15120773-02	L2b-01	16 Dec 2015 09:30			21 Dec 2015 11:26	1
HS15120773-03	L3c-01	16 Dec 2015 08:25			21 Dec 2015 11:26	1
HS15120773-04	L2a-01	16 Dec 2015 09:00			21 Dec 2015 11:26	1
HS15120773-05	L1c-01	16 Dec 2015 06:55			21 Dec 2015 11:26	1
HS15120773-06	L3b-01	16 Dec 2015 07:55			21 Dec 2015 11:26	1
HS15120773-07	L1b-01	16 Dec 2015 17:55			21 Dec 2015 11:26	1
HS15120773-08	L3a-01	16 Dec 2015 07:20			21 Dec 2015 11:26	1
HS15120773-09	L1a-01	16 Dec 2015 17:00			21 Dec 2015 11:26	1
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30			21 Dec 2015 11:26	1
HS15120773-11	L4a-01	16 Dec 2015 10:30			21 Dec 2015 11:26	1
HS15120773-12	Bypass B	16 Dec 2015 18:05			21 Dec 2015 11:26	1
HS15120773-13	L4c-01	16 Dec 2015 11:30			21 Dec 2015 11:26	1
HS15120773-14	L4b-01	16 Dec 2015 11:00			21 Dec 2015 11:26	1
HS15120773-15	L2c-01	16 Dec 2015 10:00			21 Dec 2015 11:26	1
<b>Batch ID R266813</b>		<b>Test Name : VOLATILES BY SW8260C</b>			<b>Matrix: Soil</b>	
HS15120773-01	Bypass A	16 Dec 2015 18:20			23 Dec 2015 13:14	50
HS15120773-02	L2b-01	16 Dec 2015 09:30			23 Dec 2015 13:38	50
HS15120773-03	L3c-01	16 Dec 2015 08:25			23 Dec 2015 14:01	50
HS15120773-04	L2a-01	16 Dec 2015 09:00			23 Dec 2015 14:25	50
HS15120773-05	L1c-01	16 Dec 2015 06:55			23 Dec 2015 16:01	50
HS15120773-06	L3b-01	16 Dec 2015 07:55			23 Dec 2015 16:24	50
HS15120773-07	L1b-01	16 Dec 2015 17:55			23 Dec 2015 16:48	50
HS15120773-08	L3a-01	16 Dec 2015 07:20			23 Dec 2015 17:12	50
HS15120773-09	L1a-01	16 Dec 2015 17:00			23 Dec 2015 17:35	50
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30			23 Dec 2015 17:59	50
HS15120773-11	L4a-01	16 Dec 2015 10:30			23 Dec 2015 18:23	50
HS15120773-12	Bypass B	16 Dec 2015 18:05			23 Dec 2015 18:46	50
HS15120773-13	L4c-01	16 Dec 2015 11:30			23 Dec 2015 19:10	50
HS15120773-14	L4b-01	16 Dec 2015 11:00			23 Dec 2015 19:34	50
HS15120773-15	L2c-01	16 Dec 2015 10:00			23 Dec 2015 19:57	50

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> R266820		<b>Test Name :</b> SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT		<b>Matrix:</b> Soil		
HS15120773-01	Bypass A	16 Dec 2015 18:20			23 Dec 2015 14:49	10
HS15120773-02	L2b-01	16 Dec 2015 09:30			23 Dec 2015 14:49	10
HS15120773-03	L3c-01	16 Dec 2015 08:25			23 Dec 2015 14:49	10
HS15120773-04	L2a-01	16 Dec 2015 09:00			23 Dec 2015 14:49	10
HS15120773-05	L1c-01	16 Dec 2015 06:55			23 Dec 2015 14:49	10
HS15120773-06	L3b-01	16 Dec 2015 07:55			23 Dec 2015 14:49	10
HS15120773-07	L1b-01	16 Dec 2015 17:55			23 Dec 2015 14:49	10
HS15120773-08	L3a-01	16 Dec 2015 07:20			23 Dec 2015 14:49	10
HS15120773-09	L1a-01	16 Dec 2015 17:00			23 Dec 2015 14:49	10
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30			23 Dec 2015 14:49	10
HS15120773-11	L4a-01	16 Dec 2015 10:30			23 Dec 2015 14:49	10
HS15120773-12	Bypass B	16 Dec 2015 18:05			23 Dec 2015 14:49	10
HS15120773-13	L4c-01	16 Dec 2015 11:30			23 Dec 2015 14:49	10
HS15120773-14	L4b-01	16 Dec 2015 11:00			23 Dec 2015 14:49	10
HS15120773-15	L2c-01	16 Dec 2015 10:00			23 Dec 2015 14:49	10
<b>Batch ID</b> R267471		<b>Test Name :</b> SUBCONTRACT ANALYSIS - DIOXINS/FURANS 8290A		<b>Matrix:</b> Soil		
HS15120773-01	Bypass A	16 Dec 2015 18:20			11 Jan 2016 12:19	1
HS15120773-02	L2b-01	16 Dec 2015 09:30			11 Jan 2016 12:19	1
HS15120773-03	L3c-01	16 Dec 2015 08:25			11 Jan 2016 12:19	1
HS15120773-04	L2a-01	16 Dec 2015 09:00			11 Jan 2016 12:19	1
HS15120773-05	L1c-01	16 Dec 2015 06:55			11 Jan 2016 12:19	1
HS15120773-06	L3b-01	16 Dec 2015 07:55			11 Jan 2016 12:19	1
HS15120773-07	L1b-01	16 Dec 2015 17:55			11 Jan 2016 12:19	1
HS15120773-08	L3a-01	16 Dec 2015 07:20			11 Jan 2016 12:19	1
HS15120773-09	L1a-01	16 Dec 2015 17:00			11 Jan 2016 12:19	1
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30			11 Jan 2016 12:19	1
HS15120773-11	L4a-01	16 Dec 2015 10:30			11 Jan 2016 12:19	1
HS15120773-12	Bypass B	16 Dec 2015 18:05			11 Jan 2016 12:19	1
HS15120773-13	L4c-01	16 Dec 2015 11:30			11 Jan 2016 12:19	1
HS15120773-14	L4b-01	16 Dec 2015 11:00			11 Jan 2016 12:19	1
HS15120773-15	L2c-01	16 Dec 2015 10:00			11 Jan 2016 12:19	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> R268064		<b>Test Name :</b> SUBCONTRACT ANALYSIS - GRAIN SIZE		<b>Matrix:</b> Soil		
HS15120773-01	Bypass A	16 Dec 2015 18:20			22 Jan 2016 12:38	1
HS15120773-02	L2b-01	16 Dec 2015 09:30			22 Jan 2016 12:38	1
HS15120773-03	L3c-01	16 Dec 2015 08:25			22 Jan 2016 12:38	1
HS15120773-04	L2a-01	16 Dec 2015 09:00			22 Jan 2016 12:38	1
HS15120773-05	L1c-01	16 Dec 2015 06:55			22 Jan 2016 12:38	1
HS15120773-06	L3b-01	16 Dec 2015 07:55			22 Jan 2016 12:38	1
HS15120773-07	L1b-01	16 Dec 2015 17:55			22 Jan 2016 12:38	1
HS15120773-08	L3a-01	16 Dec 2015 07:20			22 Jan 2016 12:38	1
HS15120773-09	L1a-01	16 Dec 2015 17:00			22 Jan 2016 12:38	1
HS15120773-10	L4c-01-Dup	16 Dec 2015 11:30			22 Jan 2016 12:38	1
HS15120773-11	L4a-01	16 Dec 2015 10:30			22 Jan 2016 12:38	1
HS15120773-12	Bypass B	16 Dec 2015 18:05			22 Jan 2016 12:38	1
HS15120773-13	L4c-01	16 Dec 2015 11:30			22 Jan 2016 12:38	1
HS15120773-14	L4b-01	16 Dec 2015 11:00			22 Jan 2016 12:38	1
HS15120773-15	L2c-01	16 Dec 2015 10:00			22 Jan 2016 12:38	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

<b>Batch ID: 100012</b>		<b>Instrument: ECD_7</b>		<b>Method: SW8082</b>					
<b>MBLK</b>	Sample ID: <b>MBLK-100012</b>	Units: <b>ug/Kg</b>			Analysis Date: <b>07-Jan-2016 10:28</b>				
Client ID:	Run ID: <b>ECD_7_267355</b>	SeqNo: <b>3546398</b>		PrepDate: <b>21-Dec-2015</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Aroclor 1016	U	17							
Aroclor 1221	U	17							
Aroclor 1232	U	17							
Aroclor 1242	U	17							
Aroclor 1248	U	17							
Aroclor 1254	U	17							
Aroclor 1260	U	17							
<i>Surr: Decachlorobiphenyl</i>	12.45	1.6	6.667	0	187	54 - 143			S
<i>Surr: Tetrachloro-m-xylene</i>	13.16	1.6	6.667	0	197	50 - 140			S

<b>LCS</b>	Sample ID: <b>LCS-100012</b>	Units: <b>ug/Kg</b>			Analysis Date: <b>07-Jan-2016 10:44</b>				
Client ID:	Run ID: <b>ECD_7_267355</b>	SeqNo: <b>3546399</b>		PrepDate: <b>21-Dec-2015</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Aroclor 1016	274	17	166.7	0	164	53 - 135			S
Aroclor 1260	269.4	17	166.7	0	162	54 - 137			S
<i>Surr: Decachlorobiphenyl</i>	10.96	1.6	6.667	0	164	54 - 143			S
<i>Surr: Tetrachloro-m-xylene</i>	10.87	1.6	6.667	0	163	50 - 140			S

<b>MS</b>	Sample ID: <b>HS15120773-01MS</b>	Units: <b>ug/Kg</b>			Analysis Date: <b>07-Jan-2016 11:17</b>				
Client ID: <b>Bypass A</b>	Run ID: <b>ECD_7_267355</b>	SeqNo: <b>3546401</b>		PrepDate: <b>21-Dec-2015</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Aroclor 1016	456.3	17	166.6	0	274	53 - 135			SE
Aroclor 1260	367.8	17	166.6	0	221	54 - 137			SE
<i>Surr: Decachlorobiphenyl</i>	13	1.6	6.663	0	195	54 - 143			S
<i>Surr: Tetrachloro-m-xylene</i>	13.74	1.6	6.663	0	206	50 - 140			S

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

<b>Batch ID:</b> 100012	<b>Instrument:</b> ECD_7	<b>Method:</b> SW8082								
<b>MSD</b>	Sample ID: <b>HS15120773-01MSD</b>	Units: <b>ug/Kg</b>	Analysis Date: <b>07-Jan-2016 11:33</b>							
Client ID: <b>Bypass A</b>	Run ID: <b>ECD_7_267355</b>	SeqNo: <b>3546402</b>	PrepDate: <b>21-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Aroclor 1016	437.7	17	165.6	0	264	53 - 135	456.3	4.15	30	SE
Aroclor 1260	344.7	17	165.6	0	208	54 - 137	367.8	6.48	30	SE
Surr: Decachlorobiphenyl	12.14	1.6	6.623	0	183	54 - 143	13	6.87	30	S
Surr: Tetrachloro-m-xylene	11.42	1.6	6.623	0	172	50 - 140	13.74	18.5	30	S

The following samples were analyzed in this batch:

HS15120773-01	HS15120773-02	HS15120773-03	HS15120773-04
HS15120773-05	HS15120773-06	HS15120773-07	HS15120773-08
HS15120773-09	HS15120773-10	HS15120773-11	HS15120773-12
HS15120773-13	HS15120773-14	HS15120773-15	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

<b>Batch ID:</b> 100013	<b>Instrument:</b> ECD_11	<b>Method:</b> SW8081
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<b>MBLK</b>	Sample ID: <b>MBLK-100013</b>	Units: <b>ug/Kg</b>	Analysis Date: <b>24-Dec-2015 20:31</b>							
Client ID:	Run ID: <b>ECD_11_267065</b>	SeqNo: <b>3544315</b>	PrepDate: <b>21-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

4,4'-DDD	U	3.3								
4,4'-DDE	U	3.3								
4,4'-DDT	U	3.3								
Aldrin	U	1.7								
alpha-BHC	U	1.7								
beta-BHC	U	1.7								
Chlordane	U	17								
delta-BHC	U	1.7								
Dieldrin	U	3.3								
Endosulfan I	U	1.7								
Endosulfan II	U	3.3								
Endosulfan sulfate	U	3.3								
Endrin	U	3.3								
Endrin aldehyde	U	3.3								
Endrin ketone	U	3.3								
gamma-BHC	U	1.7								
Heptachlor	U	1.7								
Heptachlor epoxide	U	1.7								
Methoxychlor	U	17								
Toxaphene	U	17								
<i>Surr: Decachlorobiphenyl</i>	<i>5.589</i>	<i>0</i>	<i>6.667</i>	<i>0</i>	<i>83.8</i>	<i>59 - 144</i>				
<i>Surr: Tetrachloro-m-xylene</i>	<i>5.966</i>	<i>0</i>	<i>6.667</i>	<i>0</i>	<i>89.5</i>	<i>56.9 - 130</i>				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100013		Instrument: ECD_11		Method: SW8081						
LCS	Sample ID: LCS-100013	Units: ug/Kg			Analysis Date: 24-Dec-2015 20:58					
Client ID:	Run ID: ECD_11_267065	SeqNo: 3544389	PrepDate: 21-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4'-DDD	17.74	3.3	16.67	0	106	53 - 138				
4,4'-DDE	15.91	3.3	16.67	0	95.5	57 - 136				
4,4'-DDT	10.13	3.3	16.67	0	60.8	53 - 139				
Aldrin	7.451	1.7	8.333	0	89.4	52 - 130				
alpha-BHC	7.473	1.7	8.333	0	89.7	52 - 130				
beta-BHC	7.822	1.7	8.333	0	93.9	62 - 130				
delta-BHC	7.447	1.7	8.333	0	89.4	41 - 137				
Dieldrin	14.91	3.3	16.67	0	89.5	54 - 138				
Endosulfan I	5.752	1.7	8.333	0	69.0	55 - 132				
Endosulfan II	15.52	3.3	16.67	0	93.1	59 - 134				
Endosulfan sulfate	15.26	3.3	16.67	0	91.6	54 - 141				
Endrin	15.6	3.3	16.67	0	93.6	60 - 157				
Endrin aldehyde	11.26	3.3	16.67	0	67.5	56 - 146				
Endrin ketone	13.07	3.3	16.67	0	78.4	56 - 153				
gamma-BHC	6.97	1.7	8.333	0	83.6	52 - 133				
Heptachlor	6.81	1.7	8.333	0	81.7	54 - 134				
Heptachlor epoxide	7.477	1.7	8.333	0	89.7	58 - 130				
Methoxychlor	58.61	17	83.3	0	70.4	60 - 140				
Surr: Decachlorobiphenyl	5.808	0	6.667	0	87.1	59 - 144				
Surr: Tetrachloro-m-xylene	6.224	0	6.667	0	93.4	56.9 - 130				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100013		Instrument: ECD_11		Method: SW8081						
MS	Sample ID: HS15120730-28MS	Units: ug/Kg			Analysis Date: 25-Dec-2015 00:42					
Client ID:	Run ID: ECD_11_267065	SeqNo: 3544390	PrepDate: 21-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4'-DDD	18.23	3.3	16.62	11.03	43.3	53 - 138				SP
4,4'-DDE	12.33	3.3	16.62	0	74.2	57 - 136				
4,4'-DDT	10.09	3.3	16.62	0	60.7	53 - 139				
Aldrin	6.998	1.7	8.308	0	84.2	52 - 130				
alpha-BHC	6.681	1.7	8.308	0	80.4	52 - 130				
beta-BHC	7.116	1.7	8.308	0	85.6	62 - 130				
delta-BHC	6.126	1.7	8.308	0	73.7	41 - 137				
Dieldrin	17.09	3.3	16.62	0	103	54 - 138				
Endosulfan I	9.865	1.7	8.308	0	119	55 - 132				P
Endosulfan II	14.97	3.3	16.62	0	90.1	59 - 134				P
Endosulfan sulfate	13.24	3.3	16.62	0	79.7	54 - 141				
Endrin	17.08	3.3	16.62	0	103	60 - 157				
Endrin aldehyde	12.88	3.3	16.62	0	77.5	56 - 146				
Endrin ketone	10.76	3.3	16.62	0	64.8	56 - 153				
gamma-BHC	6.306	1.7	8.308	0	75.9	52 - 133				
Heptachlor	6.058	1.7	8.308	0	72.9	54 - 134				
Heptachlor epoxide	10.63	1.7	8.308	3.446	86.5	58 - 130				
Methoxychlor	44.93	17	83.05	0	54.1	60 - 140				S
Surr: Decachlorobiphenyl	5.463	0	6.647	0	82.2	59 - 144				
Surr: Tetrachloro-m-xylene	5.004	0	6.647	0	75.3	56.9 - 130				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100013		Instrument: ECD_11		Method: SW8081							
MSD	Sample ID: HS15120730-28MSD	Units: ug/Kg			Analysis Date: 25-Dec-2015 00:56						
Client ID:	Run ID: ECD_11_267065	SeqNo: 3544391	PrepDate: 21-Dec-2015	DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
4,4'-DDD	19.46	3.3	16.63	11.03	50.7	53 - 138	18.23	6.53	30	SP	
4,4'-DDE	12.69	3.3	16.63	0	76.3	57 - 136	12.33	2.85	30		
4,4'-DDT	9.925	3.3	16.63	0	59.7	53 - 139	10.09	1.7	30		
Aldrin	6.985	1.7	8.317	0	84.0	52 - 130	6.998	0.186	30		
alpha-BHC	6.89	1.7	8.317	0	82.8	52 - 130	6.681	3.08	30		
beta-BHC	7.314	1.7	8.317	0	87.9	62 - 130	7.116	2.75	30		
delta-BHC	6.148	1.7	8.317	0	73.9	41 - 137	6.126	0.349	30		
Dieldrin	17.09	3.3	16.63	0	103	54 - 138	17.09	0.00531	30		
Endosulfan I	9.528	1.7	8.317	0	115	55 - 132	9.865	3.48	30	P	
Endosulfan II	15.25	3.3	16.63	0	91.7	59 - 134	14.97	1.9	30	P	
Endosulfan sulfate	13.47	3.3	16.63	0	81.0	54 - 141	13.24	1.75	30		
Endrin	17.08	3.3	16.63	0	103	60 - 157	17.08	0.0424	30	P	
Endrin aldehyde	12.78	3.3	16.63	0	76.9	56 - 146	12.88	0.768	30		
Endrin ketone	11	3.3	16.63	0	66.1	56 - 153	10.76	2.14	30		
gamma-BHC	6.455	1.7	8.317	0	77.6	52 - 133	6.306	2.32	30		
Heptachlor	6.009	1.7	8.317	0	72.2	54 - 134	6.058	0.815	30		
Heptachlor epoxide	10.66	1.7	8.317	3.446	86.7	58 - 130	10.63	0.293	30		
Methoxychlor	48.04	17	83.13	0	57.8	60 - 140	44.93	6.69	30	S	
Surr: Decachlorobiphenyl	5.433	0	6.653	0	81.7	59 - 144	5.463	0.559	30		
Surr: Tetrachloro-m-xylene	5.206	0	6.653	0	78.2	56.9 - 130	5.004	3.96	30		

The following samples were analyzed in this batch:

HS15120773-01	HS15120773-02	HS15120773-03	HS15120773-04
HS15120773-05	HS15120773-06	HS15120773-07	HS15120773-08
HS15120773-09	HS15120773-10	HS15120773-11	HS15120773-12
HS15120773-13	HS15120773-14	HS15120773-15	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100250		Instrument: HG02		Method: SW7471A						
<b>MBLK</b>	Sample ID: <b>MBLK-100250</b>	Units: <b>ug/Kg</b>		Analysis Date: <b>31-Dec-2015 13:05</b>						
Client ID:	Run ID: <b>HG02_267131</b>	SeqNo: <b>3541934</b>		PrepDate: <b>31-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Mercury	0.6	3.32							J	
<b>LCS</b>	Sample ID: <b>LCS-100250</b>	Units: <b>ug/Kg</b>		Analysis Date: <b>31-Dec-2015 13:07</b>						
Client ID:	Run ID: <b>HG02_267131</b>	SeqNo: <b>3541935</b>		PrepDate: <b>31-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Mercury	349.3	3.32	333.3	0	105	85 - 115				
<b>MS</b>	Sample ID: <b>HS15120773-01MS</b>	Units: <b>ug/Kg</b>		Analysis Date: <b>31-Dec-2015 13:11</b>						
Client ID: <b>Bypass A</b>	Run ID: <b>HG02_267131</b>	SeqNo: <b>3541937</b>		PrepDate: <b>31-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Mercury	351.7	3.39	339.5	11.21	100	85 - 115				
<b>MSD</b>	Sample ID: <b>HS15120773-01MSD</b>	Units: <b>ug/Kg</b>		Analysis Date: <b>31-Dec-2015 13:13</b>						
Client ID: <b>Bypass A</b>	Run ID: <b>HG02_267131</b>	SeqNo: <b>3541938</b>		PrepDate: <b>31-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Mercury	353.4	3.38	338.5	11.21	101	85 - 115	351.7	0.481	20	

The following samples were analyzed in this batch:

HS15120773-01	HS15120773-02	HS15120773-03	HS15120773-04
HS15120773-05	HS15120773-06	HS15120773-07	HS15120773-08
HS15120773-09	HS15120773-10	HS15120773-11	HS15120773-12
HS15120773-13	HS15120773-14	HS15120773-15	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

<b>Batch ID:</b> 99964	<b>Instrument:</b> ICPMS04	<b>Method:</b> SW6020
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<b>MBLK</b>	Sample ID: <b>MBLK-99964</b>	Units: <b>mg/Kg</b>	Analysis Date: <b>21-Dec-2015 21:32</b>							
Client ID:	Run ID: <b>ICPMS04_266655</b>	SeqNo: <b>3532176</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Arsenic	U	0.500								
Barium	U	0.500								
Cadmium	U	0.500								
Chromium	U	0.500								
Lead	U	0.500								
Selenium	U	0.500								
Silver	U	0.500								

<b>LCS</b>	Sample ID: <b>MLCS-99964</b>	Units: <b>mg/Kg</b>	Analysis Date: <b>21-Dec-2015 21:37</b>							
Client ID:	Run ID: <b>ICPMS04_266655</b>	SeqNo: <b>3532177</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Arsenic	9.463	0.500	10	0	94.6	80 - 120				
Barium	9.719	0.500	10	0	97.2	80 - 120				
Cadmium	9.615	0.500	10	0	96.1	80 - 120				
Chromium	9.703	0.500	10	0	97.0	80 - 120				
Lead	9.516	0.500	10	0	95.2	80 - 120				
Selenium	9.344	0.500	10	0	93.4	80 - 120				
Silver	9.603	0.500	10	0	96.0	80 - 120				

<b>MS</b>	Sample ID: <b>HS15120773-01MS</b>	Units: <b>mg/Kg</b>	Analysis Date: <b>21-Dec-2015 22:18</b>							
Client ID: <b>Bypass A</b>	Run ID: <b>ICPMS04_266655</b>	SeqNo: <b>3532186</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Arsenic	9.201	0.469	9.39	0.5241	92.4	75 - 125				
Barium	49.59	0.469	9.39	26.31	248	75 - 125				S
Cadmium	8.972	0.469	9.39	0.01517	95.4	75 - 125				
Chromium	13.96	0.469	9.39	3.837	108	75 - 125				
Lead	15.93	0.469	9.39	6.181	104	75 - 125				
Selenium	8.721	0.469	9.39	0.3125	89.5	75 - 125				
Silver	8.426	0.469	9.39	0.057	89.1	75 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

<b>Batch ID:</b> 99964	<b>Instrument:</b> ICPMS04	<b>Method:</b> SW6020								
<b>MSD</b>	Sample ID: <b>HS15120773-01MSD</b>	Units: <b>mg/Kg</b>	Analysis Date: <b>21-Dec-2015 22:23</b>							
Client ID: <b>Bypass A</b>	Run ID: <b>ICPMS04_266655</b>	SeqNo: <b>3532187</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic	10.35	0.494	9.889	0.5241	99.4	75 - 125	9.201	11.8	20	
Barium	64.23	0.494	9.889	26.31	383	75 - 125	49.59	25.7	20	SR
Cadmium	9.427	0.494	9.889	0.01517	95.2	75 - 125	8.972	4.94	20	
Chromium	14.89	0.494	9.889	3.837	112	75 - 125	13.96	6.44	20	
Lead	17.12	0.494	9.889	6.181	111	75 - 125	15.93	7.17	20	
Selenium	9.444	0.494	9.889	0.3125	92.3	75 - 125	8.721	7.96	20	
Silver	8.986	0.494	9.889	0.057	90.3	75 - 125	8.426	6.43	20	

<b>PDS</b>	Sample ID: <b>HS15120773-01BS</b>	Units: <b>mg/Kg</b>	Analysis Date: <b>21-Dec-2015 22:27</b>							
Client ID: <b>Bypass A</b>	Run ID: <b>ICPMS04_266655</b>	SeqNo: <b>3532188</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic	10.09	0.474	9.484	0.5241	101	75 - 125				
Barium	35.54	0.474	9.484	26.31	97.4	75 - 125				
Cadmium	9.296	0.474	9.484	0.01517	97.9	75 - 125				
Chromium	13.16	0.474	9.484	3.837	98.3	75 - 125				
Lead	15.84	0.474	9.484	6.181	102	75 - 125				
Selenium	9.922	0.474	9.484	0.3125	101	75 - 125				
Silver	8.839	0.474	9.484	0.057	92.6	75 - 125				

<b>SD</b>	Sample ID: <b>HS15120773-01 DIL SX</b>	Units: <b>mg/Kg</b>	Analysis Date: <b>21-Dec-2015 22:14</b>							
Client ID: <b>Bypass A</b>	Run ID: <b>ICPMS04_266655</b>	SeqNo: <b>3532185</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>5</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual

Arsenic	0.5318	2.37					0.5241	0	10	J
Barium	26.83	2.37					26.31	2	10	
Cadmium	U	2.37					0.01517	0	10	
Chromium	3.981	2.37					3.837	3.75	10	
Lead	6.147	2.37					6.181	0.546	10	
Selenium	U	2.37					0.3125	0	10	
Silver	U	2.37					0.057	0	10	

<b>The following samples were analyzed in this batch:</b>	HS15120773-01	HS15120773-02	HS15120773-03	HS15120773-04
	HS15120773-05	HS15120773-06	HS15120773-07	HS15120773-08
	HS15120773-09	HS15120773-10	HS15120773-11	HS15120773-12
	HS15120773-13	HS15120773-14	HS15120773-15	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100044		Instrument: SV-6		Method: SW8270						
MBLK	Sample ID: MBLK-100044	Units: ug/Kg			Analysis Date: 22-Dec-2015 10:57					
Client ID:	Run ID: SV-6_266780	SeqNo: 3533979		PrepDate: 22-Dec-2015		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Acenaphthene	U	3.3								
Acenaphthylene	U	3.3								
Anthracene	U	3.3								
Benz(a)anthracene	U	3.3								
Benzo(a)pyrene	U	3.3								
Benzo(b)fluoranthene	U	3.3								
Benzo(g,h,i)perylene	U	3.3								
Benzo(k)fluoranthene	U	3.3								
Chrysene	U	3.3								
Dibenz(a,h)anthracene	U	3.3								
Fluoranthene	U	3.3								
Fluorene	U	3.3								
Indeno(1,2,3-cd)pyrene	U	3.3								
Naphthalene	U	3.3								
Phenanthrene	U	3.3								
Pyrene	U	3.3								
Surr: 2-Fluorobiphenyl	106.8	0	167	0	63.9	43 - 125				
Surr: 4-Terphenyl-d14	111	0	167	0	66.4	32 - 125				
Surr: Nitrobenzene-d5	100.8	0	167	0	60.3	37 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100044		Instrument: SV-6		Method: SW8270						
LCS	Sample ID: LCS-100044	Units: ug/Kg			Analysis Date: 22-Dec-2015 11:16					
Client ID:	Run ID: SV-6_266780	SeqNo: 3533980		PrepDate: 22-Dec-2015		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Acenaphthene	105.5	3.3	167	0	63.2	50 - 120				
Acenaphthylene	108.9	3.3	167	0	65.2	50 - 120				
Anthracene	107	3.3	167	0	64.1	50 - 123				
Benz(a)anthracene	109.9	3.3	167	0	65.8	50 - 131				
Benzo(a)pyrene	112.9	3.3	167	0	67.6	50 - 130				
Benzo(b)fluoranthene	114	3.3	167	0	68.3	50 - 137				
Benzo(g,h,i)perylene	116	3.3	167	0	69.5	50 - 130				
Benzo(k)fluoranthene	112.4	3.3	167	0	67.3	50 - 143				
Chrysene	104.8	3.3	167	0	62.8	50 - 130				
Dibenz(a,h)anthracene	110.3	3.3	167	0	66.0	50 - 130				
Fluoranthene	109.1	3.3	167	0	65.3	50 - 131				
Fluorene	108.8	3.3	167	0	65.1	50 - 125				
Indeno(1,2,3-cd)pyrene	120.4	3.3	167	0	72.1	45 - 139				
Naphthalene	112	3.3	167	0	67.1	50 - 125				
Phenanthrene	107.2	3.3	167	0	64.2	50 - 125				
Pyrene	106.7	3.3	167	0	63.9	45 - 130				
Surr: 2-Fluorobiphenyl	107.2	0	167	0	64.2	43 - 125				
Surr: 4-Terphenyl-d14	108.4	0	167	0	64.9	32 - 125				
Surr: Nitrobenzene-d5	102	0	167	0	61.1	37 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100044		Instrument: SV-6		Method: SW8270						
MS	Sample ID: HS15120826-07MS	Units: ug/Kg			Analysis Date: 22-Dec-2015 17:47					
Client ID:	Run ID: SV-6_266780	SeqNo: 3533986	PrepDate: 22-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	127.8	4.0	200	0	63.9	50 - 120				
Acenaphthylene	141.8	4.0	200	0	70.9	50 - 120				
Anthracene	156.5	4.0	200	0	78.3	50 - 123				
Benz(a)anthracene	168.8	4.0	200	1.726	83.5	50 - 131				
Benzo(a)pyrene	190.3	4.0	200	1.722	94.3	50 - 130				
Benzo(b)fluoranthene	187.4	4.0	200	4.26	91.6	50 - 137				
Benzo(g,h,i)perylene	230.2	4.0	200	0	115	50 - 130				
Benzo(k)fluoranthene	195.7	4.0	200	1.569	97.1	50 - 143				
Chrysene	157.8	4.0	200	3.279	77.2	50 - 130				
Dibenz(a,h)anthracene	179.6	4.0	200	0	89.8	50 - 130				
Fluoranthene	182	4.0	200	4.893	88.5	50 - 131				
Fluorene	146.9	4.0	200	0	73.5	50 - 125				
Indeno(1,2,3-cd)pyrene	186.9	4.0	200	1.777	92.5	45 - 139				
Naphthalene	127.9	4.0	200	0	64.0	50 - 125				
Phenanthrene	159.4	4.0	200	0	79.7	50 - 125				
Pyrene	173	4.0	200	4.019	84.5	45 - 130				
Surr: 2-Fluorobiphenyl	135.6	0	200	0	67.8	43 - 125				
Surr: 4-Terphenyl-d14	167.2	0	200	0	83.6	32 - 125				
Surr: Nitrobenzene-d5	121.1	0	200	0	60.5	37 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100044		Instrument: SV-6		Method: SW8270						
MSD	Sample ID: HS15120826-07MSD	Units: ug/Kg			Analysis Date: 22-Dec-2015 18:06					
Client ID:	Run ID: SV-6_266780	SeqNo: 3533987	PrepDate: 22-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	132.7	3.9	199.8	0	66.4	50 - 120	127.8	3.74	30	
Acenaphthylene	146.2	3.9	199.8	0	73.2	50 - 120	141.8	3.08	30	
Anthracene	154.2	3.9	199.8	0	77.2	50 - 123	156.5	1.5	30	
Benz(a)anthracene	173.8	3.9	199.8	1.726	86.1	50 - 131	168.8	2.94	30	
Benzo(a)pyrene	190.4	3.9	199.8	1.722	94.4	50 - 130	190.3	0.0653	30	
Benzo(b)fluoranthene	185.8	3.9	199.8	4.26	90.9	50 - 137	187.4	0.86	30	
Benzo(g,h,i)perylene	196	3.9	199.8	0	98.1	50 - 130	230.2	16	30	
Benzo(k)fluoranthene	192.9	3.9	199.8	1.569	95.7	50 - 143	195.7	1.46	30	
Chrysene	162.4	3.9	199.8	3.279	79.6	50 - 130	157.8	2.89	30	
Dibenz(a,h)anthracene	183.6	3.9	199.8	0	91.9	50 - 130	179.6	2.24	30	
Fluoranthene	179.3	3.9	199.8	4.893	87.3	50 - 131	182	1.47	30	
Fluorene	148.6	3.9	199.8	0	74.3	50 - 125	146.9	1.1	30	
Indeno(1,2,3-cd)pyrene	196.1	3.9	199.8	1.777	97.2	45 - 139	186.9	4.83	30	
Naphthalene	134	3.9	199.8	0	67.0	50 - 125	127.9	4.6	30	
Phenanthrene	155.1	3.9	199.8	0	77.6	50 - 125	159.4	2.75	30	
Pyrene	175.5	3.9	199.8	4.019	85.8	45 - 130	173	1.43	30	
Surr: 2-Fluorobiphenyl	138	0	199.8	0	69.0	43 - 125	135.6	1.72	30	
Surr: 4-Terphenyl-d14	171.1	0	199.8	0	85.6	32 - 125	167.2	2.31	30	
Surr: Nitrobenzene-d5	125.9	0	199.8	0	63.0	37 - 125	121.1	3.92	30	

The following samples were analyzed in this batch:

HS15120773-01	HS15120773-02	HS15120773-03	HS15120773-04
HS15120773-05	HS15120773-06	HS15120773-07	HS15120773-08
HS15120773-09	HS15120773-10	HS15120773-11	HS15120773-12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100111		Instrument: SV-6		Method: SW8270						
MBLK	Sample ID: MBLK-100111	Units: ug/Kg			Analysis Date: 28-Dec-2015 11:50					
Client ID:	Run ID: SV-6_266966	SeqNo: 3538205		PrepDate: 23-Dec-2015		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Acenaphthene	U	3.3								
Acenaphthylene	U	3.3								
Anthracene	U	3.3								
Benz(a)anthracene	U	3.3								
Benzo(a)pyrene	U	3.3								
Benzo(b)fluoranthene	U	3.3								
Benzo(g,h,i)perylene	U	3.3								
Benzo(k)fluoranthene	U	3.3								
Chrysene	U	3.3								
Dibenz(a,h)anthracene	U	3.3								
Fluoranthene	U	3.3								
Fluorene	U	3.3								
Indeno(1,2,3-cd)pyrene	U	3.3								
Naphthalene	U	3.3								
Phenanthrene	U	3.3								
Pyrene	U	3.3								
Surr: 2-Fluorobiphenyl	119.3	0	167	0	71.5	43 - 125				
Surr: 4-Terphenyl-d14	129.3	0	167	0	77.4	32 - 125				
Surr: Nitrobenzene-d5	110.8	0	167	0	66.4	37 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100111		Instrument: SV-6		Method: SW8270						
LCS	Sample ID: LCS-100111	Units: ug/Kg			Analysis Date: 28-Dec-2015 12:10					
Client ID:	Run ID: SV-6_266966	SeqNo: 3538206	PrepDate: 23-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	118.2	3.3	167	0	70.8	50 - 120				
Acenaphthylene	130.3	3.3	167	0	78.0	50 - 120				
Anthracene	129.2	3.3	167	0	77.3	50 - 123				
Benz(a)anthracene	132.1	3.3	167	0	79.1	50 - 131				
Benzo(a)pyrene	151.8	3.3	167	0	90.9	50 - 130				
Benzo(b)fluoranthene	163.7	3.3	167	0	98.0	50 - 137				
Benzo(g,h,i)perylene	158.9	3.3	167	0	95.2	50 - 130				
Benzo(k)fluoranthene	155.4	3.3	167	0	93.1	50 - 143				
Chrysene	133.7	3.3	167	0	80.1	50 - 130				
Dibenz(a,h)anthracene	148.8	3.3	167	0	89.1	50 - 130				
Fluoranthene	128.4	3.3	167	0	76.9	50 - 131				
Fluorene	128.2	3.3	167	0	76.7	50 - 125				
Indeno(1,2,3-cd)pyrene	152.2	3.3	167	0	91.1	45 - 139				
Naphthalene	131.4	3.3	167	0	78.7	50 - 125				
Phenanthrene	130.9	3.3	167	0	78.4	50 - 125				
Pyrene	133	3.3	167	0	79.6	45 - 130				
Surr: 2-Fluorobiphenyl	130.6	0	167	0	78.2	43 - 125				
Surr: 4-Terphenyl-d14	136.1	0	167	0	81.5	32 - 125				
Surr: Nitrobenzene-d5	123.9	0	167	0	74.2	37 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100111		Instrument: SV-6		Method: SW8270						
MS	Sample ID: HS15120461-11MS	Units: ug/Kg			Analysis Date: 28-Dec-2015 17:24					
Client ID:	Run ID: SV-6_266966	SeqNo: 3538207	PrepDate: 23-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1057	3.3	166.8	819.3	143	50 - 120				SEO
Acenaphthylene	323.8	3.3	166.8	0	194	50 - 120				S
Anthracene	1222	3.3	166.8	955.3	160	50 - 123				SEO
Benz(a)anthracene	194.8	3.3	166.8	19.98	105	50 - 131				
Benzo(a)pyrene	203.7	3.3	166.8	0	122	50 - 130				
Benzo(b)fluoranthene	207.9	3.3	166.8	0	125	50 - 137				
Benzo(g,h,i)perylene	206.9	3.3	166.8	0	124	50 - 130				
Benzo(k)fluoranthene	180.5	3.3	166.8	0	108	50 - 143				
Chrysene	195	3.3	166.8	31.56	98.0	50 - 130				
Dibenz(a,h)anthracene	190	3.3	166.8	0	114	50 - 130				
Fluoranthene	378.3	3.3	166.8	157.9	132	50 - 131				SE
Fluorene	745	3.3	166.8	600.9	86.4	50 - 125				E
Indeno(1,2,3-cd)pyrene	192.2	3.3	166.8	0	115	45 - 139				
Naphthalene	2892	3.3	166.8	2898	-3.25	50 - 125				SEO
Phenanthrene	2606	3.3	166.8	2329	166	50 - 125				SEO
Pyrene	499.3	3.3	166.8	289.8	126	45 - 130				E
Surr: 2-Fluorobiphenyl	124	0	166.8	0	74.3	43 - 125				
Surr: 4-Terphenyl-d14	169	0	166.8	0	101	32 - 125				
Surr: Nitrobenzene-d5	150.9	0	166.8	0	90.4	37 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

Batch ID: 100111		Instrument: SV-6		Method: SW8270						
MSD	Sample ID: HS15120461-11MSD	Units: ug/Kg			Analysis Date: 28-Dec-2015 17:44					
Client ID:	Run ID: SV-6_266966	SeqNo: 3538208	PrepDate: 23-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1012	3.3	166.9	819.3	115	50 - 120	1057	4.4	30	EO
Acenaphthylene	296.9	3.3	166.9	0	178	50 - 120	323.8	8.69	30	S
Anthracene	1022	3.3	166.9	955.3	40.1	50 - 123	1222	17.8	30	SEO
Benz(a)anthracene	190.3	3.3	166.9	19.98	102	50 - 131	194.8	2.33	30	
Benzo(a)pyrene	198.9	3.3	166.9	0	119	50 - 130	203.7	2.39	30	
Benzo(b)fluoranthene	189.2	3.3	166.9	0	113	50 - 137	207.9	9.42	30	
Benzo(g,h,i)perylene	201.4	3.3	166.9	0	121	50 - 130	206.9	2.73	30	
Benzo(k)fluoranthene	168.5	3.3	166.9	0	101	50 - 143	180.5	6.86	30	
Chrysene	197.5	3.3	166.9	31.56	99.4	50 - 130	195	1.29	30	
Dibenz(a,h)anthracene	185	3.3	166.9	0	111	50 - 130	190	2.64	30	
Fluoranthene	334.3	3.3	166.9	157.9	106	50 - 131	378.3	12.4	30	E
Fluorene	815	3.3	166.9	600.9	128	50 - 125	745	8.98	30	SE
Indeno(1,2,3-cd)pyrene	186.7	3.3	166.9	0	112	45 - 139	192.2	2.88	30	
Naphthalene	2877	3.3	166.9	2898	-12.2	50 - 125	2892	0.518	30	SEO
Phenanthrene	2360	3.3	166.9	2329	18.7	50 - 125	2606	9.9	30	SEO
Pyrene	507.6	3.3	166.9	289.8	130	45 - 130	499.3	1.66	30	SE
Surr: 2-Fluorobiphenyl	164.7	0	166.9	0	98.7	43 - 125	124	28.2	30	
Surr: 4-Terphenyl-d14	166.5	0	166.9	0	99.7	32 - 125	169	1.47	30	
Surr: Nitrobenzene-d5	163.4	0	166.9	0	97.9	37 - 125	150.9	7.97	30	

The following samples were analyzed in this batch: HS15120773-13      HS15120773-14      HS15120773-15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

**Batch ID:** R266813      **Instrument:** VOA8      **Method:** SW8260

<b>MBLK</b>		Sample ID: <b>MBLKW1-121715</b>		Units: <b>ug/Kg</b>		Analysis Date: <b>23-Dec-2015 12:50</b>			
Client ID:		Run ID: <b>VOA8_266813</b>		SeqNo: <b>3534607</b>		PrepDate:		DF: <b>50</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	U	250							
Ethylbenzene	U	250							
m,p-Xylene	U	500							
o-Xylene	U	250							
Toluene	U	250							
Xylenes, Total	U	500							
<i>Surr: 1,2-Dichloroethane-d4</i>	2311	0	2500	0	92.4	70 - 128			
<i>Surr: 4-Bromofluorobenzene</i>	2377	0	2500	0	95.1	73 - 126			
<i>Surr: Dibromofluoromethane</i>	2660	0	2500	0	106	71 - 128			
<i>Surr: Toluene-d8</i>	2519	0	2500	0	101	73 - 127			

<b>LCS</b>		Sample ID: <b>VLCSW1-121715</b>		Units: <b>ug/L</b>		Analysis Date: <b>23-Dec-2015 12:02</b>			
Client ID:		Run ID: <b>VOA8_266813</b>		SeqNo: <b>3534606</b>		PrepDate:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	46.35	5.0	50	0	92.7	73 - 121			
Ethylbenzene	46.15	5.0	50	0	92.3	80 - 120			
m,p-Xylene	91.89	10	100	0	91.9	78 - 121			
o-Xylene	45.79	5.0	50	0	91.6	80 - 120			
Toluene	44.52	5.0	50	0	89.0	80 - 120			
Xylenes, Total	137.7	15	150	0	91.8	80 - 120			
<i>Surr: 1,2-Dichloroethane-d4</i>	50.98	0	50	0	102	70 - 125			
<i>Surr: 4-Bromofluorobenzene</i>	50.4	0	50	0	101	72 - 125			
<i>Surr: Dibromofluoromethane</i>	51.87	0	50	0	104	71 - 125			
<i>Surr: Toluene-d8</i>	50.06	0	50	0	100	75 - 125			

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

**Batch ID:** R266813      **Instrument:** VOA8      **Method:** SW8260

MS		Sample ID: HS15120773-04MS		Units: ug/L		Analysis Date: 23-Dec-2015 14:50				
Client ID: L2a-01		Run ID: VOA8_266813		SeqNo: 3535045		PrepDate:		DF: 50		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	2410	250	2500	0	96.4	73 - 121				
Ethylbenzene	2391	250	2500	0	95.7	80 - 120				
m,p-Xylene	4762	500	5000	0	95.2	78 - 121				
o-Xylene	2341	250	2500	0	93.6	80 - 120				
Toluene	2259	250	2500	0	90.4	80 - 120				
Xylenes, Total	7103	750	7500	0	94.7	80 - 120				
<i>Surr: 1,2-Dichloroethane-d4</i>	2631	0	2500	0	105	70 - 125				
<i>Surr: 4-Bromofluorobenzene</i>	2523	0	2500	0	101	72 - 125				
<i>Surr: Dibromofluoromethane</i>	2627	0	2500	0	105	71 - 125				
<i>Surr: Toluene-d8</i>	2444	0	2500	0	97.8	75 - 125				

MSD		Sample ID: HS15120773-04MSD		Units: ug/L		Analysis Date: 23-Dec-2015 15:13				
Client ID: L2a-01		Run ID: VOA8_266813		SeqNo: 3535046		PrepDate:		DF: 50		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	2789	250	2500	0	112	73 - 121	2410	14.6	20	
Ethylbenzene	2810	250	2500	0	112	80 - 120	2391	16.1	20	
m,p-Xylene	5640	500	5000	0	113	78 - 121	4762	16.9	20	
o-Xylene	2725	250	2500	0	109	80 - 120	2341	15.2	20	
Toluene	2657	250	2500	0	106	80 - 120	2259	16.2	20	
Xylenes, Total	8365	750	7500	0	112	78 - 121	7103	16.3	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	2600	0	2500	0	104	70 - 125	2631	1.18	20	
<i>Surr: 4-Bromofluorobenzene</i>	2467	0	2500	0	98.7	72 - 125	2523	2.23	20	
<i>Surr: Dibromofluoromethane</i>	2614	0	2500	0	105	71 - 125	2627	0.479	20	
<i>Surr: Toluene-d8</i>	2476	0	2500	0	99.1	75 - 125	2444	1.3	20	

The following samples were analyzed in this batch:

HS15120773-01	HS15120773-02	HS15120773-03	HS15120773-04
HS15120773-05	HS15120773-06	HS15120773-07	HS15120773-08
HS15120773-09	HS15120773-10	HS15120773-11	HS15120773-12
HS15120773-13	HS15120773-14	HS15120773-15	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

<b>Batch ID:</b> 99813	<b>Instrument:</b> TOC_02	<b>Method:</b> SW9060								
<b>MBLK</b>	Sample ID: <b>WBLKS1-010416</b>	Units: <b>wt%-dry</b>	Analysis Date: <b>04-Jan-2016 13:59</b>							
Client ID:	Run ID: <b>TOC_02_267193</b>	SeqNo: <b>3543515</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Organic Carbon U 0.0600

<b>LCS</b>	Sample ID: <b>WLCSS1-010416</b>	Units: <b>wt%-dry</b>	Analysis Date: <b>04-Jan-2016 14:12</b>							
Client ID:	Run ID: <b>TOC_02_267193</b>	SeqNo: <b>3543516</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Organic Carbon 31.38 0.0600 30 0 105 80 - 120

<b>MS</b>	Sample ID: <b>HS15120546-02MS</b>	Units: <b>wt%-dry</b>	Analysis Date: <b>04-Jan-2016 14:57</b>							
Client ID:	Run ID: <b>TOC_02_267193</b>	SeqNo: <b>3543519</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Organic Carbon 3.39 0.0600 2 2.168 61.1 80 - 120 S

<b>MSD</b>	Sample ID: <b>HS15120546-02MSD</b>	Units: <b>wt%-dry</b>	Analysis Date: <b>04-Jan-2016 15:11</b>							
Client ID:	Run ID: <b>TOC_02_267193</b>	SeqNo: <b>3543520</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Organic Carbon 3.695 0.0600 2 2.168 76.4 80 - 120 3.39 8.61 30 S

**The following samples were analyzed in this batch:**

HS15120773-01	HS15120773-02	HS15120773-03	HS15120773-04
HS15120773-05	HS15120773-06	HS15120773-07	HS15120773-08
HS15120773-09	HS15120773-10	HS15120773-11	HS15120773-12
HS15120773-13	HS15120773-14	HS15120773-15	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

<b>Batch ID: R266710</b>		<b>Instrument: Balance1</b>		<b>Method: SW3550</b>						
<b>DUP</b>	Sample ID: <b>HS15120751-05DUP</b>	Units: <b>wt%</b>		Analysis Date: <b>21-Dec-2015 11:26</b>						
Client ID:	Run ID: <b>Balance1_266710</b>	SeqNo: <b>3532483</b>		PrepDate:		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Percent Moisture	9.06	0.0100					9.28	2.4	20
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The following samples were analyzed in this batch:

HS15120773-01	HS15120773-02	HS15120773-03	HS15120773-04
HS15120773-05	HS15120773-06	HS15120773-07	HS15120773-08
HS15120773-09	HS15120773-10	HS15120773-11	HS15120773-12
HS15120773-13	HS15120773-14	HS15120773-15	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QC BATCH REPORT**

<b>Batch ID:</b> R266820	<b>Instrument:</b> WetChem_HS	<b>Method:</b> SW9050M
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<b>MBLK</b>	Sample ID: <b>MBLK-266820</b>	Units: <b>umhos/cm</b>	Analysis Date: <b>23-Dec-2015 14:49</b>							
Client ID:	Run ID: <b>WetChem_HS_266820</b>	SeqNo: <b>3534868</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Conductance, Soil Extract U 5.00

<b>LCS</b>	Sample ID: <b>LCS-266820</b>	Units: <b>umhos/cm</b>	Analysis Date: <b>23-Dec-2015 14:49</b>							
Client ID:	Run ID: <b>WetChem_HS_266820</b>	SeqNo: <b>3534869</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Conductance, Soil Extract 1580 5.00 1413 0 112 85 - 115

<b>DUP</b>	Sample ID: <b>HS15120773-15DUP</b>	Units: <b>umhos/cm</b>	Analysis Date: <b>23-Dec-2015 14:49</b>							
Client ID: <b>L2c-01</b>	Run ID: <b>WetChem_HS_266820</b>	SeqNo: <b>3534870</b>	PrepDate: DF: <b>10</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Conductance, Soil Extract 18060 50.0 18560 2.73 20

<b>The following samples were analyzed in this batch:</b>	HS15120773-01	HS15120773-02	HS15120773-03	HS15120773-04
	HS15120773-05	HS15120773-06	HS15120773-07	HS15120773-08
	HS15120773-09	HS15120773-10	HS15120773-11	HS15120773-12
	HS15120773-13	HS15120773-14	HS15120773-15	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120773

**QUALIFIERS,  
ACRONYMS, UNITS**

<b>Qualifier</b>	<b>Description</b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

<b>Acronym</b>	<b>Description</b>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<b>Unit Reported</b>	<b>Description</b>
Date	
mg/Kg-dry	Milligrams per Kilogram- Dry weight corrected

**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

<b>Agency</b>	<b>Number</b>	<b>Expire Date</b>
Arkansas	15-024-0	27-Mar-2016
California	2919	31-Jul-2016
Illinois	003622	09-May-2016
Kansas	E-10352 2014-2015	31-Jan-2016
Kentucky	KY 2015-2016	30-Apr-2016
Louisiana	03087 2015/2016	30-Jun-2016
North Carolina	624 - 2016	31-Dec-2016
North Dakota	R-193 2015-2016	30-Apr-2016
Oklahoma	2015-047	31-Aug-2016
Texas	T104704231-15-15	30-Apr-2016

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120773

**SAMPLE TRACKING**

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS15120773-01	Bypass A	Login	12/18/2015 11:48:13 AM	PMG	19D
HS15120773-01	Bypass A	Login	12/18/2015 11:48:13 AM	PMG	Sub
HS15120773-01	Bypass A	Login	12/18/2015 11:48:13 AM	PMG	Sub
HS15120773-01	Bypass A	Login	12/18/2015 11:48:13 AM	PMG	5035
HS15120773-02	L2b-01	Login	12/18/2015 11:53:41 AM	PMG	19D
HS15120773-02	L2b-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-02	L2b-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-02	L2b-01	Login	12/18/2015 11:53:41 AM	PMG	5035
HS15120773-03	L3c-01	Login	12/18/2015 11:53:41 AM	PMG	19D
HS15120773-03	L3c-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-03	L3c-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-03	L3c-01	Login	12/18/2015 11:53:41 AM	PMG	5035
HS15120773-04	L2a-01	Login	12/18/2015 11:53:41 AM	PMG	19D
HS15120773-04	L2a-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-04	L2a-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-04	L2a-01	Login	12/18/2015 11:53:41 AM	PMG	5035
HS15120773-05	L1c-01	Login	12/18/2015 11:53:41 AM	PMG	19D
HS15120773-05	L1c-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-05	L1c-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-05	L1c-01	Login	12/18/2015 11:53:41 AM	PMG	5035
HS15120773-06	L3b-01	Login	12/18/2015 11:53:41 AM	PMG	19D
HS15120773-06	L3b-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-06	L3b-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-06	L3b-01	Login	12/18/2015 11:53:41 AM	PMG	5035
HS15120773-07	L1b-01	Login	12/18/2015 11:53:41 AM	PMG	19D
HS15120773-07	L1b-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-07	L1b-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-07	L1b-01	Login	12/18/2015 11:53:41 AM	PMG	5035
HS15120773-08	L3a-01	Login	12/18/2015 11:53:41 AM	PMG	19D
HS15120773-08	L3a-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-08	L3a-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-08	L3a-01	Login	12/18/2015 11:53:41 AM	PMG	5035
HS15120773-09	L1a-01	Login	12/18/2015 11:53:41 AM	PMG	19D
HS15120773-09	L1a-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-09	L1a-01	Login	12/18/2015 11:53:41 AM	PMG	Sub
HS15120773-09	L1a-01	Login	12/18/2015 11:53:41 AM	PMG	5035
HS15120773-10	L4c-01-Dup	Login	12/18/2015 11:55:10 AM	PMG	19D
HS15120773-10	L4c-01-Dup	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-10	L4c-01-Dup	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-10	L4c-01-Dup	Login	12/18/2015 11:55:10 AM	PMG	5035

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120773

**SAMPLE TRACKING**

HS15120773-11	L4a-01	Login	12/18/2015 11:55:10 AM	PMG	19D
HS15120773-11	L4a-01	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-11	L4a-01	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-11	L4a-01	Login	12/18/2015 11:55:10 AM	PMG	5035
HS15120773-12	Bypass B	Login	12/18/2015 11:55:10 AM	PMG	19D
HS15120773-12	Bypass B	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-12	Bypass B	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-12	Bypass B	Login	12/18/2015 11:55:10 AM	PMG	5035
HS15120773-13	L4c-01	Login	12/18/2015 11:55:10 AM	PMG	19D
HS15120773-13	L4c-01	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-13	L4c-01	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-13	L4c-01	Login	12/18/2015 11:55:10 AM	PMG	5035
HS15120773-14	L4b-01	Login	12/18/2015 11:55:10 AM	PMG	19D
HS15120773-14	L4b-01	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-14	L4b-01	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-14	L4b-01	Login	12/18/2015 11:55:10 AM	PMG	5035
HS15120773-15	L2c-01	Login	12/18/2015 11:55:10 AM	PMG	19D
HS15120773-15	L2c-01	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-15	L2c-01	Login	12/18/2015 11:55:10 AM	PMG	Sub
HS15120773-15	L2c-01	Login	12/18/2015 11:55:10 AM	PMG	5035
HS15120773-01	Bypass A	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-02	L2b-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-03	L3c-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-04	L2a-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-05	L1c-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-06	L3b-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-07	L1b-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-08	L3a-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-09	L1a-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-10	L4c-01-Dup	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-11	L4a-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-12	Bypass B	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-13	L4c-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-14	L4b-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-15	L2c-01	Out	12/31/2015 3:45:37 PM	OFO	METPREP
HS15120773-01	Bypass A	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-02	L2b-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-03	L3c-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-04	L2a-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-05	L1c-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-06	L3b-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-07	L1b-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120773

**SAMPLE TRACKING**

HS15120773-08	L3a-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-09	L1a-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-10	L4c-01-Dup	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-11	L4a-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-12	Bypass B	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-13	L4c-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-14	L4b-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-15	L2c-01	Out	12/31/2015 3:46:27 PM	OFO	METPREP
HS15120773-01	Bypass A	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-02	L2b-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-03	L3c-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-04	L2a-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-05	L1c-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-06	L3b-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-07	L1b-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-08	L3a-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-09	L1a-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-10	L4c-01-Dup	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-11	L4a-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-12	Bypass B	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-13	L4c-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-14	L4b-01	Return	12/31/2015 3:47:04 PM	OFO	19D
HS15120773-15	L2c-01	Return	12/31/2015 3:47:04 PM	OFO	19D

**Sample Receipt Checklist**

Client Name: EE\_LA  
 Work Order: HS15120773

Date/Time Received: **17-Dec-2015 19:00**  
 Received by: **FBH**

Checklist completed by:	<u>Paresh M. Giga</u>	<u>18-Dec-2015</u>	Reviewed by:	<u>Dane Wacasey</u>	<u>21-Dec-2015</u>
	eSignature	Date		eSignature	Date

Matrices: **Soil/Water** Carrier name: **ALS Courier**

- |   |   |  |   |
|---|---|--|---|
| Shipping container/cooler in good condition?            | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container/cooler?      | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| Custody seals intact on sample bottles?                 | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?                               | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody agrees with sample labels?             | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> |   |
| Samples in proper container/bottle?                     | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sample containers intact?                               | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| TX1005 solids received in hermetically sealed vials?    | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | N/A <input type="checkbox"/>                    |
| Sufficient sample volume for indicated test?            | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| All samples received within holding time?               | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Container/Temp Blank temperature in compliance?         | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |

Temperature(s)/Thermometer(s):	4.4c/4.6c,3.2c/3.4c U/C	IR4
Cooler(s)/Kit(s):	23527,5762	
Date/Time sample(s) sent to storage:	12/18/15 12:30	
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/> N/A <input type="checkbox"/>
pH adjusted by:	<input type="text"/>	

Login Notes: Samples placed in freezer 12/17/15 @ 20:45pm. Sample L1C-01 - containers have no dates. Sample - L1A-01 - no date & times on Dioxins jar. Trip Blanks received logged in on hold

Client Contacted: \_\_\_\_\_ Date Contacted: \_\_\_\_\_ Person Contacted: \_\_\_\_\_

Contacted By: 0 Regarding: \_\_\_\_\_

Comments:

Corrective Action:



Environmental

Cincinnati, OH +1 513 733 5336  
Everett, WA +1 425 356 2600

Fort Collins, CO +1 970 490 1511  
Holland, MI +1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 136327

HS15120773

1, WV

Ecology & Environment, Inc  
Delfin LNG



Customer Information		ALS Project Manager:	
Purchase Order		Project Name	Delfin LNG
Work Order		Project Number	
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.
Send Report To	Will Farrar	Invoice Attn	Accounts Payable
Address	2900 Westfork Dr. Suite 401	Address	368 Pleasant View Drive
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14086
Phone	(225) 298-5080	Phone	(716) 684-8060
Fax		Fax	
e-Mail Address		e-Mail Address	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Bypass A	12/16	1820	S		5	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	L2b-01	12/16	930														
3	L3c-01	12/16	825														
4	L2a-01	12/16	900														
5	L1c-01	12/16	655														
6	L3b-01	12/16	755														
7	L1b-01	12/15	1755														
8	L3A-01	12/16	720														
9	L1A-01	12/15	1700														
10																	

Sampler(s) Please Print & Sign <i>E. Diener</i>		Shipment Method		Required Turnaround Time: (Check Box) TAT <u>7 days</u> Other:		Results Due Date:	
Relinquished by:	Date: 12/17	Time: 11:25 am	Received by:	Notes:			
Relinquished by:	Date: 12/17	Time: 15:53	Received by (Laboratory):	Cooler ID: 23527		Cooler Temp: 4.4	
Logged by (Laboratory):	Date: 12/17/15	Time: 19:00	Checked by (Laboratory):	QC Package: (Check One Box Below)		QC Level: STD	
Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035						Other:	

ote: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.  
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.  
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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Everett, WA  
+1 425 356 2600

Fort Collins, CO  
+1 970 490 1511

Holland, MI  
+1 616 399 6070

# Chain of Custody Form

Page 1 of 1

COC ID: 136331

HS15120773

Ecology & Environment, Inc

Delfin LNG



Customer Information		Project Information		ALS Project Manager:	
Purchase Order		Project Name	Delfin LNG	A	8260_S (5035/8260 BTEX)
Work Order		Project Number		B	8270_LL_PAH_S (8270 LL_PAHs)
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.	C	8081_S (8081 Pesticides)
Send Report To	Will Farrar	Invoice Attn	Accounts Payable	D	PCB_S (8082 PCBs)
Address	2900 Westfork Dr. Suite 401	Address	388 Pleasant View Drive	E	RCRA 8 Soil (8020/7471 RCRA 8 Metals)
				F	TOC_S (9060 TOC)
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14086	G	MOIST_SW3550 (Moisture%)
Phone	(225) 298-5080	Phone	(716) 684-8060	H	SUB_DIOXINS/FURANS (1613 Dioxins/Furans (ALS HI_Res))
Fax		Fax		I	SUB_GRAINSIZE (D422 Grain Size (Tolunay-Wong))
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	L4c-01-Dup	12/16	1130	S		5	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	L4a-01	12/16	1030	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
3	Bypass B	12/16	1805	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
4	L4c-01	12/16	1130	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
5	L4b-01	12/16	1100	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
6	L2c-01	12/16	1000	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>E. Oren</i>		Shipment Method		Required Turnaround Time: (Check Box) TAT <u>7 days</u> Other:				Results Due Date:	
Relinquished by:	Date: <u>12/17</u>	Time: <u>11:25am</u>	Received by:	Notes: (Delfin LNG)				QC Package: (Check One Box Below)	
Relinquished by:	Date: <u>12/17</u>	Time: <u>15:53</u>	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Level <u>STD</u>			
Logged by (Laboratory):	Date: <u>12/17/15</u>	Time: <u>1400</u>	Checked by (Laboratory):	<u>5762</u>	<u>3-2</u>	Other:			
Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035									

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.  
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.  
 3. The Chain of Custody is a legal document. All information must be completed accurately.

IRHU CIFO-2

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January 11, 2016

Service Request No:E1501219

Dane Wacasey  
ALS Group USA, Corp.  
10450 Stancliff Road  
Suite 210  
Houston, TX 77099-4338

**Laboratory Results for: HS15120773 Dioxins Furans by Method 1613B**

Dear Dane,

Enclosed are the results of the sample(s) submitted to our laboratory December 18, 2015  
For your reference, these analyses have been assigned our service request number **E1501219**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2284. You may also contact me via email at [Nicole.Brown@alsglobal.com](mailto:Nicole.Brown@alsglobal.com).

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

Nicole Brown  
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099  
PHONE +1 713 266 1599 | FAX +1 713 266 0130  
ALS Group USA, Corp.  
dba ALS Environmental



# Certificate of Analysis

**ALS Environmental - Houston HRMS**  
10450 Stancliff Rd, Suite 210, Houston TX 77099  
Phone (713)266-1599 Fax (713)266-0130  
[www.alsglobal.com](http://www.alsglobal.com)

**ALS Environmental**

**Client:** ALS Group USA, Corp. – Houston, TX      **Service Request No.:** E1501219  
**Project:** Dioxins Furans by Method 1613B / HS15120773      **Date Received:** 12/18/15  
**Sample Matrix:** Soil

**CASE NARRATIVE**

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

**Sample Receipt**

Fifteen soil samples were received for analysis at ALS Environmental in Houston on 12/18/15.

The samples were received at temperatures between 3.2 °C and 4.6 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

**Data Validation Notes and Discussion**

**B flags – Method Blanks**

The Method Blank EQ1500730-01 contained low levels of various compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with ‘B’ flags where the sample result is less than ten times the level detected in the method blank.

**MS/MSD**

EQ1500730: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

**2378-TCDF**

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

**K flags**

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a ‘K’ flag. A ‘K’ flag indicates an estimated maximum possible concentration for the associated compound.

**Detection Limits**

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

**The TEO Summary results for each sample have been calculated by ALS/Houston to include:**

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds reported as ND = ½ \* Detection Limit

*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.*

*Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.*

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B

**Service Request:**E1501219

**SAMPLE CROSS-REFERENCE**

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
E1501219-001	Bypass A / HS15120773-01	12/16/2015	1820
E1501219-002	L2B-01 / HS15120773-02	12/16/2015	0930
E1501219-003	L3C-01 / HS15120773-03	12/16/2015	0825
E1501219-004	L2A-01 / HS15120773-04	12/16/2015	0900
E1501219-005	L1C-01 / HS15120773-05	12/16/2015	0655
E1501219-006	L3B-01 / HS15120773-06	12/16/2015	0755
E1501219-007	L1B-01 / HS15120773-07	12/16/2015	1755
E1501219-008	L3A-01 / HS15120773-08	12/16/2015	0720
E1501219-009	L1A-01 / HS15120773-09	12/16/2015	1700
E1501219-010	L4C-01- Dup / HS15120773-10	12/16/2015	1130
E1501219-011	L4A-01 / HS15120773-11	12/16/2015	1030
E1501219-012	Bypass B / HS15120773-12	12/16/2015	1805
E1501219-013	L4C-01 / HS15120773-13	12/16/2015	1130
E1501219-014	L4B-01 / HS15120773-14	12/16/2015	1100
E1501219-015	L2C-01 / HS15120773-15	12/16/2015	1000

## Service Request Summary

**Folder #:** E1501219  
**Client Name:** ALS Environmental - US  
**Project Name:** HS15120773 Dioxins Furans by Method 1613B  
**Project Number:**

**Report To:** Dane Wacasey  
 ALS Group USA, Corp.  
 10450 Stancliff Road  
 Houston, TX 77099-4338  
 USA

**Phone Number:** 281-530-5656

**Cell Number:**

**Fax Number:** 281-530-5887

**E-mail:** dane.wacasey@alsglobal.com

**Project Chemist:** Nicole Brown  
**Originating Lab:** HOUSTON  
**Logged By:** ALOPEZ  
**Date Received:** 12/18/15  
**Internal Due Date:** 1/13/2016  
**QAP:** LAB QAP  
**Qualifier Set:** HRMS Qualifier Set  
**Formset:** Lab Standard  
**Merged?:** N  
**Report to MDL?:** Y  
**P.O. Number:** HS15120773  
**EDD:** No EDD Specified

45 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

**Location:** SMO, EHRMS-WIC 8C

**Pressure Gas:**

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
E1501219-001	Bypass A / HS15120773-01	Soil	12/16/15 1820	II	II
E1501219-002	L2B-01 / HS15120773-02	Soil	12/16/15 0930	II	II
E1501219-003	L3C-01 / HS15120773-03	Soil	12/16/15 0825	II	II
E1501219-004	L2A-01 / HS15120773-04	Soil	12/16/15 0900	II	II
E1501219-005	L1C-01 / HS15120773-05	Soil	12/16/15 1855	II	II
E1501219-006	L3B-01 / HS15120773-06	Soil	12/16/15 0755	II	II
E1501219-007	L1B-01 / HS15120773-07	Soil	12/16/15 1755	II	II
E1501219-008	L3A-01 / HS15120773-08	Soil	12/16/15 0720	II	II
E1501219-009	L1A-01 / HS15120773-09	Soil	12/16/15 1700	II	II
E1501219-010	L4C-01- Dup / HS15120773-10	Soil	12/16/15 1130	II	II
E1501219-011	L4A-01 / HS15120773-11	Soil	12/16/15 1030	II	II
E1501219-012	Bypass B / HS15120773-12	Soil	12/16/15 1805	II	II
E1501219-013	L4C-01 / HS15120773-13	Soil	12/16/15 1130	II	II
E1501219-014	L4B-01 / HS15120773-14	Soil	12/16/15 1100	II	II
E1501219-015	L2C-01 / HS15120773-15	Soil	12/16/15 1000	II	II

2005 TEFs with non detects equal to one half EDLs

E1501219 / HS15120773

## Data Qualifiers

### HRMS Qualifier Set

- B Indicates the associated analyte was found in the method blank at >1/10th the reported value.
- E Estimated value. The reported concentration is above the calibration range of the instrument.
- H Sample extracted and/or analyzed out of suggested holding time.
- J Estimated value. The reported concentration is below the MRL.
- K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. Reported concentration is a conservative estimate, however EMPC correction was not applied.
- P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
- Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.
- S Signal saturated detector. Result reported from dilution.
- U Compound was analyzed for, but was not detected (ND).
- X See Case Narrative.
- Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
  - i The MDL/MRL have been elevated due to a matrix interference.

# ALS Laboratory Group

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## Acronyms

Cal	Calibration
Conc	CONCetration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

### State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	1/31/2016
Arizona Department of Health Services	AZ0793	5/27/2016
Arkansas Department of Environmental Quality	14-038-0	6/16/2016
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2016
Hawaii Department of Health	TX02694	6/30/2016
Illinois Environmental Protection Agency	200057	10/6/2016
Kansas Department of Health and Environment	E-10406	1/31/2016
Louisiana Department of Environmental Quality	03048	6/30/2016
Maine Center for Disease Control and Prevention	2014019	6/5/2016
Maryland Department of the Environment	343	6/30/2016
Michigan Department of Environmental Quality	9971	6/30/2016
Nebraska Department of Health and Human Services	NE-OS-25-13	6/30/2016
Nevada Department of Conservation and Natural Resources	TX014112013-2	7/31/2016
New Jersey Department of Environmental Protection	NLC140001	6/30/2016
New Mexico Environment Department	TX02694	6/30/2016
New York Department of Health	11707	4/1/2016
Oklahoma Department of Environmental Quality	2014 124	8/31/2016
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2016
Pennsylvania Department of Environmental Protection	68-03441	6/30/2016
Tennessee Department of Environment and Conservation	04016	6/30/2016
Texas Commission on Environmental Quality	TX104704216-14-5	6/30/2016
United States Department of Agriculture	P330-14-00067	2/21/2017
Utah Department of Health Environmental Laboratory Certification	TX02694	7/31/2016
Washington Department of Health	c819	11/14/2016
West Virginia Department of Environmental Protection	347	6/30/2016

ALS ENVIRONMENTAL – Houston  
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1501219

DB-5MSU

SPB-Octyl

**First Level - Data Processing - to be filled by person generating the forms**

Date: 01/06/16	Analyst: Jc	Samples: 001-007
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**Second Level - Data Review – to be filled by person doing peer review**

Date: 01/07/16	Analyst: LKL	Samples: 001-007
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ALS ENVIRONMENTAL – Houston  
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1501219

DB-5MSUI

SPB-Octyl

**First Level - Data Processing - to be filled by person generating the forms**

Date: 01/05/16 Analyst: Jc

Samples: 008-015

**Second Level - Data Review – to be filled by person doing peer review**

Date: 01/08/16 Analyst: CR

Samples: 008-015



# Chain of Custody

**ALS Environmental - Houston HRMS**  
10450 Stancliff Rd, Suite 210, Houston TX 77099  
Phone (713)266-1599 Fax (713)266-0130  
[www.alsglobal.com](http://www.alsglobal.com)



# CHAIN OF CUSTODY RECORD

Date 18 Dec 2015

Page 1 of 1

COC ID 3979

Due date 29 DEC 15

Subcontractor

ALS Environmental	Phone
10450 Stancliff Road Suite 210	2815305656
Houston, TX 77084	Fax

Customer Information		Project Information	
PO	HS15120773	Project Name	HS15120773

Company Name	ALS Houston	Company Name	ALS Houston
		Inv Attn	Accounts Payable
Address	10450 Stancliff Rd, Ste 210	Address	10450 Stancliff Rd, Ste 210
	Houston, TX 77099		Houston, TX 77099
Phone	281-530-5656	Phone	281-530-5656
Email1	Dane.Wacasey@alsglobal.com	Email2	jumoke.lawal@alsglobal.com

Lab ID	Client Samp ID	Collection Date	Matrix	Analysis Requested
HS15120773-01	Bypass A	16-Dec-15 06:20 pm	Soil	SUB_DIOXINS/FURANS
HS15120773-02	L2B-01	16-Dec-15 09:30 am	Soil	SUB_DIOXINS/FURANS
HS15120773-03	L3C-01	16-Dec-15 08:25 am	Soil	SUB_DIOXINS/FURANS
HS15120773-04	L2A-01	16-Dec-15 09:00 am	Soil	SUB_DIOXINS/FURANS
HS15120773-05	L1C-01	16-Dec-15 06:55 am	Soil	SUB_DIOXINS/FURANS
HS15120773-06	L3B-01	16-Dec-15 07:55 am	Soil	SUB_DIOXINS/FURANS
HS15120773-07	L1B-01	16-Dec-15 05:55 pm	Soil	SUB_DIOXINS/FURANS
HS15120773-08	L3A-01	16-Dec-15 07:20 am	Soil	SUB_DIOXINS/FURANS
HS15120773-09	L1A-01	16-Dec-15 05:00 pm	Soil	SUB_DIOXINS/FURANS
HS15120773-10	L4C-01-Dup	16-Dec-15 11:30 am	Soil	SUB_DIOXINS/FURANS
HS15120773-11	L4A-01	16-Dec-15 10:30 am	Soil	SUB_DIOXINS/FURANS
HS15120773-12	Bypass B	16-Dec-15 06:05 pm	Soil	SUB_DIOXINS/FURANS
HS15120773-13	L4C-01	16-Dec-15 11:30 am	Soil	SUB_DIOXINS/FURANS
HS15120773-14	L4B-01	16-Dec-15 11:00 am	Soil	SUB_DIOXINS/FURANS
HS15120773-15	L2C-01	16-Dec-15 10:00 am	Soil	SUB_DIOXINS/FURANS

Comments Please analyze for the analysis listed above. Send report to the emails shown above.

Relinquished by:	Date/Time:	Received by:	Date/Time:	Cooler IDs:	Report/QC Level
	12/18/15 13:00		12/18/15 13:00		STD

Client Name: EE\_LA

Date/Time Received: 17 Dec 15

Workorder: HS15120773

Received by: FBH

Checklist Completed by: Paresh M. Giga 18 Dec 15  
eSignature Date

Reviewed by: \_\_\_\_\_  
eSignature Date

Matrices: Soil/Water

Carrier Name: ALS Courier

- Shipping container/cooler in good condition?  Yes  No  Not Present
- Custody seals intact on shipping container/cooler?  Yes  No  Not Present
- Custody seals intact on Sample bottles?  Yes  No  Not Present
- Chain of custody present?  Yes  No
- COC signed when relinquished and received?  Yes  No **COC agrees with sample labels?**  Yes  No
- Samples in proper container/bottle?  Yes  No **Sample containers intact?**  Yes  No
- TX1005 solids received in hermetically sealed vials?  Yes  No  N/A
- Sufficient sample volume for indicated test?  Yes  No
- All samples received within holding time?  Yes  No
- Container/Temp Blank temperature in compliance?  Yes  No
- Temperature(s)/Thermometer(s): 4.4c/4.6c,3.2c/3.4c U/C IR4
- Cooler(s)/ Kit(s): 23527,5762
- Date/time sample(s) sent to storage: 12/18/15 12:30
- Water : VOA vials have zero headspace?  Yes  No  No VOA Vials submitted
- Water - pH acceptable upon receipt?  Yes  No  N/A
- pH adjusted?  Yes  No  N/A
- pH adjusted by: 0

Login Notes: Samples placed in freezer 12/17/15 @ 20:45pm. Sample L1C-01 - containers have no dates. Sample - L1A-01 - no date & times on Dioxins jar. Trip Blanks received logged in on hold

Client Contacted: \_\_\_\_\_ Date Contacted: \_\_\_\_\_ Person Contacted: \_\_\_\_\_  
Contacted By: \_\_\_\_\_ Regarding: \_\_\_\_\_

Comments

Corrective action



## SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

### **Cooler Custody Seals (desirable, mandatory if specified in SAP):**

- ✓ Intact on outside of cooler, signed and dated

### **Chain-of-Custody (COC) documentation (mandatory):**

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sample. The COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

### **Sample Integrity (mandatory):**

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

### **Temperature Requirement (varies by sample matrix):**

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6°C.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10°C.
- ✓ Air samples are shipped and stored cold, at 0 to 6°C
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report



# Preparation Information Benchsheets

**ALS Environmental - Houston HRMS**  
10450 Stancliff Rd., Suite 210, Houston, TX 77099  
Phone (713)266-1599 Fax (713)266-0130  
[www.alsglobal.com](http://www.alsglobal.com)

# Preparation Information Benchsheet

**Prep Run#:** 252927  
**Team:** Semivoa GCMS/AKODUR

**Prep Workflow:** OrgExtS(365)  
**Prep Method:** EPA 3541

**Status:** Prepped  
**Prep Date/Time:** 12/30/15 03:30 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1501219-001	Bypass A / HS15120773-01	.03	1613B/Dioxins Furans			Soil	10.812g	Thick Mud
2	E1501219-002	L2B-01 / HS15120773-02	.03	1613B/Dioxins Furans			Soil	10.119g	Thick Mud
3	E1501219-003	L3C-01 / HS15120773-03	.03	1613B/Dioxins Furans			Soil	10.198g	Thick Mud
4	E1501219-004	L2A-01 / HS15120773-04	.03	1613B/Dioxins Furans			Soil	10.169g	Thick Mud
5	E1501219-005	L1C-01 / HS15120773-05	.03	1613B/Dioxins Furans			Soil	10.514g	Thick Mud
6	E1501219-006	L3B-01 / HS15120773-06	.03	1613B/Dioxins Furans			Soil	10.106g	Thick Mud
7	E1501219-007	L1B-01 / HS15120773-07	.03	1613B/Dioxins Furans			Soil	10.928g	Thick Mud
8	E1501219-008	L3A-01 / HS15120773-08	.03	1613B/Dioxins Furans			Soil	10.559g	Thick Mud
9	E1501219-009	L1A-01 / HS15120773-09	.03	1613B/Dioxins Furans			Soil	10.865g	Thick Mud
10	E1501219-010	L4C-01- Dup / HS15120773-10	.03	1613B/Dioxins Furans			Soil	10.649g	Thick Mud
11	E1501219-011	L4A-01 / HS15120773-11	.03	1613B/Dioxins Furans			Soil	10.793g	Thick Mud
12	E1501219-012	Bypass B / HS15120773-12	.03	1613B/Dioxins Furans			Soil	10.284g	Thick Mud
13	E1501219-013	L4C-01 / HS15120773-13	.03	1613B/Dioxins Furans			Soil	10.569g	Thick Mud
14	E1501219-014	L4B-01 / HS15120773-14	.03	1613B/Dioxins Furans			Soil	10.416g	Thick Mud
15	E1501219-015	L2C-01 / HS15120773-15	.03	1613B/Dioxins Furans			Soil	10.582g	Thick Mud
16	EQ1500730-01	MB		1613B/Dioxins Furans			Solid	10.591g	
17	EQ1500730-02	LCS		1613B/Dioxins Furans			Solid	10.667g	
18	EQ1500730-03	DLCS		1613B/Dioxins Furans			Solid	10.852g	

## Spiking Solutions

Name:	1613B Matrix Working Standard	Inventory ID	86560	Logbook Ref:	86560 DE 12/11/15 2-20ng/mL	Expires On:	06/08/2016
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E1501219-001 100.00µL EQ1500730-02 100.00µL EQ1500730-03 100.00µL

Name:	8290/1613B Cleanup Working Standard	Inventory ID	87002	Logbook Ref:	87002 12/30/2015 CID EXT	Expires On:	06/27/2016
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E1501219-001 100.00µL E1501219-002 100.00µL E1501219-003 100.00µL E1501219-004 100.00µL E1501219-005 100.00µL E1501219-006 100.00µL  
 E1501219-007 100.00µL E1501219-008 100.00µL E1501219-009 100.00µL E1501219-010 100.00µL E1501219-011 100.00µL E1501219-012 100.00µL  
 E1501219-013 100.00µL E1501219-014 100.00µL E1501219-015 100.00µL EQ1500730-01 100.00µL EQ1500730-02 100.00µL EQ1500730-03 100.00µL

Name:	1613B Labeled Working Standard	Inventory ID	87004	Logbook Ref:	JP 12/30/15 87004 2-4 ng/mL	Expires On:	04/23/2016
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E1501219-001 1,000.00µL E1501219-002 1,000.00µL E1501219-003 1,000.00µL E1501219-004 1,000.00µL E1501219-005 1,000.00µL E1501219-006 1,000.00µL  
 E1501219-007 1,000.00µL E1501219-008 1,000.00µL E1501219-009 1,000.00µL E1501219-010 1,000.00µL E1501219-011 1,000.00µL E1501219-012 1,000.00µL  
 E1501219-013 1,000.00µL E1501219-014 1,000.00µL E1501219-015 1,000.00µL EQ1500730-01 1,000.00µL EQ1500730-02 1,000.00µL EQ1500730-03 1,000.00µL

# Preparation Information Benchsheet

**Prep Run#:** 252927  
**Team:** Semivoa GCMS/AKODUR

**Prep WorkFlow:** OrgExtS(365)  
**Prep Method:** EPA 3541

**Status:** Prepped  
**Prep Date/Time:** 12/30/15 03:30 PM

**Preparation Materials**

Carbon, High Purity	CID 12/18/2015 (86802)	Ethyl Acetate 99.9% Minimum EtOAc	LM 10/8/15 (84814)	Glass Wool	AL 12/4/15 (86383)
Hexanes 95%	DE 12/8/15 (86448)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	DE 11/2/15 (85540)	Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)
Sodium Hydroxide Reagent Grade NaOH	LM 09/02/14 (74232)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	LM 9/24/15 (84454)	Tridecane (n-Tridecane)	JP 11-24-15 (86139)
Silica Gel	CID 12/21/2015 (86823)	sulfuric acid	CID 11/06/15 (85764)	Toluene 99.9% Minimum	DE 12/21/15 (86821)

**Preparation Steps**

Step: Extraction	Step: Acid Clean	Step: Silica Gel Clean	Step: Final Volume
Started: 12/30/15 15:30	Started: 12/31/15 08:00	Started: 12/31/15 13:00	Started: 1/4/16 09:05
Finished: 12/31/15 07:30	Finished: 12/31/15 09:00	Finished: 12/31/15 14:40	Finished: 1/4/16 09:30
By: CDIAZ	By: CDIAZ	By: CDIAZ	By: CDIAZ
Comments	Comments	Comments	Comments

Comments: \_\_\_\_\_

Reviewed By: ak Date: 1/5/16

Chain of Custody

Relinquished By: _____	Date: _____	<u>Extracts Examined</u>
Received By: _____	Date: _____	Yes      No

F1501219 / HS15120773



# Analytical Results

**ALS Environmental - Houston HRMS**  
10450 Stancliff Rd., Suite 210, Houston, TX 77099  
Phone (713)266-1599 Fax (713)266-0130  
[www.alsglobal.com](http://www.alsglobal.com)

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Bypass A / HS15120773-01  
**Lab Code:** E1501219-001

**Service Request:** E1501219  
**Date Collected:** 12/16/15 18:20  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.812g  
**Data File Name:** P602254  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 14:57  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.126	0.738			1
1,2,3,7,8-PeCDD	0.430J		0.0844	3.69	1.78	1.000	1
1,2,3,4,7,8-HxCDD	0.457J		0.119	3.69	1.15	1.000	1
1,2,3,6,7,8-HxCDD	0.924J		0.127	3.69	1.07	1.000	1
1,2,3,7,8,9-HxCDD	1.16JK		0.111	3.69	1.01	1.007	1
1,2,3,4,6,7,8-HpCDD	27.5		0.157	3.69	1.02	1.000	1
OCDD	606		0.972	7.38	0.88	1.000	1
2,3,7,8-TCDF	0.322JK		0.181	0.738	1.07	1.001	1
1,2,3,7,8-PeCDF	1.02J		0.196	3.69	1.68	1.001	1
2,3,4,7,8-PeCDF	0.888J		0.201	3.69	1.55	1.001	1
1,2,3,4,7,8-HxCDF	2.99J		0.216	3.69	1.26	1.000	1
1,2,3,6,7,8-HxCDF	2.32J		0.208	3.69	1.28	1.000	1
1,2,3,7,8,9-HxCDF	0.958JK		0.278	3.69	1.04	1.000	1
2,3,4,6,7,8-HxCDF	1.31J		0.223	3.69	1.32	1.000	1
1,2,3,4,6,7,8-HpCDF	18.3		0.0815	3.69	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	5.66		0.0981	3.69	0.98	1.000	1
OCDF	112		0.126	7.38	0.87	1.005	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 18:20
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	Bypass A / HS15120773-01	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-001	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 14:57
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.812g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602254	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	8.79		0.126	0.738	0.66		1
Total Penta-Dioxins	15.2		0.0844	3.69	1.56		1
Total Hexa-Dioxins	66.6		0.119	3.69	1.25		1
Total Hepta-Dioxins	127		0.157	3.69	1.03		1
Total Tetra-Furans	ND	U	0.181	0.738			1
Total Penta-Furans	8.61		0.198	3.69	1.48		1
Total Hexa-Furans	14.1		0.229	3.69	1.23		1
Total Hepta-Furans	34.1		0.0896	3.69	1.00		1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 18:20
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	Bypass A / HS15120773-01	<b>Units:</b>	Percent
<b>Lab Code:</b>	E1501219-001	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 14:57
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.812g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602254	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	874.003	44		25-164	0.77	1.022
13C-1,2,3,7,8-PeCDD	2000	1074.552	54		25-181	1.63	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1547.646	77		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1667.895	83		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1475.625	74		23-140	1.06	1.067
13C-OCDD	4000	2821.852	71		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	1049.122	52		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1138.088	57		24-185	1.57	1.152
13C-2,3,4,7,8-PeCDF	2000	1116.396	56		21-178	1.58	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1462.715	73		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1630.155	82		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1393.393	70		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1474.838	74		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1312.451	66		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1255.037	63		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	383.662	48		35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 18:20
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	Bypass A / HS15120773-01	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-001	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.126	0.738	1	1	0.0630
1,2,3,7,8-PeCDD	<b>0.430</b>	0.0844	3.69	1	1	0.430
1,2,3,4,7,8-HxCDD	<b>0.457</b>	0.119	3.69	1	0.1	0.0457
1,2,3,6,7,8-HxCDD	<b>0.924</b>	0.127	3.69	1	0.1	0.0924
1,2,3,7,8,9-HxCDD	<b>1.16</b>	0.111	3.69	1	0.1	0.116
1,2,3,4,6,7,8-HpCDD	<b>27.5</b>	0.157	3.69	1	0.01	0.275
OCDD	<b>606</b>	0.972	7.38	1	0.0003	0.182
2,3,7,8-TCDF	<b>0.322</b>	0.181	0.738	1	0.1	0.0322
1,2,3,7,8-PeCDF	<b>1.02</b>	0.196	3.69	1	0.03	0.0306
2,3,4,7,8-PeCDF	<b>0.888</b>	0.201	3.69	1	0.3	0.266
1,2,3,4,7,8-HxCDF	<b>2.99</b>	0.216	3.69	1	0.1	0.299
1,2,3,6,7,8-HxCDF	<b>2.32</b>	0.208	3.69	1	0.1	0.232
1,2,3,7,8,9-HxCDF	<b>0.958</b>	0.278	3.69	1	0.1	0.0958
2,3,4,6,7,8-HxCDF	<b>1.31</b>	0.223	3.69	1	0.1	0.131
1,2,3,4,6,7,8-HpCDF	<b>18.3</b>	0.0815	3.69	1	0.01	0.183
1,2,3,4,7,8,9-HpCDF	<b>5.66</b>	0.0981	3.69	1	0.01	0.0566
OCDF	<b>112</b>	0.126	7.38	1	0.0003	0.0336
Total TEQ						2.56

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Bypass A / HS15120773-01  
**Lab Code:** E1501219-001

**Service Request:** E1501219  
**Date Collected:** 12/16/15 18:20  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

**Total Solids**

**Analysis Method:** ALS SOP  
3.307g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Solids	62.7		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L2B-01 / HS15120773-02  
**Lab Code:** E1501219-002

**Service Request:** E1501219  
**Date Collected:** 12/16/15 09:30  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.119g  
**Data File Name:** P602255  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 15:46  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.143JK		0.0833	0.688	0.35	1.001	1
1,2,3,7,8-PeCDD	0.387JK		0.0724	3.44	1.97	1.001	1
1,2,3,4,7,8-HxCDD	0.511J		0.100	3.44	1.36	1.000	1
1,2,3,6,7,8-HxCDD	0.820J		0.105	3.44	1.18	1.000	1
1,2,3,7,8,9-HxCDD	1.05J		0.0923	3.44	1.16	1.007	1
1,2,3,4,6,7,8-HpCDD	18.7		0.0884	3.44	1.04	1.000	1
OCDD	304		0.0796	6.88	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.0869	0.688			1
1,2,3,7,8-PeCDF	0.728J		0.174	3.44	1.58	1.001	1
2,3,4,7,8-PeCDF	0.538J		0.177	3.44	1.49	1.001	1
1,2,3,4,7,8-HxCDF	1.63J		0.128	3.44	1.22	1.000	1
1,2,3,6,7,8-HxCDF	1.31J		0.117	3.44	1.26	1.000	1
1,2,3,7,8,9-HxCDF	0.729J		0.170	3.44	1.15	1.001	1
2,3,4,6,7,8-HxCDF	0.828J		0.131	3.44	1.31	1.000	1
1,2,3,4,6,7,8-HpCDF	9.53		0.0909	3.44	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	3.34J		0.113	3.44	1.03	1.000	1
OCDF	64.9		0.102	6.88	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 09:30
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L2B-01 / HS15120773-02	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-002	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 15:46
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.119g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602255	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	11.3		0.0833	0.688	0.83		1
Total Penta-Dioxins	15.4		0.0724	3.44	1.54		1
Total Hexa-Dioxins	61.1		0.0986	3.44	1.24		1
Total Hepta-Dioxins	108		0.0884	3.44	1.03		1
Total Tetra-Furans	0.679J		0.0869	0.688	0.72		1
Total Penta-Furans	4.05		0.175	3.44	1.55		1
Total Hexa-Furans	9.20		0.134	3.44	1.27		1
Total Hepta-Furans	18.0		0.102	3.44	0.99		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil

**Service Request:** E1501219  
**Date Collected:** 12/16/15 09:30  
**Date Received:** 12/18/15 13:00

**Sample Name:** L2B-01 / HS15120773-02  
**Lab Code:** E1501219-002

**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.119g  
**Data File Name:** P602255  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 15:46  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

**Labeled Standard Results**

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	911.223	46		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1016.131	51		25-181	1.63	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1538.227	77		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1681.051	84		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1343.580	67		23-140	1.06	1.067
13C-OCDD	4000	2320.541	58		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	1115.018	56		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1107.757	55		24-185	1.57	1.152
13C-2,3,4,7,8-PeCDF	2000	1069.113	53		21-178	1.56	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1475.913	74		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1649.030	82		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1323.900	66		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1458.820	73		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1214.446	61		28-143	0.44	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1110.895	56		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	417.204	52		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L2B-01 / HS15120773-02  
**Lab Code:** E1501219-002

**Service Request:** E1501219  
**Date Collected:** 12/16/15 09:30  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	0.143	0.0833	0.688	1	1	0.143
1,2,3,7,8-PeCDD	0.387	0.0724	3.44	1	1	0.387
1,2,3,4,7,8-HxCDD	0.511	0.100	3.44	1	0.1	0.0511
1,2,3,6,7,8-HxCDD	0.820	0.105	3.44	1	0.1	0.0820
1,2,3,7,8,9-HxCDD	1.05	0.0923	3.44	1	0.1	0.105
1,2,3,4,6,7,8-HpCDD	18.7	0.0884	3.44	1	0.01	0.187
OCDD	304	0.0796	6.88	1	0.0003	0.0912
2,3,7,8-TCDF	ND	0.0869	0.688	1	0.1	0.00435
1,2,3,7,8-PeCDF	0.728	0.174	3.44	1	0.03	0.0218
2,3,4,7,8-PeCDF	0.538	0.177	3.44	1	0.3	0.161
1,2,3,4,7,8-HxCDF	1.63	0.128	3.44	1	0.1	0.163
1,2,3,6,7,8-HxCDF	1.31	0.117	3.44	1	0.1	0.131
1,2,3,7,8,9-HxCDF	0.729	0.170	3.44	1	0.1	0.0729
2,3,4,6,7,8-HxCDF	0.828	0.131	3.44	1	0.1	0.0828
1,2,3,4,6,7,8-HpCDF	9.53	0.0909	3.44	1	0.01	0.0953
1,2,3,4,7,8,9-HpCDF	3.34	0.113	3.44	1	0.01	0.0334
OCDF	64.9	0.102	6.88	1	0.0003	0.0195
Total TEQ						1.83

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L2B-01 / HS15120773-02  
**Lab Code:** E1501219-002

**Service Request:** E1501219  
**Date Collected:** 12/16/15 09:30  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

Total Solids

**Analysis Method:** ALS SOP  
4.103g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	71.8		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 08:25
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L3C-01 / HS15120773-03	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-003	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 16:35
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.198g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602256	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.104	0.634			1
1,2,3,7,8-PeCDD	0.180J		0.101	3.17	1.41	1.000	1
1,2,3,4,7,8-HxCDD	0.272J		0.0670	3.17	1.17	1.000	1
1,2,3,6,7,8-HxCDD	0.446JK		0.0705	3.17	1.57	1.000	1
1,2,3,7,8,9-HxCDD	0.789J		0.0621	3.17	1.11	1.007	1
1,2,3,4,6,7,8-HpCDD	28.5		0.159	3.17	1.06	1.000	1
OCDD	519		0.0998	6.34	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.138	0.634			1
1,2,3,7,8-PeCDF	0.505J		0.182	3.17	1.35	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.178	3.17			1
1,2,3,4,7,8-HxCDF	1.39J		0.121	3.17	1.12	1.000	1
1,2,3,6,7,8-HxCDF	1.08J		0.113	3.17	1.13	1.000	1
1,2,3,7,8,9-HxCDF	0.469J		0.154	3.17	1.17	1.000	1
2,3,4,6,7,8-HxCDF	0.703J		0.123	3.17	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	8.54		0.0890	3.17	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	3.49		0.104	3.17	0.98	1.000	1
OCDF	58.6		0.109	6.34	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 08:25
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L3C-01 / HS15120773-03	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-003	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 16:35
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.198g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602256	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3.89		0.104	0.634	0.71		1
Total Penta-Dioxins	10.2		0.101	3.17	1.46		1
Total Hexa-Dioxins	35.8		0.0664	3.17	1.27		1
Total Hepta-Dioxins	87.2		0.159	3.17	1.02		1
Total Tetra-Furans	ND	U	0.138	0.634			1
Total Penta-Furans	1.51J		0.180	3.17	1.62		1
Total Hexa-Furans	6.56		0.126	3.17	1.14		1
Total Hepta-Furans	15.4		0.0960	3.17	0.99		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L3C-01 / HS15120773-03  
**Lab Code:** E1501219-003

**Service Request:** E1501219  
**Date Collected:** 12/16/15 08:25  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.198g  
**Data File Name:** P602256  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 16:35  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

**Labeled Standard Results**

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	887.320	44		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1084.026	54		25-181	1.61	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1495.165	75		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1609.966	80		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1392.778	70		23-140	1.04	1.067
13C-OCDD	4000	2522.874	63		17-157	0.91	1.139
13C-2,3,7,8-TCDF	2000	1081.340	54		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1131.462	57		24-185	1.57	1.152
13C-2,3,4,7,8-PeCDF	2000	1141.419	57		21-178	1.58	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1378.445	69		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1534.799	77		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1279.085	64		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1406.586	70		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1209.536	60		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1223.732	61		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	395.815	49		35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L3C-01 / HS15120773-03  
**Lab Code:** E1501219-003

**Service Request:** E1501219  
**Date Collected:** 12/16/15 08:25  
**Date Received:** 12/18/15 13:00

**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.104	0.634	1	1	0.0520
1,2,3,7,8-PeCDD	<b>0.180</b>	0.101	3.17	1	1	0.180
1,2,3,4,7,8-HxCDD	<b>0.272</b>	0.0670	3.17	1	0.1	0.0272
1,2,3,6,7,8-HxCDD	<b>0.446</b>	0.0705	3.17	1	0.1	0.0446
1,2,3,7,8,9-HxCDD	<b>0.789</b>	0.0621	3.17	1	0.1	0.0789
1,2,3,4,6,7,8-HpCDD	<b>28.5</b>	0.159	3.17	1	0.01	0.285
OCDD	<b>519</b>	0.0998	6.34	1	0.0003	0.156
2,3,7,8-TCDF	ND	0.138	0.634	1	0.1	0.00690
1,2,3,7,8-PeCDF	<b>0.505</b>	0.182	3.17	1	0.03	0.0152
2,3,4,7,8-PeCDF	ND	0.178	3.17	1	0.3	0.0267
1,2,3,4,7,8-HxCDF	<b>1.39</b>	0.121	3.17	1	0.1	0.139
1,2,3,6,7,8-HxCDF	<b>1.08</b>	0.113	3.17	1	0.1	0.108
1,2,3,7,8,9-HxCDF	<b>0.469</b>	0.154	3.17	1	0.1	0.0469
2,3,4,6,7,8-HxCDF	<b>0.703</b>	0.123	3.17	1	0.1	0.0703
1,2,3,4,6,7,8-HpCDF	<b>8.54</b>	0.0890	3.17	1	0.01	0.0854
1,2,3,4,7,8,9-HpCDF	<b>3.49</b>	0.104	3.17	1	0.01	0.0349
OCDF	<b>58.6</b>	0.109	6.34	1	0.0003	0.0176
Total TEQ						1.37

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: ALS Environmental - US
Project: HS15120773 Dioxins Furans by Method 1613B
Sample Matrix: Soil
Sample Name: L3C-01 / HS15120773-03
Lab Code: E1501219-003

Service Request: E1501219
Date Collected: 12/16/15 08:25
Date Received: 12/18/15 13:00
Units: Percent
Basis: As Received

Total Solids

Analysis Method: ALS SOP
3.888g

Date Analyzed: 01/05/16 11:41
NA
E-Balance-01

Native Analyte Results

Table with 8 columns: Analyte Name, Result, Q, EDL, MRL, Ion Ratio, RRT, Dilution Factor. Row 1: Total Solids, 77.3, -, -

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L2A-01 / HS15120773-04  
**Lab Code:** E1501219-004

**Service Request:** E1501219  
**Date Collected:** 12/16/15 09:00  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.169g  
**Data File Name:** P602257  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 17:24  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0660	0.630			1
1,2,3,7,8-PeCDD	0.186JK		0.0466	3.15	1.24	1.001	1
1,2,3,4,7,8-HxCDD	0.262J		0.0528	3.15	1.09	1.000	1
1,2,3,6,7,8-HxCDD	0.455JK		0.0544	3.15	0.99	1.000	1
1,2,3,7,8,9-HxCDD	0.548JK		0.0484	3.15	1.02	1.007	1
1,2,3,4,6,7,8-HpCDD	11.8		0.0784	3.15	1.09	1.000	1
OCDD	210		0.0674	6.30	0.89	1.000	1
2,3,7,8-TCDF	0.158J		0.0767	0.630	0.65	1.001	1
1,2,3,7,8-PeCDF	0.527J		0.0879	3.15	1.59	1.001	1
2,3,4,7,8-PeCDF	0.374J		0.0908	3.15	1.67	1.001	1
1,2,3,4,7,8-HxCDF	1.32J		0.126	3.15	1.24	1.000	1
1,2,3,6,7,8-HxCDF	1.04J		0.122	3.15	1.15	1.000	1
1,2,3,7,8,9-HxCDF	0.582J		0.186	3.15	1.07	1.001	1
2,3,4,6,7,8-HxCDF	0.593J		0.130	3.15	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	8.20		0.0592	3.15	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	2.76J		0.0724	3.15	1.06	1.000	1
OCDF	56.0		0.0775	6.30	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 09:00
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L2A-01 / HS15120773-04	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-004	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 17:24
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.169g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602257	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	7.66		0.0660	0.630	0.76		1
Total Penta-Dioxins	9.96		0.0466	3.15	1.57		1
Total Hexa-Dioxins	34.5		0.0518	3.15	1.25		1
Total Hepta-Dioxins	57.0		0.0784	3.15	1.04		1
Total Tetra-Furans	0.388J		0.0767	0.630	0.66		1
Total Penta-Furans	3.38		0.0893	3.15	1.33		1
Total Hexa-Furans	6.71		0.138	3.15	1.20		1
Total Hepta-Furans	15.6		0.0655	3.15	0.98		1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L2A-01 / HS15120773-04  
**Lab Code:** E1501219-004

**Service Request:** E1501219  
**Date Collected:** 12/16/15 09:00  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.169g  
**Data File Name:** P602257  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 17:24  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	911.197	46		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1020.364	51		25-181	1.63	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1533.700	77		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1592.372	80		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1327.371	66		23-140	1.05	1.067
13C-OCDD	4000	2334.976	58		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1128.605	56		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1106.912	55		24-185	1.58	1.152
13C-2,3,4,7,8-PeCDF	2000	1062.585	53		21-178	1.57	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1449.677	72		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1552.125	78		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1198.304	60		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1435.567	72		28-136	0.50	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1165.895	58		28-143	0.43	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1097.433	55		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	438.979	55		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L2A-01 / HS15120773-04  
**Lab Code:** E1501219-004

**Service Request:** E1501219  
**Date Collected:** 12/16/15 09:00  
**Date Received:** 12/18/15 13:00

**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.0660	0.630	1	1	0.0330
1,2,3,7,8-PeCDD	<b>0.186</b>	0.0466	3.15	1	1	0.186
1,2,3,4,7,8-HxCDD	<b>0.262</b>	0.0528	3.15	1	0.1	0.0262
1,2,3,6,7,8-HxCDD	<b>0.455</b>	0.0544	3.15	1	0.1	0.0455
1,2,3,7,8,9-HxCDD	<b>0.548</b>	0.0484	3.15	1	0.1	0.0548
1,2,3,4,6,7,8-HpCDD	<b>11.8</b>	0.0784	3.15	1	0.01	0.118
OCDD	<b>210</b>	0.0674	6.30	1	0.0003	0.0630
2,3,7,8-TCDF	<b>0.158</b>	0.0767	0.630	1	0.1	0.0158
1,2,3,7,8-PeCDF	<b>0.527</b>	0.0879	3.15	1	0.03	0.0158
2,3,4,7,8-PeCDF	<b>0.374</b>	0.0908	3.15	1	0.3	0.112
1,2,3,4,7,8-HxCDF	<b>1.32</b>	0.126	3.15	1	0.1	0.132
1,2,3,6,7,8-HxCDF	<b>1.04</b>	0.122	3.15	1	0.1	0.104
1,2,3,7,8,9-HxCDF	<b>0.582</b>	0.186	3.15	1	0.1	0.0582
2,3,4,6,7,8-HxCDF	<b>0.593</b>	0.130	3.15	1	0.1	0.0593
1,2,3,4,6,7,8-HpCDF	<b>8.20</b>	0.0592	3.15	1	0.01	0.0820
1,2,3,4,7,8,9-HpCDF	<b>2.76</b>	0.0724	3.15	1	0.01	0.0276
OCDF	<b>56.0</b>	0.0775	6.30	1	0.0003	0.0168
Total TEQ						1.15

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L2A-01 / HS15120773-04  
**Lab Code:** E1501219-004

**Service Request:** E1501219  
**Date Collected:** 12/16/15 09:00  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

**Total Solids**

**Analysis Method:** ALS SOP  
3.905g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Solids	78.1		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 18:55
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L1C-01 / HS15120773-05	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-005	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 18:13
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.514g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602258	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.102	0.600			1
1,2,3,7,8-PeCDD	0.252J		0.0943	3.00	1.73	1.000	1
1,2,3,4,7,8-HxCDD	0.271JK		0.109	3.00	1.73	1.000	1
1,2,3,6,7,8-HxCDD	0.490JK		0.117	3.00	1.01	1.000	1
1,2,3,7,8,9-HxCDD	0.749J		0.102	3.00	1.29	1.007	1
1,2,3,4,6,7,8-HpCDD	14.8		0.0564	3.00	1.05	1.000	1
OCDD	279		0.0358	6.00	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.160	0.600			1
1,2,3,7,8-PeCDF	0.567J		0.135	3.00	1.66	1.001	1
2,3,4,7,8-PeCDF	0.323JK		0.136	3.00	1.08	1.000	1
1,2,3,4,7,8-HxCDF	1.37J		0.115	3.00	1.15	1.000	1
1,2,3,6,7,8-HxCDF	0.973J		0.110	3.00	1.18	1.000	1
1,2,3,7,8,9-HxCDF	0.468J		0.165	3.00	1.16	1.001	1
2,3,4,6,7,8-HxCDF	0.647J		0.119	3.00	1.16	1.000	1
1,2,3,4,6,7,8-HpCDF	8.15		0.0594	3.00	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	2.68J		0.0684	3.00	1.05	1.000	1
OCDF	56.2		0.107	6.00	0.86	1.005	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 18:55
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L1C-01 / HS15120773-05	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-005	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 18:13
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.514g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602258	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	6.32		0.102	0.600	0.84		1
Total Penta-Dioxins	10.7		0.0943	3.00	1.63		1
Total Hexa-Dioxins	34.7		0.109	3.00	1.28		1
Total Hepta-Dioxins	65.9		0.0564	3.00	1.02		1
Total Tetra-Furans	ND	U	0.160	0.600			1
Total Penta-Furans	2.35J		0.136	3.00	1.47		1
Total Hexa-Furans	6.63		0.125	3.00	1.25		1
Total Hepta-Furans	15.5		0.0638	3.00	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L1C-01 / HS15120773-05  
**Lab Code:** E1501219-005

**Service Request:** E1501219  
**Date Collected:** 12/16/15 18:55  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.514g  
**Data File Name:** P602258  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 18:13  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	886.430	44		25-164	0.77	1.022
13C-1,2,3,7,8-PeCDD	2000	1110.939	56		25-181	1.62	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1504.748	75		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1600.096	80		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1445.124	72		23-140	1.05	1.067
13C-OCDD	4000	2625.368	66		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1077.515	54		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1176.195	59		24-185	1.60	1.152
13C-2,3,4,7,8-PeCDF	2000	1171.565	59		21-178	1.58	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1379.588	69		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1514.660	76		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1207.252	60		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1378.941	69		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1213.506	61		28-143	0.44	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1229.876	61		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	425.686	53		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 18:55
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L1C-01 / HS15120773-05	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-005	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.102	0.600	1	1	0.0510
1,2,3,7,8-PeCDD	<b>0.252</b>	0.0943	3.00	1	1	0.252
1,2,3,4,7,8-HxCDD	<b>0.271</b>	0.109	3.00	1	0.1	0.0271
1,2,3,6,7,8-HxCDD	<b>0.490</b>	0.117	3.00	1	0.1	0.0490
1,2,3,7,8,9-HxCDD	<b>0.749</b>	0.102	3.00	1	0.1	0.0749
1,2,3,4,6,7,8-HpCDD	<b>14.8</b>	0.0564	3.00	1	0.01	0.148
OCDD	<b>279</b>	0.0358	6.00	1	0.0003	0.0837
2,3,7,8-TCDF	ND	0.160	0.600	1	0.1	0.00800
1,2,3,7,8-PeCDF	<b>0.567</b>	0.135	3.00	1	0.03	0.0170
2,3,4,7,8-PeCDF	<b>0.323</b>	0.136	3.00	1	0.3	0.0969
1,2,3,4,7,8-HxCDF	<b>1.37</b>	0.115	3.00	1	0.1	0.137
1,2,3,6,7,8-HxCDF	<b>0.973</b>	0.110	3.00	1	0.1	0.0973
1,2,3,7,8,9-HxCDF	<b>0.468</b>	0.165	3.00	1	0.1	0.0468
2,3,4,6,7,8-HxCDF	<b>0.647</b>	0.119	3.00	1	0.1	0.0647
1,2,3,4,6,7,8-HpCDF	<b>8.15</b>	0.0594	3.00	1	0.01	0.0815
1,2,3,4,7,8,9-HpCDF	<b>2.68</b>	0.0684	3.00	1	0.01	0.0268
OCDF	<b>56.2</b>	0.107	6.00	1	0.0003	0.0169
Total TEQ						1.28

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** LIC-01 / HS15120773-05  
**Lab Code:** E1501219-005

**Service Request:** E1501219  
**Date Collected:** 12/16/15 18:55  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

**Total Solids**

**Analysis Method:** ALS SOP  
4.22g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Solids	79.2		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L3B-01 / HS15120773-06  
**Lab Code:** E1501219-006

**Service Request:** E1501219  
**Date Collected:** 12/16/15 07:55  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.106g  
**Data File Name:** P602259  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 19:02  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0896	0.669			1
1,2,3,7,8-PeCDD	0.108JK		0.101	3.35	1.96	1.001	1
1,2,3,4,7,8-HxCDD	0.172JK		0.120	3.35	1.04	1.000	1
1,2,3,6,7,8-HxCDD	0.427JK		0.125	3.35	1.44	1.000	1
1,2,3,7,8,9-HxCDD	0.616J		0.111	3.35	1.07	1.007	1
1,2,3,4,6,7,8-HpCDD	9.90		0.0817	3.35	1.03	1.000	1
OCDD	168		0.0653	6.69	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.122	0.669			1
1,2,3,7,8-PeCDF	0.425J		0.102	3.35	1.69	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.103	3.35			1
1,2,3,4,7,8-HxCDF	1.26J		0.140	3.35	1.28	1.000	1
1,2,3,6,7,8-HxCDF	0.924J		0.132	3.35	1.16	1.000	1
1,2,3,7,8,9-HxCDF	0.461J		0.180	3.35	1.09	1.001	1
2,3,4,6,7,8-HxCDF	0.479J		0.145	3.35	1.37	1.000	1
1,2,3,4,6,7,8-HpCDF	7.71		0.0641	3.35	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	2.63J		0.0729	3.35	1.01	1.000	1
OCDF	58.6		0.0665	6.69	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 07:55
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L3B-01 / HS15120773-06	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-006	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 19:02
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.106g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602259	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	10.2		0.0896	0.669	0.77		1
Total Penta-Dioxins	13.3		0.101	3.35	1.63		1
Total Hexa-Dioxins	37.6		0.118	3.35	1.26		1
Total Hepta-Dioxins	57.9		0.0817	3.35	1.02		1
Total Tetra-Furans	0.204J		0.122	0.669	0.77		1
Total Penta-Furans	1.68J		0.103	3.35	1.39		1
Total Hexa-Furans	5.59		0.148	3.35	1.28		1
Total Hepta-Furans	14.5		0.0685	3.35	0.97		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L3B-01 / HS15120773-06  
**Lab Code:** E1501219-006

**Service Request:** E1501219  
**Date Collected:** 12/16/15 07:55  
**Date Received:** 12/18/15 13:00

**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.106g  
**Data File Name:** P602259  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 19:02  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	912.019	46		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1083.698	54		25-181	1.62	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1464.054	73		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1562.902	78		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1350.092	68		23-140	1.07	1.067
13C-OCDD	4000	2537.711	63		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1113.182	56		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1144.692	57		24-185	1.57	1.152
13C-2,3,4,7,8-PeCDF	2000	1138.466	57		21-178	1.56	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1359.205	68		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1491.760	75		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1252.002	63		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1350.438	68		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1152.884	58		28-143	0.43	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1174.180	59		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	408.123	51		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 07:55
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L3B-01 / HS15120773-06	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-006	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.0896	0.669	1	1	0.0448
1,2,3,7,8-PeCDD	<b>0.108</b>	0.101	3.35	1	1	0.108
1,2,3,4,7,8-HxCDD	<b>0.172</b>	0.120	3.35	1	0.1	0.0172
1,2,3,6,7,8-HxCDD	<b>0.427</b>	0.125	3.35	1	0.1	0.0427
1,2,3,7,8,9-HxCDD	<b>0.616</b>	0.111	3.35	1	0.1	0.0616
1,2,3,4,6,7,8-HpCDD	<b>9.90</b>	0.0817	3.35	1	0.01	0.0990
OCDD	<b>168</b>	0.0653	6.69	1	0.0003	0.0504
2,3,7,8-TCDF	ND	0.122	0.669	1	0.1	0.00610
1,2,3,7,8-PeCDF	<b>0.425</b>	0.102	3.35	1	0.03	0.0128
2,3,4,7,8-PeCDF	ND	0.103	3.35	1	0.3	0.0155
1,2,3,4,7,8-HxCDF	<b>1.26</b>	0.140	3.35	1	0.1	0.126
1,2,3,6,7,8-HxCDF	<b>0.924</b>	0.132	3.35	1	0.1	0.0924
1,2,3,7,8,9-HxCDF	<b>0.461</b>	0.180	3.35	1	0.1	0.0461
2,3,4,6,7,8-HxCDF	<b>0.479</b>	0.145	3.35	1	0.1	0.0479
1,2,3,4,6,7,8-HpCDF	<b>7.71</b>	0.0641	3.35	1	0.01	0.0771
1,2,3,4,7,8,9-HpCDF	<b>2.63</b>	0.0729	3.35	1	0.01	0.0263
OCDF	<b>58.6</b>	0.0665	6.69	1	0.0003	0.0176
Total TEQ						0.892

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L3B-01 / HS15120773-06  
**Lab Code:** E1501219-006

**Service Request:** E1501219  
**Date Collected:** 12/16/15 07:55  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

Total Solids

**Analysis Method:** ALS SOP  
3.914g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	73.9		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 17:55
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L1B-01 / HS15120773-07	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-007	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 19:51
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.928g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602260	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.107	0.626			1
1,2,3,7,8-PeCDD	0.121JK		0.0952	3.13	1.14	1.001	1
1,2,3,4,7,8-HxCDD	0.166JK		0.0784	3.13	1.63	1.000	1
1,2,3,6,7,8-HxCDD	0.335JK		0.0802	3.13	1.04	1.000	1
1,2,3,7,8,9-HxCDD	0.566J		0.0717	3.13	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	11.0		0.146	3.13	1.06	1.000	1
OCDD	199		0.0566	6.26	0.88	1.000	1
2,3,7,8-TCDF	ND	U	0.122	0.626			1
1,2,3,7,8-PeCDF	0.354JK		0.202	3.13	1.22	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.198	3.13			1
1,2,3,4,7,8-HxCDF	1.13J		0.116	3.13	1.21	1.000	1
1,2,3,6,7,8-HxCDF	0.917J		0.108	3.13	1.32	1.000	1
1,2,3,7,8,9-HxCDF	0.359J		0.134	3.13	1.21	1.000	1
2,3,4,6,7,8-HxCDF	0.442J		0.115	3.13	1.09	1.001	1
1,2,3,4,6,7,8-HpCDF	6.88		0.0643	3.13	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	2.45J		0.0717	3.13	1.00	1.000	1
OCDF	47.7		0.188	6.26	0.87	1.005	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 17:55
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L1B-01 / HS15120773-07	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-007	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 19:51
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.928g	<b>Instrument Name:</b>	E-HRMS-08
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P602260	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	08/19/15	<b>Cal Ver. File Name:</b>	P602250

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	10.8		0.107	0.626	0.75		1
Total Penta-Dioxins	14.8		0.0952	3.13	1.48		1
Total Hexa-Dioxins	41.9		0.0765	3.13	1.26		1
Total Hepta-Dioxins	63.1		0.146	3.13	1.04		1
Total Tetra-Furans	ND	U	0.122	0.626			1
Total Penta-Furans	1.20J		0.200	3.13	1.54		1
Total Hexa-Furans	5.91		0.118	3.13	1.23		1
Total Hepta-Furans	13.2		0.0679	3.13	0.98		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L1B-01 / HS15120773-07  
**Lab Code:** E1501219-007

**Service Request:** E1501219  
**Date Collected:** 12/16/15 17:55  
**Date Received:** 12/18/15 13:00

**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.928g  
**Data File Name:** P602260  
**ICAL Date:** 08/19/15

**Date Analyzed:** 01/05/16 19:51  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-08  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P602250

**Labeled Standard Results**

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	857.369	43		25-164	0.77	1.022
13C-1,2,3,7,8-PeCDD	2000	1051.806	53		25-181	1.62	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1433.019	72		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1645.423	82		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1450.194	73		23-140	1.07	1.067
13C-OCDD	4000	2791.989	70		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	1036.478	52		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1112.388	56		24-185	1.57	1.152
13C-2,3,4,7,8-PeCDF	2000	1115.216	56		21-178	1.58	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1364.173	68		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1503.366	75		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1359.640	68		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1408.964	70		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1234.334	62		28-143	0.42	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1226.483	61		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	385.740	48		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 17:55
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L1B-01 / HS15120773-07	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-007	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.107	0.626	1	1	0.0535
1,2,3,7,8-PeCDD	<b>0.121</b>	0.0952	3.13	1	1	0.121
1,2,3,4,7,8-HxCDD	<b>0.166</b>	0.0784	3.13	1	0.1	0.0166
1,2,3,6,7,8-HxCDD	<b>0.335</b>	0.0802	3.13	1	0.1	0.0335
1,2,3,7,8,9-HxCDD	<b>0.566</b>	0.0717	3.13	1	0.1	0.0566
1,2,3,4,6,7,8-HpCDD	<b>11.0</b>	0.146	3.13	1	0.01	0.110
OCDD	<b>199</b>	0.0566	6.26	1	0.0003	0.0597
2,3,7,8-TCDF	ND	0.122	0.626	1	0.1	0.00610
1,2,3,7,8-PeCDF	<b>0.354</b>	0.202	3.13	1	0.03	0.0106
2,3,4,7,8-PeCDF	ND	0.198	3.13	1	0.3	0.0297
1,2,3,4,7,8-HxCDF	<b>1.13</b>	0.116	3.13	1	0.1	0.113
1,2,3,6,7,8-HxCDF	<b>0.917</b>	0.108	3.13	1	0.1	0.0917
1,2,3,7,8,9-HxCDF	<b>0.359</b>	0.134	3.13	1	0.1	0.0359
2,3,4,6,7,8-HxCDF	<b>0.442</b>	0.115	3.13	1	0.1	0.0442
1,2,3,4,6,7,8-HpCDF	<b>6.88</b>	0.0643	3.13	1	0.01	0.0688
1,2,3,4,7,8,9-HpCDF	<b>2.45</b>	0.0717	3.13	1	0.01	0.0245
OCDF	<b>47.7</b>	0.188	6.26	1	0.0003	0.0143
Total TEQ						0.890

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L1B-01 / HS15120773-07  
**Lab Code:** E1501219-007

**Service Request:** E1501219  
**Date Collected:** 12/16/15 17:55  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

Total Solids

**Analysis Method:** ALS SOP  
4.341g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	73.1		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L3A-01 / HS15120773-08  
**Lab Code:** E1501219-008

**Service Request:** E1501219  
**Date Collected:** 12/16/15 07:20  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.559g  
**Data File Name:** P401738  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 13:01  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Native Analyte Results**

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0794	0.633			1
1,2,3,7,8-PeCDD	ND	U	0.127	3.17			1
1,2,3,4,7,8-HxCDD	0.163JK		0.136	3.17	1.76	1.000	1
1,2,3,6,7,8-HxCDD	0.454J		0.140	3.17	1.22	1.000	1
1,2,3,7,8,9-HxCDD	0.812J		0.136	3.17	1.09	1.007	1
1,2,3,4,6,7,8-HpCDD	15.1		0.254	3.17	1.00	1.001	1
OCDD	249		0.106	6.33	0.91	1.000	1
2,3,7,8-TCDF	ND	U	0.0702	0.633			1
1,2,3,7,8-PeCDF	0.474J		0.229	3.17	1.48	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.233	3.17			1
1,2,3,4,7,8-HxCDF	1.28J		0.163	3.17	1.18	1.000	1
1,2,3,6,7,8-HxCDF	0.945J		0.155	3.17	1.26	1.000	1
1,2,3,7,8,9-HxCDF	0.509J		0.201	3.17	1.34	1.000	1
2,3,4,6,7,8-HxCDF	0.559J		0.166	3.17	1.31	1.001	1
1,2,3,4,6,7,8-HpCDF	7.98		0.129	3.17	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	2.65J		0.157	3.17	0.95	1.000	1
OCDF	53.1		0.157	6.33	0.90	1.006	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 07:20
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L3A-01 / HS15120773-08	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-008	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 13:01
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.559g	<b>Instrument Name:</b>	E-HRMS-06
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P401738	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	12/10/15	<b>Cal Ver. File Name:</b>	P401735

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	4.39		0.0794	0.633	0.80		1
Total Penta-Dioxins	10.8		0.127	3.17	1.58		1
Total Hexa-Dioxins	43.1		0.138	3.17	1.27		1
Total Hepta-Dioxins	70.7		0.254	3.17	1.01		1
Total Tetra-Furans	0.228J		0.0702	0.633	0.69		1
Total Penta-Furans	1.85J		0.231	3.17	1.42		1
Total Hexa-Furans	5.94		0.170	3.17	1.09		1
Total Hepta-Furans	15.3		0.142	3.17	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L3A-01 / HS15120773-08  
**Lab Code:** E1501219-008

**Service Request:** E1501219  
**Date Collected:** 12/16/15 07:20  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.559g  
**Data File Name:** P401738  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 13:01  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	1236.956	62		25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1160.852	58		25-181	1.57	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1543.961	77		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1476.778	74		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1725.145	86		23-140	1.07	1.065
13C-OCDD	4000	3353.950	84		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	1157.998	58		24-169	0.81	0.994
13C-1,2,3,7,8-PeCDF	2000	1120.379	56		24-185	1.58	1.138
13C-2,3,4,7,8-PeCDF	2000	1120.819	56		21-178	1.58	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1403.308	70		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1434.841	72		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1626.621	81		29-147	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1463.782	73		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1360.971	68		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1854.336	93		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	551.677	69		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L3A-01 / HS15120773-08  
**Lab Code:** E1501219-008

**Service Request:** E1501219  
**Date Collected:** 12/16/15 07:20  
**Date Received:** 12/18/15 13:00

**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.0794	0.633	1	1	0.0397
1,2,3,7,8-PeCDD	ND	0.127	3.17	1	1	0.0635
1,2,3,4,7,8-HxCDD	<b>0.163</b>	0.136	3.17	1	0.1	0.0163
1,2,3,6,7,8-HxCDD	<b>0.454</b>	0.140	3.17	1	0.1	0.0454
1,2,3,7,8,9-HxCDD	<b>0.812</b>	0.136	3.17	1	0.1	0.0812
1,2,3,4,6,7,8-HpCDD	<b>15.1</b>	0.254	3.17	1	0.01	0.151
OCDD	<b>249</b>	0.106	6.33	1	0.0003	0.0747
2,3,7,8-TCDF	ND	0.0702	0.633	1	0.1	0.00351
1,2,3,7,8-PeCDF	<b>0.474</b>	0.229	3.17	1	0.03	0.0142
2,3,4,7,8-PeCDF	ND	0.233	3.17	1	0.3	0.0350
1,2,3,4,7,8-HxCDF	<b>1.28</b>	0.163	3.17	1	0.1	0.128
1,2,3,6,7,8-HxCDF	<b>0.945</b>	0.155	3.17	1	0.1	0.0945
1,2,3,7,8,9-HxCDF	<b>0.509</b>	0.201	3.17	1	0.1	0.0509
2,3,4,6,7,8-HxCDF	<b>0.559</b>	0.166	3.17	1	0.1	0.0559
1,2,3,4,6,7,8-HpCDF	<b>7.98</b>	0.129	3.17	1	0.01	0.0798
1,2,3,4,7,8,9-HpCDF	<b>2.65</b>	0.157	3.17	1	0.01	0.0265
OCDF	<b>53.1</b>	0.157	6.33	1	0.0003	0.0159
Total TEQ						0.976

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L3A-01 / HS15120773-08  
**Lab Code:** E1501219-008

**Service Request:** E1501219  
**Date Collected:** 12/16/15 07:20  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

Total Solids

**Analysis Method:** ALS SOP  
3.875g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	74.8		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L1A-01 / HS15120773-09  
**Lab Code:** E1501219-009

**Service Request:** E1501219  
**Date Collected:** 12/16/15 17:00  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.865g  
**Data File Name:** P401739  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 13:50  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0754	0.643			1
1,2,3,7,8-PeCDD	0.219J		0.0985	3.21	1.33	1.000	1
1,2,3,4,7,8-HxCDD	0.297JK		0.0974	3.21	2.01	1.000	1
1,2,3,6,7,8-HxCDD	0.684J		0.0984	3.21	1.12	1.000	1
1,2,3,7,8,9-HxCDD	0.936J		0.0965	3.21	1.23	1.006	1
1,2,3,4,6,7,8-HpCDD	19.9		0.316	3.21	1.04	1.000	1
OCDD	307		0.114	6.43	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.0596	0.643			1
1,2,3,7,8-PeCDF	0.532J		0.183	3.21	1.33	1.000	1
2,3,4,7,8-PeCDF	0.346J		0.184	3.21	1.37	1.000	1
1,2,3,4,7,8-HxCDF	1.37J		0.155	3.21	1.09	1.000	1
1,2,3,6,7,8-HxCDF	0.962J		0.147	3.21	1.05	1.000	1
1,2,3,7,8,9-HxCDF	0.555J		0.181	3.21	1.17	1.001	1
2,3,4,6,7,8-HxCDF	0.556J		0.151	3.21	1.26	1.000	1
1,2,3,4,6,7,8-HpCDF	8.18		0.107	3.21	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	3.05J		0.132	3.21	1.00	1.000	1
OCDF	55.9		0.128	6.43	0.87	1.006	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 17:00
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L1A-01 / HS15120773-09	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-009	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 13:50
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.865g	<b>Instrument Name:</b>	E-HRMS-06
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P401739	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	12/10/15	<b>Cal Ver. File Name:</b>	P401735

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	12.0		0.0754	0.643	0.88		1
Total Penta-Dioxins	13.2		0.0985	3.21	1.59		1
Total Hexa-Dioxins	64.6		0.0975	3.21	1.26		1
Total Hepta-Dioxins	109		0.316	3.21	1.03		1
Total Tetra-Furans	0.415J		0.0596	0.643	0.70		1
Total Penta-Furans	2.22J		0.184	3.21	1.40		1
Total Hexa-Furans	4.67		0.158	3.21	1.19		1
Total Hepta-Furans	15.9		0.118	3.21	1.02		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L1A-01 / HS15120773-09  
**Lab Code:** E1501219-009

**Service Request:** E1501219  
**Date Collected:** 12/16/15 17:00  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.865g  
**Data File Name:** P401739  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 13:50  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Labeled Standard Results**

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1124.881	56		25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1126.716	56		25-181	1.58	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1428.659	71		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1370.174	69		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1601.082	80		23-140	1.07	1.065
13C-OCDD	4000	3215.331	80		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	1048.057	52		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1056.009	53		24-185	1.59	1.138
13C-2,3,4,7,8-PeCDF	2000	1082.581	54		21-178	1.58	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1302.091	65		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1320.570	66		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1535.195	77		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1399.259	70		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1278.775	64		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1718.429	86		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	524.463	66		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L1A-01 / HS15120773-09  
**Lab Code:** E1501219-009

**Service Request:** E1501219  
**Date Collected:** 12/16/15 17:00  
**Date Received:** 12/18/15 13:00

**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.0754	0.643	1	1	0.0377
1,2,3,7,8-PeCDD	<b>0.219</b>	0.0985	3.21	1	1	0.219
1,2,3,4,7,8-HxCDD	<b>0.297</b>	0.0974	3.21	1	0.1	0.0297
1,2,3,6,7,8-HxCDD	<b>0.684</b>	0.0984	3.21	1	0.1	0.0684
1,2,3,7,8,9-HxCDD	<b>0.936</b>	0.0965	3.21	1	0.1	0.0936
1,2,3,4,6,7,8-HpCDD	<b>19.9</b>	0.316	3.21	1	0.01	0.199
OCDD	<b>307</b>	0.114	6.43	1	0.0003	0.0921
2,3,7,8-TCDF	ND	0.0596	0.643	1	0.1	0.00298
1,2,3,7,8-PeCDF	<b>0.532</b>	0.183	3.21	1	0.03	0.0160
2,3,4,7,8-PeCDF	<b>0.346</b>	0.184	3.21	1	0.3	0.104
1,2,3,4,7,8-HxCDF	<b>1.37</b>	0.155	3.21	1	0.1	0.137
1,2,3,6,7,8-HxCDF	<b>0.962</b>	0.147	3.21	1	0.1	0.0962
1,2,3,7,8,9-HxCDF	<b>0.555</b>	0.181	3.21	1	0.1	0.0555
2,3,4,6,7,8-HxCDF	<b>0.556</b>	0.151	3.21	1	0.1	0.0556
1,2,3,4,6,7,8-HpCDF	<b>8.18</b>	0.107	3.21	1	0.01	0.0818
1,2,3,4,7,8,9-HpCDF	<b>3.05</b>	0.132	3.21	1	0.01	0.0305
OCDF	<b>55.9</b>	0.128	6.43	1	0.0003	0.0168
Total TEQ						1.34

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L1A-01 / HS15120773-09  
**Lab Code:** E1501219-009

**Service Request:** E1501219  
**Date Collected:** 12/16/15 17:00  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

Total Solids

**Analysis Method:** ALS SOP  
4.055g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	71.6		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4C-01- Dup / HS15120773-10  
**Lab Code:** E1501219-010

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:30  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.649g  
**Data File Name:** P401740  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 14:39  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0954	0.660			1
1,2,3,7,8-PeCDD	0.214J		0.120	3.30	1.41	1.000	1
1,2,3,4,7,8-HxCDD	0.462J		0.199	3.30	1.19	1.000	1
1,2,3,6,7,8-HxCDD	0.516JK		0.200	3.30	0.84	1.000	1
1,2,3,7,8,9-HxCDD	1.12J		0.197	3.30	1.40	1.007	1
1,2,3,4,6,7,8-HpCDD	22.5		0.394	3.30	1.01	1.001	1
OCDD	371		0.219	6.60	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.117	0.660			1
1,2,3,7,8-PeCDF	0.704JK		0.261	3.30	1.28	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.278	3.30			1
1,2,3,4,7,8-HxCDF	1.82J		0.211	3.30	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1.53J		0.200	3.30	1.23	1.000	1
1,2,3,7,8,9-HxCDF	0.696JK		0.252	3.30	1.47	1.000	1
2,3,4,6,7,8-HxCDF	0.862J		0.206	3.30	1.10	1.001	1
1,2,3,4,6,7,8-HpCDF	11.7		0.136	3.30	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	3.88		0.164	3.30	0.93	1.000	1
OCDF	82.0		0.154	6.60	0.86	1.006	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 11:30
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L4C-01- Dup / HS15120773-10	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-010	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 14:39
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.649g	<b>Instrument Name:</b>	E-HRMS-06
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P401740	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	12/10/15	<b>Cal Ver. File Name:</b>	P401735

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	12.4		0.0954	0.660	0.82		1
Total Penta-Dioxins	16.9		0.120	3.30	1.74		1
Total Hexa-Dioxins	61.5		0.199	3.30	1.27		1
Total Hepta-Dioxins	104		0.394	3.30	1.04		1
Total Tetra-Furans	ND	U	0.117	0.660			1
Total Penta-Furans	2.07J		0.269	3.30	1.33		1
Total Hexa-Furans	8.33		0.216	3.30	1.28		1
Total Hepta-Furans	22.0		0.149	3.30	1.09		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4C-01- Dup / HS15120773-10  
**Lab Code:** E1501219-010

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:30  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.649g  
**Data File Name:** P401740  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 14:39  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	798.141	40		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	779.749	39		25-181	1.59	1.179
13C-1,2,3,4,7,8-HxCDD	2000	984.108	49		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	952.596	48		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1096.223	55		23-140	1.06	1.065
13C-OCDD	4000	2225.568	56		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	729.483	36		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	726.823	36		24-185	1.59	1.138
13C-2,3,4,7,8-PeCDF	2000	756.008	38		21-178	1.57	1.170
13C-1,2,3,4,7,8-HxCDF	2000	879.048	44		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	906.724	45		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1068.315	53		29-147	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	952.889	48		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	868.410	43		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1201.431	60		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	552.140	69		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4C-01- Dup / HS15120773-10  
**Lab Code:** E1501219-010

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:30  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.0954	0.660	1	1	0.0477
1,2,3,7,8-PeCDD	<b>0.214</b>	0.120	3.30	1	1	0.214
1,2,3,4,7,8-HxCDD	<b>0.462</b>	0.199	3.30	1	0.1	0.0462
1,2,3,6,7,8-HxCDD	<b>0.516</b>	0.200	3.30	1	0.1	0.0516
1,2,3,7,8,9-HxCDD	<b>1.12</b>	0.197	3.30	1	0.1	0.112
1,2,3,4,6,7,8-HpCDD	<b>22.5</b>	0.394	3.30	1	0.01	0.225
OCDD	<b>371</b>	0.219	6.60	1	0.0003	0.111
2,3,7,8-TCDF	ND	0.117	0.660	1	0.1	0.00585
1,2,3,7,8-PeCDF	<b>0.704</b>	0.261	3.30	1	0.03	0.0211
2,3,4,7,8-PeCDF	ND	0.278	3.30	1	0.3	0.0417
1,2,3,4,7,8-HxCDF	<b>1.82</b>	0.211	3.30	1	0.1	0.182
1,2,3,6,7,8-HxCDF	<b>1.53</b>	0.200	3.30	1	0.1	0.153
1,2,3,7,8,9-HxCDF	<b>0.696</b>	0.252	3.30	1	0.1	0.0696
2,3,4,6,7,8-HxCDF	<b>0.862</b>	0.206	3.30	1	0.1	0.0862
1,2,3,4,6,7,8-HpCDF	<b>11.7</b>	0.136	3.30	1	0.01	0.117
1,2,3,4,7,8,9-HpCDF	<b>3.88</b>	0.164	3.30	1	0.01	0.0388
OCDF	<b>82.0</b>	0.154	6.60	1	0.0003	0.0246
Total TEQ						1.55

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4C-01- Dup / HS15120773-10  
**Lab Code:** E1501219-010

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:30  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

**Total Solids**

**Analysis Method:** ALS SOP  
4.159g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Solids	71.1		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4A-01 / HS15120773-11  
**Lab Code:** E1501219-011

**Service Request:** E1501219  
**Date Collected:** 12/16/15 10:30  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.793g  
**Data File Name:** P401741  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 15:28  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Native Analyte Results**

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0591	0.615			1
1,2,3,7,8-PeCDD	ND	U	0.103	3.08			1
1,2,3,4,7,8-HxCDD	0.189JK		0.0890	3.08	0.99	1.000	1
1,2,3,6,7,8-HxCDD	0.363JK		0.0917	3.08	1.04	1.000	1
1,2,3,7,8,9-HxCDD	0.643J		0.0891	3.08	1.40	1.007	1
1,2,3,4,6,7,8-HpCDD	13.5		0.186	3.08	1.03	1.000	1
OCDD	225		0.118	6.15	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.0804	0.615			1
1,2,3,7,8-PeCDF	0.371JK		0.233	3.08	1.10	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.235	3.08			1
1,2,3,4,7,8-HxCDF	1.22J		0.124	3.08	1.22	1.000	1
1,2,3,6,7,8-HxCDF	0.942J		0.122	3.08	1.12	1.000	1
1,2,3,7,8,9-HxCDF	0.420JK		0.167	3.08	1.55	1.001	1
2,3,4,6,7,8-HxCDF	0.530J		0.129	3.08	1.05	1.001	1
1,2,3,4,6,7,8-HpCDF	8.12		0.137	3.08	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	2.83J		0.162	3.08	0.94	1.000	1
OCDF	59.7		0.172	6.15	0.89	1.005	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 10:30
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L4A-01 / HS15120773-11	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-011	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 15:28
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.793g	<b>Instrument Name:</b>	E-HRMS-06
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P401741	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	12/10/15	<b>Cal Ver. File Name:</b>	P401735

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	5.13		0.0591	0.615	0.82		1
Total Penta-Dioxins	8.44		0.103	3.08	1.67		1
Total Hexa-Dioxins	29.4		0.0900	3.08	1.27		1
Total Hepta-Dioxins	52.8		0.186	3.08	1.07		1
Total Tetra-Furans	ND	U	0.0804	0.615			1
Total Penta-Furans	0.456J		0.234	3.08	1.63		1
Total Hexa-Furans	4.82		0.134	3.08	1.35		1
Total Hepta-Furans	15.5		0.149	3.08	1.00		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4A-01 / HS15120773-11  
**Lab Code:** E1501219-011

**Service Request:** E1501219  
**Date Collected:** 12/16/15 10:30  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.793g  
**Data File Name:** P401741  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 15:28  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	1214.657	61		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1137.182	57		25-181	1.58	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1472.345	74		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1360.845	68		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1450.727	73		23-140	1.07	1.065
13C-OCDD	4000	2672.795	67		17-157	0.88	1.140
13C-2,3,7,8-TCDF	2000	1137.075	57		24-169	0.81	0.994
13C-1,2,3,7,8-PeCDF	2000	1075.788	54		24-185	1.59	1.137
13C-2,3,4,7,8-PeCDF	2000	1105.565	55		21-178	1.57	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1336.023	67		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1329.948	66		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1441.185	72		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1354.198	68		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1197.605	60		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1643.700	82		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	564.194	71		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US **Service Request:** E1501219  
**Project:** HS15120773 Dioxins Furans by Method 1613B **Date Collected:** 12/16/15 10:30  
**Sample Matrix:** Soil **Date Received:** 12/18/15 13:00  
**Sample Name:** L4A-01 / HS15120773-11 **Units:** ng/Kg  
**Lab Code:** E1501219-011 **Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.0591	0.615	1	1	0.0296
1,2,3,7,8-PeCDD	ND	0.103	3.08	1	1	0.0515
1,2,3,4,7,8-HxCDD	<b>0.189</b>	0.0890	3.08	1	0.1	0.0189
1,2,3,6,7,8-HxCDD	<b>0.363</b>	0.0917	3.08	1	0.1	0.0363
1,2,3,7,8,9-HxCDD	<b>0.643</b>	0.0891	3.08	1	0.1	0.0643
1,2,3,4,6,7,8-HpCDD	<b>13.5</b>	0.186	3.08	1	0.01	0.135
OCDD	<b>225</b>	0.118	6.15	1	0.0003	0.0675
2,3,7,8-TCDF	ND	0.0804	0.615	1	0.1	0.00402
1,2,3,7,8-PeCDF	<b>0.371</b>	0.233	3.08	1	0.03	0.0111
2,3,4,7,8-PeCDF	ND	0.235	3.08	1	0.3	0.0353
1,2,3,4,7,8-HxCDF	<b>1.22</b>	0.124	3.08	1	0.1	0.122
1,2,3,6,7,8-HxCDF	<b>0.942</b>	0.122	3.08	1	0.1	0.0942
1,2,3,7,8,9-HxCDF	<b>0.420</b>	0.167	3.08	1	0.1	0.0420
2,3,4,6,7,8-HxCDF	<b>0.530</b>	0.129	3.08	1	0.1	0.0530
1,2,3,4,6,7,8-HpCDF	<b>8.12</b>	0.137	3.08	1	0.01	0.0812
1,2,3,4,7,8,9-HpCDF	<b>2.83</b>	0.162	3.08	1	0.01	0.0283
OCDF	<b>59.7</b>	0.172	6.15	1	0.0003	0.0179
Total TEQ						0.892

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4A-01 / HS15120773-11  
**Lab Code:** E1501219-011

**Service Request:** E1501219  
**Date Collected:** 12/16/15 10:30  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

Total Solids

**Analysis Method:** ALS SOP  
4.236g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	75.3		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Bypass B / HS15120773-12  
**Lab Code:** E1501219-012

**Service Request:** E1501219  
**Date Collected:** 12/16/15 18:05  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.284g  
**Data File Name:** P401742  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 16:17  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Native Analyte Results**

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0859	0.662			1
1,2,3,7,8-PeCDD	0.224JK		0.0932	3.31	1.85	1.000	1
1,2,3,4,7,8-HxCDD	0.205JK		0.0868	3.31	1.64	1.000	1
1,2,3,6,7,8-HxCDD	0.602J		0.0858	3.31	1.34	1.000	1
1,2,3,7,8,9-HxCDD	0.891JK		0.0850	3.31	0.96	1.007	1
1,2,3,4,6,7,8-HpCDD	17.9		0.371	3.31	1.08	1.000	1
OCDD	350		0.0749	6.62	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.0889	0.662			1
1,2,3,7,8-PeCDF	0.526J		0.202	3.31	1.41	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.204	3.31			1
1,2,3,4,7,8-HxCDF	1.35J		0.137	3.31	1.16	1.000	1
1,2,3,6,7,8-HxCDF	1.11J		0.128	3.31	1.22	1.000	1
1,2,3,7,8,9-HxCDF	0.403J		0.169	3.31	1.30	1.000	1
2,3,4,6,7,8-HxCDF	0.541J		0.139	3.31	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	8.13		0.118	3.31	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	2.87J		0.141	3.31	1.04	1.000	1
OCDF	59.3		0.117	6.62	0.88	1.006	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 18:05
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	Bypass B / HS15120773-12	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-012	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 16:17
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.284g	<b>Instrument Name:</b>	E-HRMS-06
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P401742	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	12/10/15	<b>Cal Ver. File Name:</b>	P401735

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	7.89		0.0859	0.662	0.81		1
Total Penta-Dioxins	12.2		0.0932	3.31	1.50		1
Total Hexa-Dioxins	50.2		0.0858	3.31	1.22		1
Total Hepta-Dioxins	89.8		0.371	3.31	1.02		1
Total Tetra-Furans	0.170J		0.0889	0.662	0.69		1
Total Penta-Furans	2.01J		0.203	3.31	1.49		1
Total Hexa-Furans	6.28		0.142	3.31	1.38		1
Total Hepta-Furans	15.5		0.129	3.31	1.05		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Bypass B / HS15120773-12  
**Lab Code:** E1501219-012

**Service Request:** E1501219  
**Date Collected:** 12/16/15 18:05  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.284g  
**Data File Name:** P401742  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 16:17  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	1260.919	63		25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1214.488	61		25-181	1.58	1.179
13C-1,2,3,4,7,8-HxCDD	2000	1428.517	71		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1423.612	71		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1561.335	78		23-140	1.07	1.066
13C-OCDD	4000	3026.545	76		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	1175.182	59		24-169	0.81	0.994
13C-1,2,3,7,8-PeCDF	2000	1149.578	57		24-185	1.59	1.138
13C-2,3,4,7,8-PeCDF	2000	1160.485	58		21-178	1.59	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1355.879	68		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1351.937	68		26-123	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1549.507	77		29-147	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1393.266	70		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1248.414	62		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1733.887	87		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	547.478	68		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 18:05
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	Bypass B / HS15120773-12	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-012	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.0859	0.662	1	1	0.0430
1,2,3,7,8-PeCDD	<b>0.224</b>	0.0932	3.31	1	1	0.224
1,2,3,4,7,8-HxCDD	<b>0.205</b>	0.0868	3.31	1	0.1	0.0205
1,2,3,6,7,8-HxCDD	<b>0.602</b>	0.0858	3.31	1	0.1	0.0602
1,2,3,7,8,9-HxCDD	<b>0.891</b>	0.0850	3.31	1	0.1	0.0891
1,2,3,4,6,7,8-HpCDD	<b>17.9</b>	0.371	3.31	1	0.01	0.179
OCDD	<b>350</b>	0.0749	6.62	1	0.0003	0.105
2,3,7,8-TCDF	ND	0.0889	0.662	1	0.1	0.00445
1,2,3,7,8-PeCDF	<b>0.526</b>	0.202	3.31	1	0.03	0.0158
2,3,4,7,8-PeCDF	ND	0.204	3.31	1	0.3	0.0306
1,2,3,4,7,8-HxCDF	<b>1.35</b>	0.137	3.31	1	0.1	0.135
1,2,3,6,7,8-HxCDF	<b>1.11</b>	0.128	3.31	1	0.1	0.111
1,2,3,7,8,9-HxCDF	<b>0.403</b>	0.169	3.31	1	0.1	0.0403
2,3,4,6,7,8-HxCDF	<b>0.541</b>	0.139	3.31	1	0.1	0.0541
1,2,3,4,6,7,8-HpCDF	<b>8.13</b>	0.118	3.31	1	0.01	0.0813
1,2,3,4,7,8,9-HpCDF	<b>2.87</b>	0.141	3.31	1	0.01	0.0287
OCDF	<b>59.3</b>	0.117	6.62	1	0.0003	0.0178
Total TEQ						1.24

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Bypass B / HS15120773-12  
**Lab Code:** E1501219-012

**Service Request:** E1501219  
**Date Collected:** 12/16/15 18:05  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

Total Solids

**Analysis Method:** ALS SOP  
3.833g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	73.4		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4C-01 / HS15120773-13  
**Lab Code:** E1501219-013

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:30  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.569g  
**Data File Name:** P401743  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 17:21  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Native Analyte Results**

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.299	0.727			1
1,2,3,7,8-PeCDD	ND	U	0.297	3.63			1
1,2,3,4,7,8-HxCDD	ND	U	0.267	3.63			1
1,2,3,6,7,8-HxCDD	ND	U	0.249	3.63			1
1,2,3,7,8,9-HxCDD	0.945J		0.254	3.63	1.10	1.007	1
1,2,3,4,6,7,8-HpCDD	16.0		0.697	3.63	1.08	1.000	1
OCDD	289		0.530	7.27	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.308	0.727			1
1,2,3,7,8-PeCDF	ND	U	0.419	3.63			1
2,3,4,7,8-PeCDF	ND	U	0.402	3.63			1
1,2,3,4,7,8-HxCDF	1.69JK		0.222	3.63	1.46	1.000	1
1,2,3,6,7,8-HxCDF	1.32J		0.208	3.63	1.32	1.000	1
1,2,3,7,8,9-HxCDF	0.579JK		0.299	3.63	1.73	1.000	1
2,3,4,6,7,8-HxCDF	0.685J		0.227	3.63	1.09	1.000	1
1,2,3,4,6,7,8-HpCDF	9.59		0.252	3.63	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	3.10J		0.328	3.63	0.95	1.000	1
OCDF	71.0		0.556	7.27	0.86	1.005	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 11:30
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L4C-01 / HS15120773-13	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-013	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 17:21
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.569g	<b>Instrument Name:</b>	E-HRMS-06
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P401743	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	12/10/15	<b>Cal Ver. File Name:</b>	P401735

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	ND	U	0.299	0.727			1
Total Penta-Dioxins	7.52		0.297	3.63	1.66		1
Total Hexa-Dioxins	42.4		0.256	3.63	1.14		1
Total Hepta-Dioxins	77.7		0.697	3.63	1.00		1
Total Tetra-Furans	ND	U	0.308	0.727			1
Total Penta-Furans	ND	U	0.410	3.63			1
Total Hexa-Furans	3.14J		0.236	3.63	1.15		1
Total Hepta-Furans	18.3		0.287	3.63	1.05		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4C-01 / HS15120773-13  
**Lab Code:** E1501219-013

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:30  
**Date Received:** 12/18/15 13:00

**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.569g  
**Data File Name:** P401743  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 17:21  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Labeled Standard Results**

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1043.884	52		25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1076.140	54		25-181	1.57	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1330.870	67		32-141	1.23	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1434.494	72		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1517.094	76		23-140	1.03	1.066
13C-OCDD	4000	2944.590	74		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	977.361	49		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1018.452	51		24-185	1.59	1.138
13C-2,3,4,7,8-PeCDF	2000	1079.296	54		21-178	1.56	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1295.138	65		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1329.991	66		26-123	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1409.591	70		29-147	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1343.314	67		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1282.778	64		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1687.704	84		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	513.420	64		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 11:30
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L4C-01 / HS15120773-13	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-013	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.299	0.727	1	1	0.150
1,2,3,7,8-PeCDD	ND	0.297	3.63	1	1	0.149
1,2,3,4,7,8-HxCDD	ND	0.267	3.63	1	0.1	0.0134
1,2,3,6,7,8-HxCDD	ND	0.249	3.63	1	0.1	0.0125
1,2,3,7,8,9-HxCDD	<b>0.945</b>	0.254	3.63	1	0.1	0.0945
1,2,3,4,6,7,8-HpCDD	<b>16.0</b>	0.697	3.63	1	0.01	0.160
OCDD	<b>289</b>	0.530	7.27	1	0.0003	0.0867
2,3,7,8-TCDF	ND	0.308	0.727	1	0.1	0.0154
1,2,3,7,8-PeCDF	ND	0.419	3.63	1	0.03	0.00629
2,3,4,7,8-PeCDF	ND	0.402	3.63	1	0.3	0.0603
1,2,3,4,7,8-HxCDF	<b>1.69</b>	0.222	3.63	1	0.1	0.169
1,2,3,6,7,8-HxCDF	<b>1.32</b>	0.208	3.63	1	0.1	0.132
1,2,3,7,8,9-HxCDF	<b>0.579</b>	0.299	3.63	1	0.1	0.0579
2,3,4,6,7,8-HxCDF	<b>0.685</b>	0.227	3.63	1	0.1	0.0685
1,2,3,4,6,7,8-HpCDF	<b>9.59</b>	0.252	3.63	1	0.01	0.0959
1,2,3,4,7,8,9-HpCDF	<b>3.10</b>	0.328	3.63	1	0.01	0.0310
OCDF	<b>71.0</b>	0.556	7.27	1	0.0003	0.0213
Total TEQ						1.32

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4C-01 / HS15120773-13  
**Lab Code:** E1501219-013

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:30  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

Total Solids

**Analysis Method:** ALS SOP  
4.002g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	65.1		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4B-01 / HS15120773-14  
**Lab Code:** E1501219-014

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:00  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.416g  
**Data File Name:** P401744  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 18:09  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Native Analyte Results**

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0605	0.676			1
1,2,3,7,8-PeCDD	0.256J		0.105	3.38	1.48	1.000	1
1,2,3,4,7,8-HxCDD	0.375J		0.0563	3.38	1.36	1.000	1
1,2,3,6,7,8-HxCDD	0.716JK		0.0568	3.38	1.02	1.000	1
1,2,3,7,8,9-HxCDD	0.954J		0.0558	3.38	1.13	1.007	1
1,2,3,4,6,7,8-HpCDD	21.6		0.247	3.38	1.10	1.000	1
OCDD	364		0.141	6.76	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.0979	0.676			1
1,2,3,7,8-PeCDF	0.612J		0.194	3.38	1.55	1.001	1
2,3,4,7,8-PeCDF	0.433J		0.191	3.38	1.58	1.000	1
1,2,3,4,7,8-HxCDF	1.66J		0.168	3.38	1.23	1.000	1
1,2,3,6,7,8-HxCDF	1.28J		0.155	3.38	1.29	1.000	1
1,2,3,7,8,9-HxCDF	0.548J		0.218	3.38	1.15	1.000	1
2,3,4,6,7,8-HxCDF	0.711J		0.181	3.38	1.28	1.000	1
1,2,3,4,6,7,8-HpCDF	10.9		0.0952	3.38	0.90	1.000	1
1,2,3,4,7,8,9-HpCDF	3.86		0.108	3.38	1.16	1.000	1
OCDF	79.4		0.150	6.76	0.87	1.006	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 11:00
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L4B-01 / HS15120773-14	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-014	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 18:09
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.416g	<b>Instrument Name:</b>	E-HRMS-06
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P401744	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	12/10/15	<b>Cal Ver. File Name:</b>	P401735

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	10.9		0.0605	0.676	0.82		1
Total Penta-Dioxins	11.6		0.105	3.38	1.60		1
Total Hexa-Dioxins	55.1		0.0563	3.38	1.24		1
Total Hepta-Dioxins	103		0.247	3.38	1.06		1
Total Tetra-Furans	0.740		0.0979	0.676	0.69		1
Total Penta-Furans	2.63J		0.192	3.38	1.62		1
Total Hexa-Furans	6.68		0.178	3.38	1.25		1
Total Hepta-Furans	20.5		0.101	3.38	0.90		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4B-01 / HS15120773-14  
**Lab Code:** E1501219-014

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:00  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.416g  
**Data File Name:** P401744  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 18:09  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	990.513	50		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1085.329	54		25-181	1.59	1.179
13C-1,2,3,4,7,8-HxCDD	2000	1104.980	55		32-141	1.34	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1035.529	52		28-130	1.19	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1136.204	57		23-140	1.06	1.066
13C-OCDD	4000	2122.208	53		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	919.203	46		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	931.256	47		24-185	1.57	1.138
13C-2,3,4,7,8-PeCDF	2000	965.318	48		21-178	1.58	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1112.281	56		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1138.777	57		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1175.241	59		29-147	0.51	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1052.717	53		28-136	0.53	0.989
13C-1,2,3,4,6,7,8-HpCDF	2000	897.912	45		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1301.677	65		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	458.289	57		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4B-01 / HS15120773-14  
**Lab Code:** E1501219-014

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:00  
**Date Received:** 12/18/15 13:00

**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.0605	0.676	1	1	0.0303
1,2,3,7,8-PeCDD	<b>0.256</b>	0.105	3.38	1	1	0.256
1,2,3,4,7,8-HxCDD	<b>0.375</b>	0.0563	3.38	1	0.1	0.0375
1,2,3,6,7,8-HxCDD	<b>0.716</b>	0.0568	3.38	1	0.1	0.0716
1,2,3,7,8,9-HxCDD	<b>0.954</b>	0.0558	3.38	1	0.1	0.0954
1,2,3,4,6,7,8-HpCDD	<b>21.6</b>	0.247	3.38	1	0.01	0.216
OCDD	<b>364</b>	0.141	6.76	1	0.0003	0.109
2,3,7,8-TCDF	ND	0.0979	0.676	1	0.1	0.00490
1,2,3,7,8-PeCDF	<b>0.612</b>	0.194	3.38	1	0.03	0.0184
2,3,4,7,8-PeCDF	<b>0.433</b>	0.191	3.38	1	0.3	0.130
1,2,3,4,7,8-HxCDF	<b>1.66</b>	0.168	3.38	1	0.1	0.166
1,2,3,6,7,8-HxCDF	<b>1.28</b>	0.155	3.38	1	0.1	0.128
1,2,3,7,8,9-HxCDF	<b>0.548</b>	0.218	3.38	1	0.1	0.0548
2,3,4,6,7,8-HxCDF	<b>0.711</b>	0.181	3.38	1	0.1	0.0711
1,2,3,4,6,7,8-HpCDF	<b>10.9</b>	0.0952	3.38	1	0.01	0.109
1,2,3,4,7,8,9-HpCDF	<b>3.86</b>	0.108	3.38	1	0.01	0.0386
OCDF	<b>79.4</b>	0.150	6.76	1	0.0003	0.0238
Total TEQ						1.56

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L4B-01 / HS15120773-14  
**Lab Code:** E1501219-014

**Service Request:** E1501219  
**Date Collected:** 12/16/15 11:00  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

**Total Solids**

**Analysis Method:** ALS SOP  
4.21g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Solids	71.0		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L2C-01 / HS15120773-15  
**Lab Code:** E1501219-015

**Service Request:** E1501219  
**Date Collected:** 12/16/15 10:00  
**Date Received:** 12/18/15 13:00  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.582g  
**Data File Name:** P401745  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 18:58  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0916	0.677			1
1,2,3,7,8-PeCDD	0.211JK		0.106	3.38	1.17	1.000	1
1,2,3,4,7,8-HxCDD	0.397J		0.122	3.38	1.36	1.000	1
1,2,3,6,7,8-HxCDD	0.605J		0.119	3.38	1.27	1.000	1
1,2,3,7,8,9-HxCDD	1.18J		0.119	3.38	1.19	1.007	1
1,2,3,4,6,7,8-HpCDD	19.9		0.304	3.38	1.07	1.000	1
OCDD	388		0.171	6.77	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.0621	0.677			1
1,2,3,7,8-PeCDF	0.571J		0.194	3.38	1.56	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.195	3.38			1
1,2,3,4,7,8-HxCDF	1.43J		0.136	3.38	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1.19J		0.129	3.38	1.22	1.000	1
1,2,3,7,8,9-HxCDF	0.447JK		0.176	3.38	1.52	1.000	1
2,3,4,6,7,8-HxCDF	0.703J		0.141	3.38	1.34	1.000	1
1,2,3,4,6,7,8-HpCDF	8.68		0.121	3.38	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	3.26J		0.144	3.38	0.97	1.000	1
OCDF	67.9		0.136	6.77	0.86	1.006	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 10:00
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L2C-01 / HS15120773-15	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-015	<b>Basis:</b>	Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

<b>Analysis Method:</b>	1613B	<b>Date Analyzed:</b>	01/05/16 18:58
<b>Prep Method:</b>	EPA 3541	<b>Date Extracted:</b>	12/30/15
<b>Sample Amount:</b>	10.582g	<b>Instrument Name:</b>	E-HRMS-06
		<b>GC Column:</b>	DB-5MSUI
<b>Data File Name:</b>	P401745	<b>Blank File Name:</b>	P401712
<b>ICAL Date:</b>	12/10/15	<b>Cal Ver. File Name:</b>	P401735

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	10.5		0.0916	0.677	0.76		1
Total Penta-Dioxins	12.5		0.106	3.38	1.42		1
Total Hexa-Dioxins	64.8		0.120	3.38	1.27		1
Total Hepta-Dioxins	110		0.304	3.38	1.08		1
Total Tetra-Furans	ND	U	0.0621	0.677			1
Total Penta-Furans	2.12J		0.194	3.38	1.63		1
Total Hexa-Furans	5.34		0.144	3.38	1.16		1
Total Hepta-Furans	16.5		0.132	3.38	1.02		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil

**Service Request:** E1501219  
**Date Collected:** 12/16/15 10:00  
**Date Received:** 12/18/15 13:00

**Sample Name:** L2C-01 / HS15120773-15  
**Lab Code:** E1501219-015

**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.582g  
  
**Data File Name:** P401745  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 18:58  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	1150.799	58		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1143.959	57		25-181	1.54	1.179
13C-1,2,3,4,7,8-HxCDD	2000	1338.064	67		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1368.448	68		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1397.899	70		23-140	1.07	1.066
13C-OCDD	4000	2490.087	62		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	1061.004	53		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1058.677	53		24-185	1.58	1.138
13C-2,3,4,7,8-PeCDF	2000	1105.253	55		21-178	1.61	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1298.513	65		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1276.933	64		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1422.297	71		29-147	0.53	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1278.454	64		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1148.233	57		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1567.572	78		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	514.074	64		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

<b>Client:</b>	ALS Environmental - US	<b>Service Request:</b>	E1501219
<b>Project:</b>	HS15120773 Dioxins Furans by Method 1613B	<b>Date Collected:</b>	12/16/15 10:00
<b>Sample Matrix:</b>	Soil	<b>Date Received:</b>	12/18/15 13:00
<b>Sample Name:</b>	L2C-01 / HS15120773-15	<b>Units:</b>	ng/Kg
<b>Lab Code:</b>	E1501219-015	<b>Basis:</b>	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.0916	0.677	1	1	0.0458
1,2,3,7,8-PeCDD	<b>0.211</b>	0.106	3.38	1	1	0.211
1,2,3,4,7,8-HxCDD	<b>0.397</b>	0.122	3.38	1	0.1	0.0397
1,2,3,6,7,8-HxCDD	<b>0.605</b>	0.119	3.38	1	0.1	0.0605
1,2,3,7,8,9-HxCDD	<b>1.18</b>	0.119	3.38	1	0.1	0.118
1,2,3,4,6,7,8-HpCDD	<b>19.9</b>	0.304	3.38	1	0.01	0.199
OCDD	<b>388</b>	0.171	6.77	1	0.0003	0.116
2,3,7,8-TCDF	ND	0.0621	0.677	1	0.1	0.00311
1,2,3,7,8-PeCDF	<b>0.571</b>	0.194	3.38	1	0.03	0.0171
2,3,4,7,8-PeCDF	ND	0.195	3.38	1	0.3	0.0293
1,2,3,4,7,8-HxCDF	<b>1.43</b>	0.136	3.38	1	0.1	0.143
1,2,3,6,7,8-HxCDF	<b>1.19</b>	0.129	3.38	1	0.1	0.119
1,2,3,7,8,9-HxCDF	<b>0.447</b>	0.176	3.38	1	0.1	0.0447
2,3,4,6,7,8-HxCDF	<b>0.703</b>	0.141	3.38	1	0.1	0.0703
1,2,3,4,6,7,8-HpCDF	<b>8.68</b>	0.121	3.38	1	0.01	0.0868
1,2,3,4,7,8,9-HpCDF	<b>3.26</b>	0.144	3.38	1	0.01	0.0326
OCDF	<b>67.9</b>	0.136	6.77	1	0.0003	0.0204
Total TEQ						1.36

2005 WHO TEFs, ND = 0.5\*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** L2C-01 / HS15120773-15  
**Lab Code:** E1501219-015

**Service Request:** E1501219  
**Date Collected:** 12/16/15 10:00  
**Date Received:** 12/18/15 13:00  
**Units:** Percent  
**Basis:** As Received

Total Solids

**Analysis Method:** ALS SOP  
4.478g

**Date Analyzed:** 01/05/16 11:41  
NA  
E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	69.8		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Method Blank  
**Lab Code:** EQ1500730-01

**Service Request:** E1501219  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** ng/Kg  
**Basis:** Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.591g  
**Data File Name:** P401712  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/04/16 13:39  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401709

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0757	0.472			1
1,2,3,7,8-PeCDD	ND	U	0.0825	2.36			1
1,2,3,4,7,8-HxCDD	ND	U	0.0469	2.36			1
1,2,3,6,7,8-HxCDD	ND	U	0.0452	2.36			1
1,2,3,7,8,9-HxCDD	ND	U	0.0453	2.36			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.0596	2.36			1
OCDD	0.238JK		0.0495	4.72	1.19	1.000	1
2,3,7,8-TCDF	ND	U	0.0979	0.472			1
1,2,3,7,8-PeCDF	ND	U	0.0645	2.36			1
2,3,4,7,8-PeCDF	ND	U	0.0644	2.36			1
1,2,3,4,7,8-HxCDF	ND	U	0.0325	2.36			1
1,2,3,6,7,8-HxCDF	ND	U	0.0303	2.36			1
1,2,3,7,8,9-HxCDF	ND	U	0.0420	2.36			1
2,3,4,6,7,8-HxCDF	ND	U	0.0322	2.36			1
1,2,3,4,6,7,8-HpCDF	0.0622J		0.0417	2.36	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0556	2.36			1
OCDF	0.290JK		0.124	4.72	1.24	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Method Blank  
**Lab Code:** EQ1500730-01

**Service Request:** E1501219  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.591g  
**Data File Name:** P401712  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/04/16 13:39  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401709

**Native Analyte Results**

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.0757	0.472			1
Total Penta-Dioxins	ND	U	0.0825	2.36			1
Total Hexa-Dioxins	ND	U	0.0457	2.36			1
Total Hepta-Dioxins	ND	U	0.0596	2.36			1
Total Tetra-Furans	ND	U	0.0979	0.472			1
Total Penta-Furans	ND	U	0.0645	2.36			1
Total Hexa-Furans	ND	U	0.0339	2.36			1
Total Hepta-Furans	0.0622J		0.0480	2.36	1.02		1

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Method Blank  
**Lab Code:** EQ1500730-01

**Service Request:** E1501219  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.591g  
**Data File Name:** P401712  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/04/16 13:39  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401709

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	1207.193	60		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1191.869	60		25-181	1.55	1.179
13C-1,2,3,4,7,8-HxCDD	2000	1372.789	69		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1423.925	71		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1385.390	69		23-140	1.06	1.066
13C-OCDD	4000	2563.165	64		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	1108.558	55		24-169	0.81	0.994
13C-1,2,3,7,8-PeCDF	2000	1144.072	57		24-185	1.58	1.138
13C-2,3,4,7,8-PeCDF	2000	1170.516	59		21-178	1.60	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1295.452	65		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1377.385	69		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1494.669	75		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1383.862	69		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1212.610	61		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1526.282	76		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	539.377	67		35-197	NA	1.021



# Accuracy & Precision

**ALS Environmental - Houston HRMS**  
10450 Stancliff Rd., Suite 210, Houston TX 77099  
Phone (713)266-1599 Fax (713)266-0130  
[www.alsglobal.com](http://www.alsglobal.com)

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil

**Service Request:** E1501219  
**Date Analyzed:** 01/05/16  
**Date Extracted:** 12/30/15

**Duplicate Lab Control Sample Summary**  
**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541

**Units:** ng/Kg  
**Basis:** Dry  
**Analysis Lot:** 479317

**Lab Control Sample**  
**EQ1500730-02**

**Duplicate Lab Control Sample**  
**EQ1500730-03**

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,2,3,4,6,7,8-HpCDD	100	93.7	107	99.5	92.1	108	70-140	<1	50
1,2,3,4,7,8-HxCDD	105	93.7	112	103	92.1	112	70-164	2	50
1,2,3,6,7,8-HxCDD	104	93.7	111	101	92.1	110	76-134	3	50
1,2,3,7,8,9-HxCDD	101	93.7	108	104	92.1	113	64-162	3	50
1,2,3,7,8-PeCDD	106	93.7	113	104	92.1	113	70-142	2	50
2,3,7,8-TCDD	18.7	18.7	100	18.9	18.4	102	67-158	1	50
OCDD	208	187	111	206	184	112	78-144	1	50
1,2,3,4,6,7,8-HpCDF	110	93.7	117	107	92.1	116	82-122	3	50
1,2,3,4,7,8,9-HpCDF	104	93.7	111	100	92.1	109	78-138	3	50
1,2,3,4,7,8-HxCDF	107	93.7	114	101	92.1	110	72-134	6	50
1,2,3,6,7,8-HxCDF	101	93.7	108	100	92.1	109	84-130	<1	50
1,2,3,7,8,9-HxCDF	95.2	93.7	102	95.8	92.1	104	78-130	<1	50
1,2,3,7,8-PeCDF	98.1	93.7	105	96.4	92.1	105	80-134	2	50
2,3,4,6,7,8-HxCDF	99.6	93.7	106	98.0	92.1	106	70-156	2	50
2,3,4,7,8-PeCDF	104	93.7	111	102	92.1	111	68-160	2	50
2,3,7,8-TCDF	18.7	18.7	100	20.0	18.4	109	75-158	7	50
OCDF	261	187	139	267	184	145	63-170	2	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Lab Control Sample  
**Lab Code:** EQ1500730-02

**Service Request:** E1501219  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.667g  
**Data File Name:** P401746  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 19:47  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Native Analyte Results**

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.7		0.210	0.469	0.79	1.001	1
1,2,3,7,8-PeCDD	106		0.144	2.34	1.61	1.000	1
1,2,3,4,7,8-HxCDD	105		0.193	2.34	1.24	1.000	1
1,2,3,6,7,8-HxCDD	104		0.194	2.34	1.24	1.000	1
1,2,3,7,8,9-HxCDD	101		0.191	2.34	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	100		0.154	2.34	1.07	1.000	1
OCDD	208		0.145	4.69	0.92	1.000	1
2,3,7,8-TCDF	18.7		0.244	0.469	0.86	1.001	1
1,2,3,7,8-PeCDF	98.1		0.504	2.34	1.55	1.001	1
2,3,4,7,8-PeCDF	104		0.503	2.34	1.55	1.000	1
1,2,3,4,7,8-HxCDF	107		0.287	2.34	1.24	1.000	1
1,2,3,6,7,8-HxCDF	101		0.263	2.34	1.17	1.000	1
1,2,3,7,8,9-HxCDF	95.2		0.389	2.34	1.26	1.000	1
2,3,4,6,7,8-HxCDF	99.6		0.291	2.34	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	110		0.350	2.34	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	104		0.442	2.34	0.98	1.000	1
OCDF	261		0.257	4.69	0.91	1.006	1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil  
**Sample Name:** Lab Control Sample  
**Lab Code:** EQ1500730-02

**Service Request:** E1501219  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.667g  
**Data File Name:** P401746  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 19:47  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	18.9		0.210	0.469	0.79		1
Total Penta-Dioxins	106		0.144	2.34	1.61		1
Total Hexa-Dioxins	310		0.192	2.34	1.24		1
Total Hepta-Dioxins	101		0.154	2.34	1.03		1
Total Tetra-Furans	18.7		0.244	0.469	0.86		1
Total Penta-Furans	207		0.503	2.34	1.44		1
Total Hexa-Furans	404		0.303	2.34	1.39		1
Total Hepta-Furans	217		0.393	2.34	1.04		1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil

**Service Request:** E1501219  
**Date Collected:** NA  
**Date Received:** NA

**Sample Name:** Lab Control Sample  
**Lab Code:** EQ1500730-02

**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.667g  
  
**Data File Name:** P401746  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 19:47  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	1053.728	53		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1111.282	56		25-181	1.58	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1407.403	70		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1432.833	72		28-130	1.24	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1581.712	79		23-140	1.06	1.066
13C-OCDD	4000	3140.685	79		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	962.809	48		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1051.983	53		24-185	1.60	1.137
13C-2,3,4,7,8-PeCDF	2000	1100.804	55		21-178	1.58	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1271.306	64		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1385.107	69		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1465.635	73		29-147	0.51	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1368.583	68		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1270.725	64		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1721.986	86		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	474.294	59		35-197	NA	1.021

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil

**Service Request:** E1501219  
**Date Collected:** NA  
**Date Received:** NA

**Sample Name:** Duplicate Lab Control Sample  
**Lab Code:** EQ1500730-03

**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.852g  
  
**Data File Name:** P401747  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 20:36  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Native Analyte Results**

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.9		0.0519	0.461	0.81	1.001	1
1,2,3,7,8-PeCDD	104		0.0637	2.30	1.56	1.000	1
1,2,3,4,7,8-HxCDD	103		0.0470	2.30	1.25	1.000	1
1,2,3,6,7,8-HxCDD	101		0.0476	2.30	1.26	1.000	1
1,2,3,7,8,9-HxCDD	104		0.0466	2.30	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	99.5		0.0390	2.30	1.04	1.000	1
OCDD	206		0.103	4.61	0.89	1.000	1
2,3,7,8-TCDF	20.0		0.0505	0.461	0.75	1.000	1
1,2,3,7,8-PeCDF	96.4		0.129	2.30	1.54	1.001	1
2,3,4,7,8-PeCDF	102		0.131	2.30	1.53	1.000	1
1,2,3,4,7,8-HxCDF	101		0.120	2.30	1.24	1.000	1
1,2,3,6,7,8-HxCDF	100		0.111	2.30	1.21	1.000	1
1,2,3,7,8,9-HxCDF	95.8		0.148	2.30	1.29	1.000	1
2,3,4,6,7,8-HxCDF	98.0		0.128	2.30	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	107		0.171	2.30	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	100		0.204	2.30	1.03	1.000	1
OCDF	267		0.110	4.61	0.91	1.006	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil

**Service Request:** E1501219  
**Date Collected:** NA  
**Date Received:** NA

**Sample Name:** Duplicate Lab Control Sample  
**Lab Code:** EQ1500730-03

**Units:** ng/Kg  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.852g  
  
**Data File Name:** P401747  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 20:36  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Native Analyte Results**

<b>Analyte Name</b>	<b>Result</b>	<b>Q</b>	<b>EDL</b>	<b>MRL</b>	<b>Ion Ratio</b>	<b>RRT</b>	<b>Dilution Factor</b>
Total Tetra-Dioxins	18.9		0.0519	0.461	0.81		1
Total Penta-Dioxins	104		0.0637	2.30	1.56		1
Total Hexa-Dioxins	308		0.0470	2.30	1.25		1
Total Hepta-Dioxins	100		0.0390	2.30	0.95		1
Total Tetra-Furans	20.1		0.0505	0.461	0.75		1
Total Penta-Furans	203		0.130	2.30	1.43		1
Total Hexa-Furans	395		0.126	2.30	1.24		1
Total Hepta-Furans	211		0.187	2.30	1.02		1

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

**Client:** ALS Environmental - US  
**Project:** HS15120773 Dioxins Furans by Method 1613B  
**Sample Matrix:** Soil

**Service Request:** E1501219  
**Date Collected:** NA  
**Date Received:** NA

**Sample Name:** Duplicate Lab Control Sample  
**Lab Code:** EQ1500730-03

**Units:** Percent  
**Basis:** Dry

**Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS**

**Analysis Method:** 1613B  
**Prep Method:** EPA 3541  
**Sample Amount:** 10.852g  
  
**Data File Name:** P401747  
**ICAL Date:** 12/10/15

**Date Analyzed:** 01/05/16 20:36  
**Date Extracted:** 12/30/15  
**Instrument Name:** E-HRMS-06  
**GC Column:** DB-5MSUI  
**Blank File Name:** P401712  
**Cal Ver. File Name:** P401735

**Labeled Standard Results**

<b>Labeled Compounds</b>	<b>Spike Conc.(pg)</b>	<b>Conc. Found (pg)</b>	<b>% Rec</b>	<b>Q</b>	<b>Control Limits</b>	<b>Ion Ratio</b>	<b>RRT</b>
13C-2,3,7,8-TCDD	2000	1132.684	57		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1119.089	56		25-181	1.58	1.179
13C-1,2,3,4,7,8-HxCDD	2000	1410.015	71		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1358.486	68		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1442.315	72		23-140	1.08	1.066
13C-OCDD	4000	2637.916	66		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	1035.463	52		24-169	0.80	0.995
13C-1,2,3,7,8-PeCDF	2000	1057.473	53		24-185	1.60	1.138
13C-2,3,4,7,8-PeCDF	2000	1077.808	54		21-178	1.57	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1293.736	65		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1304.321	65		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1462.715	73		29-147	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1302.952	65		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1171.138	59		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1633.790	82		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	489.853	61		35-197	NA	1.021

Dane Wacasey  
ALS Houston  
10450 Stancliff Road, Suite 210  
Houston, Texas 77099

January 22, 2016  
TWEI Project No. 15.13.236

Reference: Geotechnical Laboratory Testing  
ALS Purchase Order No. HS15120773  
Grain Size Analyses

Dear Dane:

Attached are the results of the laboratory tests performed on the fifteen (15) soil samples that you submitted to our laboratory on 12/18/15. Each sample was contained in a sealed glass jar.

The scope of work consisted of:

- Performing geotechnical laboratory tests per the instructions contained on the chain-of-custody received with the samples.
- Reporting the results of the laboratory tests performed.
- No engineering services were provided.

Per your instructions, a grain size analysis was performed on each sample. The grain size analyses were performed in general accordance with ASTM Test Method D422. The results of the grain size analyses are presented graphically on Figures 1 through 3.

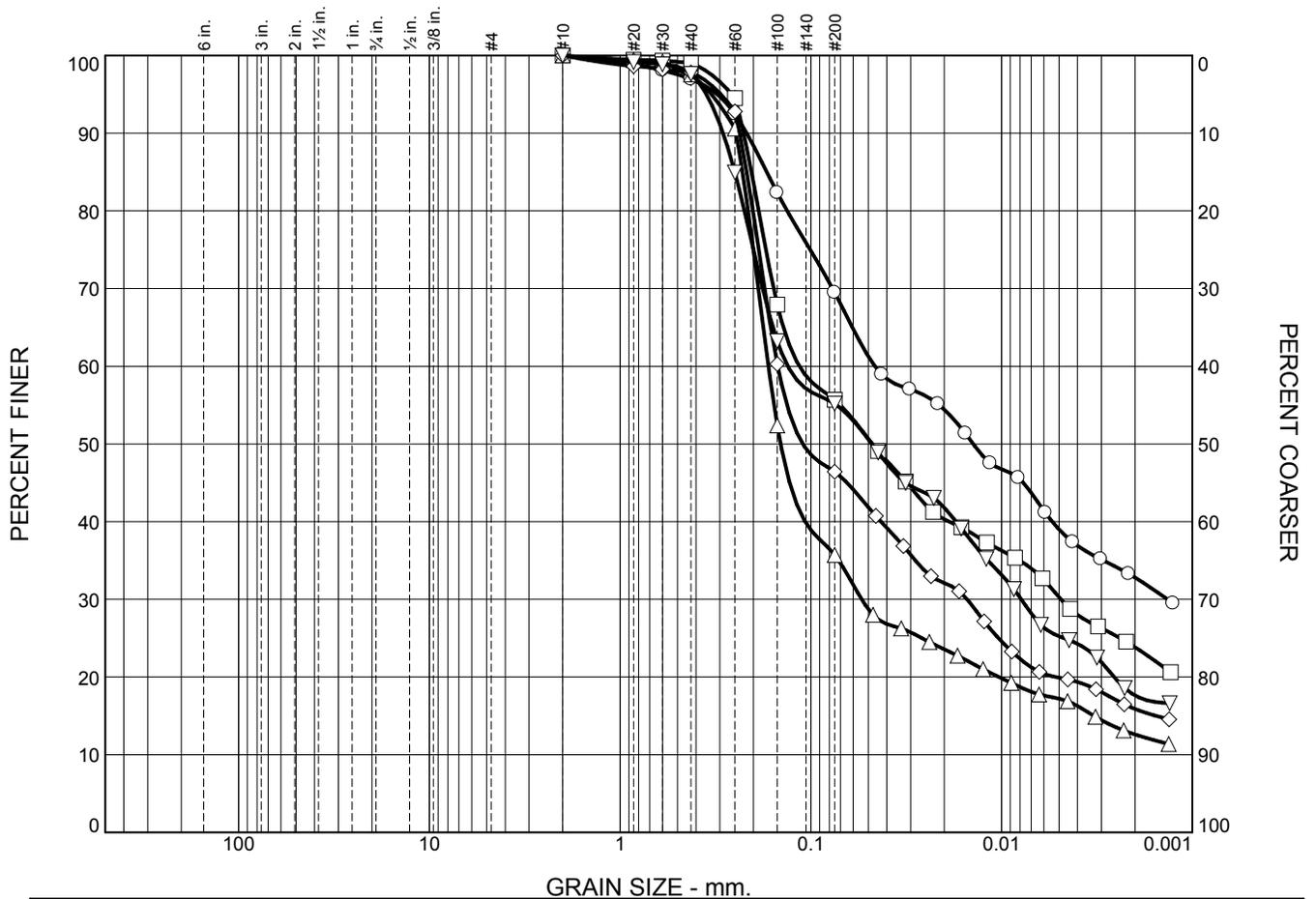
We appreciate the opportunity provide your geotechnical laboratory testing needs. If you have any questions, please contact us.

Sincerely,  
Tolunay-Wong Engineers, Inc.  
TBPE Registration No.: F-000124



Floyd L. Fuqua, S.E.T.  
Vice President, Laboratory Services

# ASTM D 422



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	3.1	27.4	30.5	39.0
□	0.0	0.0	0.0	0.0	1.0	43.3	25.4	30.3
△	0.0	0.0	0.0	0.0	2.4	61.9	18.5	17.2
◇	0.0	0.0	0.0	0.0	2.2	51.4	26.5	19.9
▽	0.0	0.0	0.0	0.0	2.4	42.4	30.0	25.2

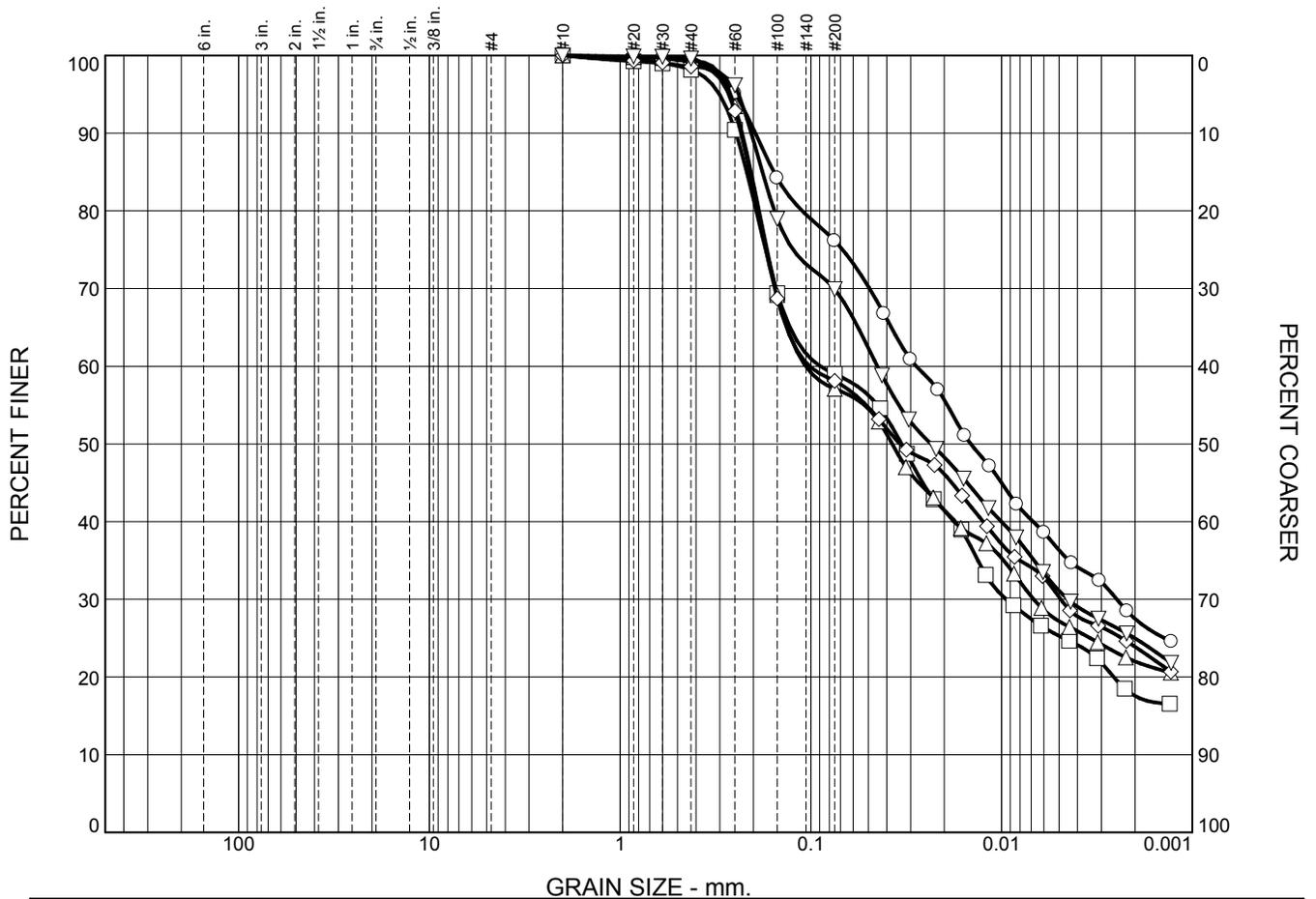
SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	HS15120773	01		Bypass A	
□	HS15120773	02		L2B-01	
△	HS15120773	03		L3C-01	
◇	HS15120773	04		L2A-01	
▽	HS15120773	05		L1C-01	

**Tolunay-Wong  
Engineers, Inc.  
Houston, Texas**

**Client:** ALS Houston  
**Project:** Grain Size Analyses  
**Project No.:** 15.13.236

**Figure 1**

# ASTM D 422



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.8	23.1	39.8	36.3
□	0.0	0.0	0.0	0.0	1.8	39.2	33.7	25.3
△	0.0	0.0	0.0	0.0	0.7	42.2	29.9	27.2
◇	0.0	0.0	0.0	0.0	1.4	40.5	27.8	30.3
▽	0.0	0.0	0.0	0.0	0.4	29.7	38.8	31.1

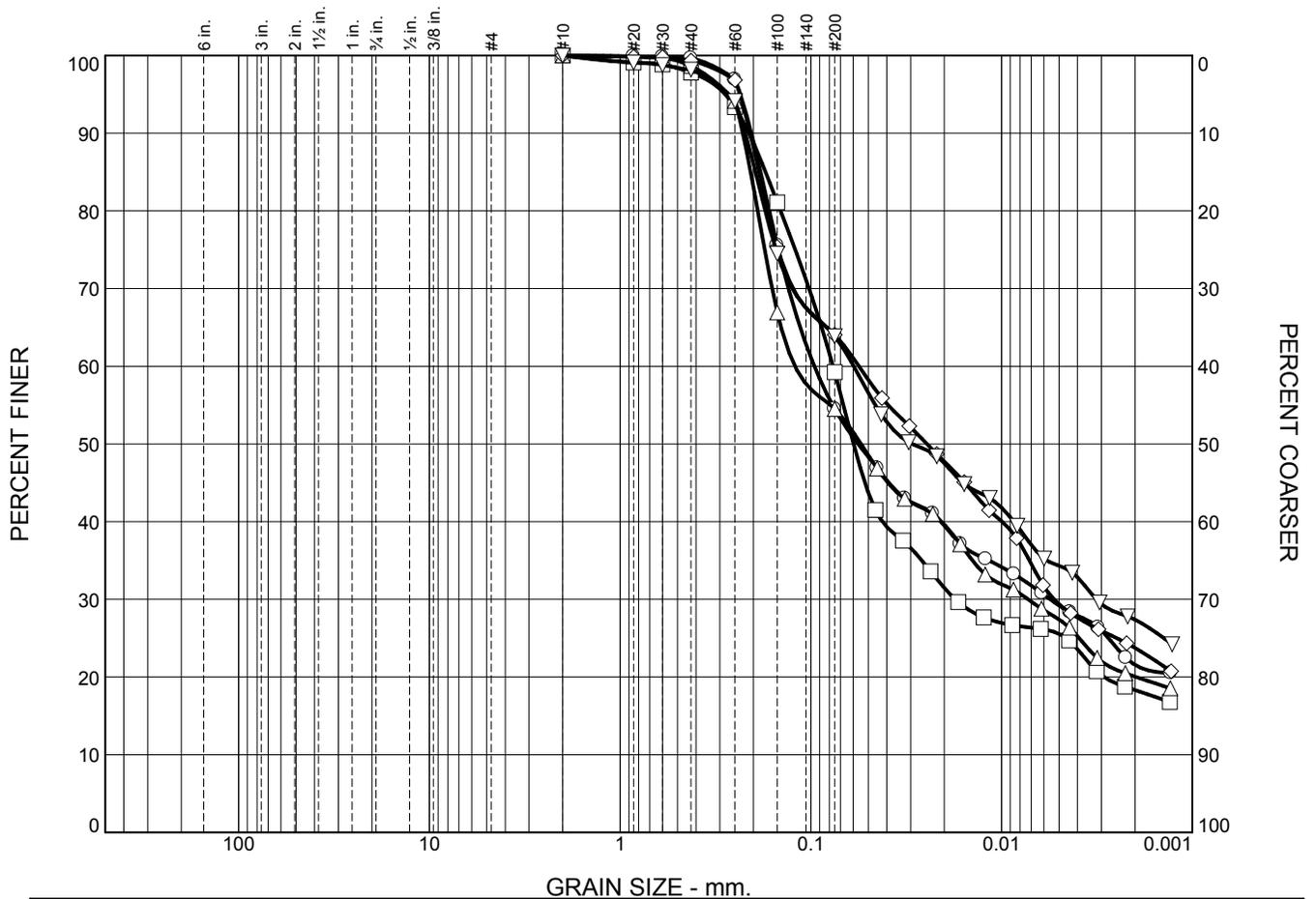
SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	HS15120773	06		L3B-01	
□	HS15120773	07		L1B-01	
△	HS15120773	08		L3A-01	
◇	HS15120773	09		L1A-01	
▽	HS15120773	10		4LC-01-Dup	

**Tolunay-Wong  
Engineers, Inc.  
Houston, Texas**

**Client:** ALS Houston  
**Project:** Grain Size Analyses  
**Project No.:** 15.13.236

**Figure 2**

# ASTM D 422



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.4	45.1	25.3	29.2
□	0.0	0.0	0.0	0.0	2.2	38.6	33.6	25.6
△	0.0	0.0	0.0	0.0	1.4	44.1	27.1	27.4
◇	0.0	0.0	0.0	0.0	0.6	35.3	34.7	29.4
▽	0.0	0.0	0.0	0.0	1.8	34.3	29.6	34.3

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	HS15120773	11		L4A-01	
□	HS15120773	12		Bypass B	
△	HS15120773	13		L4C-01	
◇	HS15120773	14		L4B-01	
▽	HS15120773	15		L2C-01	

**Tolunay-Wong  
Engineers, Inc.  
Houston, Texas**

**Client:** ALS Houston  
**Project:** Grain Size Analyses  
**Project No.:** 15.13.236

**Figure 3**

## **Attachment 2: Laboratory Results for: Delfin LNG Work Order: HS15120747**

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10450 Stancliff Rd. Suite 210  
Houston, TX 77099  
T: +1 281 530 5656  
F: +1 281 530 5887  
www.alsglobal.com

January 05, 2016

Will Farrar  
Ecology & Environment, Inc  
2900 Westfork Dr. Suite 401  
Baton Rouge, LA 70827

Work Order: **HS15120747**

Laboratory Results for: **Delfin LNG**

Dear Will,

ALS Environmental received 16 sample(s) on Dec 17, 2015 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dane J. Wacasey', with a stylized flourish at the end.

Generated By: Jumoke.Lawal  
Dane J. Wacasey

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120747

**SAMPLE SUMMARY**

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS15120747-01	L1-S	Water		16-Dec-2015 15:00	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-02	L1-B	Water		16-Dec-2015 15:00	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-03	L2A-S	Water		16-Dec-2015 13:50	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-04	L2A-B	Water		16-Dec-2015 13:50	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-05	L3-S	Water		16-Dec-2015 14:25	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-06	L3-S Dup	Water		16-Dec-2015 14:25	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-07	L3-B	Water		16-Dec-2015 14:25	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-08	L3-B Dup	Water		16-Dec-2015 14:25	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-09	L4A-S	Water		16-Dec-2015 13:30	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-10	L4A-B	Water		16-Dec-2015 13:30	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-11	L4B-S	Water		16-Dec-2015 13:15	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-12	L4B-B	Water		16-Dec-2015 13:15	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-13	L4C-S	Water		16-Dec-2015 11:30	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-14	L4C-B	Water		16-Dec-2015 11:30	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-15	Bypass-S	Water		16-Dec-2015 18:45	17-Dec-2015 19:00	<input type="checkbox"/>
HS15120747-16	Bypass-B	Water		16-Dec-2015 18:45	17-Dec-2015 19:00	<input type="checkbox"/>

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120747

**CASE NARRATIVE**

---

**ECD Organics by Method E608****Batch ID: 99972b**

Sample ID: **LCS-99972**

- Insufficient sample received to perform MS/MSD. LCS/LCSD provided as batch quality control.

Sample ID: **LCS-99972**

- The multi-response compounds toxaphene and chlordane were not included in the spiking solution for the LCS.

Sample ID: **LCSD-99972**

- The multi-response compounds toxaphene and chlordane were not included in the spiking solution for the LCSD.

Sample ID: **LCSD-99972**

- LCSD RPD was above the control limits. The individual recoveries were in control.

---

**GCMS Semivolatiles by Method E625****Batch ID: 99989**

Sample ID: **LCS-99989**

- Insufficient sample received to perform MS/MSD. LCS/LCSD provided as batch quality control.

---

**Metals by Method E245.1****Batch ID: 100084**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**Metals by Method E200.8****Batch ID: 100079**

Sample ID: **Bypass-B (HS15120747-16)**

Sample ID: **Bypass-S (HS15120747-15)**

Sample ID: **L4B-B (HS15120747-12)**

Sample ID: **L4B-S (HS15120747-11)**

Sample ID: **L4C-B (HS15120747-14)**

Sample ID: **L4C-S (HS15120747-13)**

- Sample ran at a 10x due to high Sodium, Magnesium, Calcium, and Potassium concentration.

Sample ID: **HS15120794-01MS**

- MS/MSD and DUPs are for an unrelated sample

**Batch ID: 100078**

Sample ID: **L1-B (HS15120747-02)**

Sample ID: **L1-S (HS15120747-01)**

Sample ID: **L2A-B (HS15120747-04)**

Sample ID: **L2A-S (HS15120747-03)**

Sample ID: **L3-B (HS15120747-07)**

Sample ID: **L3-B Dup (HS15120747-08)**

Sample ID: **L3-S (HS15120747-05)**

Sample ID: **L3-S Dup (HS15120747-06)**

Sample ID: **L4A-B (HS15120747-10)**

Sample ID: **L4A-S (HS15120747-09)**

- Sample ran at a 10x due to high Sodium, Magnesium, Calcium, and Potassium concentration.

Sample ID: **L1-S (HS15120747-01 DIL SX)**

- The percent difference between the results of the sample and the serial dilution were greater than 10% for Calcium, Magnesium, and Potassium.

Sample ID: **L1-S (HS15120747-01BS)**

- The Bench Spike recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount for Calcium, Magnesium, and Potassium.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120747

**CASE NARRATIVE**

---

**Metals by Method E200.8****Batch ID: 100078**Sample ID: **L1-S (HS15120747-01MS)**

- The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. Calcium, Magnesium, Potassium, and Sodium.

Sample ID: **L1-S (HS15120747-01MSD)**

- The RPD between the MS and MSD was outside of the control limit for Selenium.

Sample ID: **L3-B (HS15120747-07)**Sample ID: **L3-B Dup (HS15120747-08)**Sample ID: **L3-S (HS15120747-05)**Sample ID: **L3-S Dup (HS15120747-06)**Sample ID: **L4A-B (HS15120747-10)**Sample ID: **L4A-S (HS15120747-09)**

- Sample ran at a 20x due to internal standard 6 (Beryllium) and 209 (Lead and Thallium) failures at a 1x and 10x. High Sodium, Calcium, Magnesium, and Potassium concentration.

---

**WetChemistry by Method M2540D****Batch ID: R266835**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**WetChemistry by Method E410.4****Batch ID: R267022**Sample ID: **Bypass-B (HS15120747-16)**Sample ID: **Bypass-S (HS15120747-15)**Sample ID: **L1-B (HS15120747-02)**Sample ID: **L1-S (HS15120747-01)**Sample ID: **L2A-B (HS15120747-04)**Sample ID: **L2A-S (HS15120747-03)**Sample ID: **L3-B (HS15120747-07)**Sample ID: **L3-B Dup (HS15120747-08)**Sample ID: **L3-S (HS15120747-05)**Sample ID: **L3-S Dup (HS15120747-06)**Sample ID: **L4A-B (HS15120747-10)**Sample ID: **L4A-S (HS15120747-09)**Sample ID: **L4B-B (HS15120747-12)**Sample ID: **L4B-S (HS15120747-11)**Sample ID: **L4C-B (HS15120747-14)**Sample ID: **L4C-S (HS15120747-13)**

- Diluted due to high chloride interference.

---

**WetChemistry by Method M2540C****Batch ID: R266824**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

---

**WetChemistry by Method SM5210 B****Batch ID: 99911**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**Batch ID: 99944**Sample ID: **LCSD-99944**

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120747

**CASE NARRATIVE**

---

**WetChemistry by Method SM5210 B**

**Batch ID: 99944**

- Glucose/glutamic acid BOD/CBOD was below method acceptance criteria. The sample results may be biased low for this analyte:

Sample ID: **LCSD-99944**

- The RPD between the LCS and LCSD was outside of the control limit.

---

**WetChemistry by Method E300**

**Batch ID: R266769**

Sample ID: **Bypass-B (HS15120747-16)**

Sample ID: **Bypass-S (HS15120747-15)**

Sample ID: **L1-B (HS15120747-02)**

Sample ID: **L1-S (HS15120747-01)**

Sample ID: **L2A-B (HS15120747-04)**

Sample ID: **L2A-S (HS15120747-03)**

Sample ID: **L3-B (HS15120747-07)**

Sample ID: **L3-B Dup (HS15120747-08)**

Sample ID: **L3-S (HS15120747-05)**

Sample ID: **L3-S Dup (HS15120747-06)**

Sample ID: **L4A-B (HS15120747-10)**

Sample ID: **L4A-S (HS15120747-09)**

Sample ID: **L4B-B (HS15120747-12)**

Sample ID: **L4B-S (HS15120747-11)**

Sample ID: **L4C-B (HS15120747-14)**

Sample ID: **L4C-S (HS15120747-13)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. Chloride & Sulfate

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**WetChemistry by Method SM4500P E**

**Batch ID: 100043**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

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**WetChemistry by Method SM4500 NH3-B-F**

**Batch ID: 100039**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-S  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:36
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 12:36
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 12:36
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:36
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 12:36
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 12:36
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 12:36
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:36
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:36
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:36
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:36
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:36
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 12:36
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-S  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 12:36
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:36
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:36
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:36
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:36
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:36
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:36
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:36
<i>Surr: 2,4,6-Tribromophenol</i>		81.3		42-124	%REC	1	22-Dec-2015 12:36
<i>Surr: 2-Fluorobiphenyl</i>		74.4		48-120	%REC	1	22-Dec-2015 12:36
<i>Surr: 2-Fluorophenol</i>		68.3		20-120	%REC	1	22-Dec-2015 12:36
<i>Surr: 4-Terphenyl-d14</i>		92.6		51-135	%REC	1	22-Dec-2015 12:36
<i>Surr: Nitrobenzene-d5</i>		74.1		41-120	%REC	1	22-Dec-2015 12:36
<i>Surr: Phenol-d6</i>		71.1		20-120	%REC	1	22-Dec-2015 12:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-S  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>		Prep:E608 / 20-Dec-2015		Analyst: STH	
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:39
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:39
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:39
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 11:39
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 11:39
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 13:50
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 13:50
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 13:50
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 13:50
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 13:50
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 13:50
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 13:50
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 11:39
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 11:39
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 11:39
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 11:39
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 11:39
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:39
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:39
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:39
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:39
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:39
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 11:39
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 11:39
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 11:39
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 11:39
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 11:39
Surr: Decachlorobiphenyl	95.5			61-154	%REC	1	30-Dec-2015 11:39
Surr: Decachlorobiphenyl	105			61-154	%REC	1	21-Dec-2015 13:50
Surr: Tetrachlor-m-xylene	114			60-144	%REC	1	21-Dec-2015 13:50
Surr: Tetrachlor-m-xylene	110			60-144	%REC	1	30-Dec-2015 11:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-S  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0773</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:30
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:30
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:30
<b>Barium</b>	<b>0.0141</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:30
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:30
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:30
<b>Calcium</b>	<b>456</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:30
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:30
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:30
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:30
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:30
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:30
<b>Magnesium</b>	<b>1,420</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:30
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:30
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:30
<b>Potassium</b>	<b>444</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:30
<b>Selenium</b>	<b>0.0179</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:30
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:30
<b>Sodium</b>	<b>9,370</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:03
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:30
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:30
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:30
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>300</b>		<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 14:43
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.025</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>3.68</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>39,600</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-S  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 08:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-B  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:59
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 12:59
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 12:59
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:59
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 12:59
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 12:59
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 12:59
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:59
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:59
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:59
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:59
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:59
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 12:59
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-B  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 12:59
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:59
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:59
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 12:59
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 12:59
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 12:59
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 12:59
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 12:59
Surr: 2,4,6-Tribromophenol	82.6			42-124	%REC	1	22-Dec-2015 12:59
Surr: 2-Fluorobiphenyl	71.9			48-120	%REC	1	22-Dec-2015 12:59
Surr: 2-Fluorophenol	65.0			20-120	%REC	1	22-Dec-2015 12:59
Surr: 4-Terphenyl-d14	91.5			51-135	%REC	1	22-Dec-2015 12:59
Surr: Nitrobenzene-d5	71.3			41-120	%REC	1	22-Dec-2015 12:59
Surr: Phenol-d6	67.9			20-120	%REC	1	22-Dec-2015 12:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-B  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>			Prep:E608 / 20-Dec-2015		Analyst: STH
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:52
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:52
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:52
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 11:52
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 11:52
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:06
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:06
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:06
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:06
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:06
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:06
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:06
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 11:52
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 11:52
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 11:52
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 11:52
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 11:52
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:52
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:52
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:52
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:52
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 11:52
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 11:52
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 11:52
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 11:52
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 11:52
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 11:52
Surr: Decachlorobiphenyl	84.0			61-154	%REC	1	21-Dec-2015 14:06
Surr: Decachlorobiphenyl	84.1			61-154	%REC	1	30-Dec-2015 11:52
Surr: Tetrachlor-m-xylene	105			60-144	%REC	1	21-Dec-2015 14:06
Surr: Tetrachlor-m-xylene	96.5			60-144	%REC	1	30-Dec-2015 11:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-B  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>			Prep:E200.8 / 23-Dec-2015		Analyst: JDE
<b>Aluminum</b>	<b>0.0799</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:45
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:45
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:45
<b>Barium</b>	<b>0.0152</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:45
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:45
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:45
<b>Calcium</b>	<b>449</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:45
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:45
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:45
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:45
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:45
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:45
<b>Magnesium</b>	<b>1,390</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:45
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:45
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:45
<b>Potassium</b>	<b>436</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:45
<b>Selenium</b>	<b>0.0139</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:45
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:45
<b>Sodium</b>	<b>10,100</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:09
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:45
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:45
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:45
<b>BOD</b>		<b>Method:SM5210 B</b>			Prep:SM5210 B / 18-Dec-2015		Analyst: KMU
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>					Analyst: KMU
<b>Chemical Oxygen Demand</b>	<b>300</b>		<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>			Prep:E245.1 / 23-Dec-2015		Analyst: OFO
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 14:38
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>			Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD
<b>Nitrogen, Ammonia (as N)</b>	<b>0.043</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>			Prep:SM4500P E / 22-Dec-2015		Analyst: JHD
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>					Analyst: KAH
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>6.32</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>					Analyst: KAH
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>39,000</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L1-B  
 Collection Date: 16-Dec-2015 15:00

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 09:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-S  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-03  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:21
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 13:21
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 13:21
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:21
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 13:21
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 13:21
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 13:21
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:21
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:21
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:21
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:21
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:21
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 13:21
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-S  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-03  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 13:21
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:21
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:21
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:21
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:21
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:21
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:21
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:21
Surr: 2,4,6-Tribromophenol	77.6			42-124	%REC	1	22-Dec-2015 13:21
Surr: 2-Fluorobiphenyl	70.7			48-120	%REC	1	22-Dec-2015 13:21
Surr: 2-Fluorophenol	63.8			20-120	%REC	1	22-Dec-2015 13:21
Surr: 4-Terphenyl-d14	89.3			51-135	%REC	1	22-Dec-2015 13:21
Surr: Nitrobenzene-d5	70.6			41-120	%REC	1	22-Dec-2015 13:21
Surr: Phenol-d6	66.8			20-120	%REC	1	22-Dec-2015 13:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-S  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-03  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>		Prep:E608 / 20-Dec-2015		Analyst: STH	
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 12:05
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 12:05
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 12:05
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 12:05
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 12:05
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:22
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:22
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:22
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:22
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:22
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:22
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:22
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 12:05
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 12:05
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 12:05
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 12:05
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 12:05
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 12:05
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 12:05
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 12:05
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 12:05
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 12:05
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 12:05
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 12:05
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 12:05
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 12:05
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 12:05
Surr: Decachlorobiphenyl	85.3			61-154	%REC	1	30-Dec-2015 12:05
Surr: Decachlorobiphenyl	118			61-154	%REC	1	21-Dec-2015 14:22
Surr: Tetrachlor-m-xylene	126			60-144	%REC	1	21-Dec-2015 14:22
Surr: Tetrachlor-m-xylene	99.8			60-144	%REC	1	30-Dec-2015 12:05

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-S  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-03  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0612</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:48
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:48
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:48
<b>Barium</b>	<b>0.0135</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:48
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:48
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:48
<b>Calcium</b>	<b>442</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:48
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:48
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:48
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:48
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:48
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:48
<b>Magnesium</b>	<b>1,370</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:48
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:48
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:48
<b>Potassium</b>	<b>438</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:48
<b>Selenium</b>	<b>0.0108</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:48
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:48
<b>Sodium</b>	<b>10,100</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:12
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:48
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:48
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:48
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>300</b>		<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 14:45
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.034</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>4.90</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>38,500</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-S  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-03  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 09:34

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-B  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-04  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:44
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 13:44
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 13:44
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:44
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 13:44
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 13:44
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 13:44
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:44
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.035</b>		<b>0.00080</b>	<b>0.0050</b>	<b>mg/L</b>	1	22-Dec-2015 13:44
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:44
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:44
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:44
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 13:44
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-B  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-04  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 13:44
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:44
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:44
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 13:44
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 13:44
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 13:44
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 13:44
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 13:44
Surr: 2,4,6-Tribromophenol	79.9			42-124	%REC	1	22-Dec-2015 13:44
Surr: 2-Fluorobiphenyl	71.7			48-120	%REC	1	22-Dec-2015 13:44
Surr: 2-Fluorophenol	65.1			20-120	%REC	1	22-Dec-2015 13:44
Surr: 4-Terphenyl-d14	93.8			51-135	%REC	1	22-Dec-2015 13:44
Surr: Nitrobenzene-d5	70.4			41-120	%REC	1	22-Dec-2015 13:44
Surr: Phenol-d6	68.6			20-120	%REC	1	22-Dec-2015 13:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-B  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-04  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>		Prep:E608 / 20-Dec-2015		Analyst: STH	
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:20
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:20
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:20
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:20
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:20
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:38
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:38
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:38
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:38
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:38
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:38
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:38
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:20
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 10:20
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:20
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 10:20
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:20
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:20
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:20
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:20
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:20
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:20
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:20
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:20
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:20
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 10:20
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 10:20
Surr: Decachlorobiphenyl	85.6			61-154	%REC	1	30-Dec-2015 10:20
Surr: Decachlorobiphenyl	94.7			61-154	%REC	1	21-Dec-2015 14:38
Surr: Tetrachlor-m-xylene	108			60-144	%REC	1	21-Dec-2015 14:38
Surr: Tetrachlor-m-xylene	96.0			60-144	%REC	1	30-Dec-2015 10:20

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-B  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-04  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0634</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:51
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:51
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:51
<b>Barium</b>	<b>0.0129</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:51
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:51
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:51
<b>Calcium</b>	<b>451</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:51
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:51
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:51
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:51
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:51
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:51
<b>Magnesium</b>	<b>1,360</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:51
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:51
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:51
<b>Potassium</b>	<b>430</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:51
<b>Selenium</b>	<b>0.0179</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:51
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:51
<b>Sodium</b>	<b>10,500</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:15
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:51
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:51
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:51
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>280</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 14:47
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
Nitrogen, Ammonia (as N)	U		0.025	0.050	mg/L	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
<b>Phosphorus, Total (As P)</b>	<b>0.0200</b>	J	<b>0.0200</b>	<b>0.0500</b>	<b>mg/L</b>	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
Suspended Solids (Residue, Non-Filterable)	5.40		2.00	2.00	mg/L	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
Total Dissolved Solids (Residue, Filterable)	38,300		5.00	10.0	mg/L	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L2A-B  
 Collection Date: 16-Dec-2015 13:50

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-04  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 09:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-05  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:06
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 14:06
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 14:06
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:06
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 14:06
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 14:06
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 14:06
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:06
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:06
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:06
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:06
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:06
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 14:06
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-05  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 14:06
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:06
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:06
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:06
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:06
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:06
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:06
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:06
Surr: 2,4,6-Tribromophenol	79.8			42-124	%REC	1	22-Dec-2015 14:06
Surr: 2-Fluorobiphenyl	75.3			48-120	%REC	1	22-Dec-2015 14:06
Surr: 2-Fluorophenol	67.3			20-120	%REC	1	22-Dec-2015 14:06
Surr: 4-Terphenyl-d14	94.4			51-135	%REC	1	22-Dec-2015 14:06
Surr: Nitrobenzene-d5	74.4			41-120	%REC	1	22-Dec-2015 14:06
Surr: Phenol-d6	70.7			20-120	%REC	1	22-Dec-2015 14:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-05  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>		Prep:E608 / 20-Dec-2015		Analyst: STH	
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:33
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:33
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:33
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:33
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:33
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:55
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:55
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:55
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:55
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:55
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:55
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 14:55
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:33
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 10:33
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:33
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 10:33
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:33
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:33
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:33
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:33
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:33
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:33
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:33
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:33
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:33
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 10:33
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 10:33
Surr: Decachlorobiphenyl	86.4			61-154	%REC	1	21-Dec-2015 14:55
Surr: Decachlorobiphenyl	92.7			61-154	%REC	1	30-Dec-2015 10:33
Surr: Tetrachlor-m-xylene	108			60-144	%REC	1	21-Dec-2015 14:55
Surr: Tetrachlor-m-xylene	100			60-144	%REC	1	30-Dec-2015 10:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-05  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0824</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:54
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:54
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:54
<b>Barium</b>	<b>0.0135</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:54
Beryllium	U		0.0100	0.100	mg/L	20	29-Dec-2015 15:52
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:54
<b>Calcium</b>	<b>484</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:54
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:54
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:54
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:54
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:54
Lead	U		0.0100	0.100	mg/L	20	29-Dec-2015 15:52
<b>Magnesium</b>	<b>1,420</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:54
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:54
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:54
<b>Potassium</b>	<b>479</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:54
<b>Selenium</b>	<b>0.0169</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:54
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:54
<b>Sodium</b>	<b>10,600</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:18
Thallium	U		0.0160	0.0400	mg/L	20	29-Dec-2015 15:52
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:54
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:54
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>240</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 14:49
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.049</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>6.40</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>38,600</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-05  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>			Analyst: JBA		
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 10:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-06  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:29
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 14:29
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 14:29
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:29
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 14:29
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 14:29
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 14:29
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:29
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:29
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:29
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:29
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:29
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 14:29
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-06  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 14:29
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:29
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:29
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:29
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:29
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:29
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:29
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:29
Surr: 2,4,6-Tribromophenol	80.0			42-124	%REC	1	22-Dec-2015 14:29
Surr: 2-Fluorobiphenyl	73.3			48-120	%REC	1	22-Dec-2015 14:29
Surr: 2-Fluorophenol	66.0			20-120	%REC	1	22-Dec-2015 14:29
Surr: 4-Terphenyl-d14	95.4			51-135	%REC	1	22-Dec-2015 14:29
Surr: Nitrobenzene-d5	71.9			41-120	%REC	1	22-Dec-2015 14:29
Surr: Phenol-d6	68.1			20-120	%REC	1	22-Dec-2015 14:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-06  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>			Prep:E608 / 20-Dec-2015		Analyst: STH
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:18
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:18
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:18
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:18
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:18
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:11
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:11
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:11
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:11
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:11
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:11
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:11
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:18
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 03:18
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:18
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 03:18
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:18
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:18
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:18
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:18
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:18
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:18
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:18
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:18
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:18
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 03:18
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 03:18
Surr: Decachlorobiphenyl		126		61-154	%REC	1	30-Dec-2015 03:18
Surr: Decachlorobiphenyl		117		61-154	%REC	1	21-Dec-2015 15:11
Surr: Tetrachlor-m-xylene		135		60-144	%REC	1	21-Dec-2015 15:11
Surr: Tetrachlor-m-xylene		135		60-144	%REC	1	30-Dec-2015 03:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-06  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0651</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:57
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:57
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:57
<b>Barium</b>	<b>0.0132</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:57
Beryllium	U		0.0100	0.100	mg/L	20	29-Dec-2015 15:49
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:57
<b>Calcium</b>	<b>417</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:57
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:57
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:57
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:57
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:57
Lead	U		0.0100	0.100	mg/L	20	29-Dec-2015 15:49
<b>Magnesium</b>	<b>1,260</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:57
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:57
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:57
<b>Potassium</b>	<b>408</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:57
<b>Selenium</b>	<b>0.0148</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:57
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:57
<b>Sodium</b>	<b>10,000</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:21
Thallium	U		0.0160	0.0400	mg/L	20	29-Dec-2015 15:49
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:57
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:57
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>280</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 14:50
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.026</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>6.44</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>38,600</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-S Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-06  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>			Analyst: JBA		
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 10:37

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-07  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:51
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 14:51
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 14:51
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:51
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 14:51
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 14:51
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 14:51
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:51
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.038</b>		<b>0.00080</b>	<b>0.0050</b>	<b>mg/L</b>	1	22-Dec-2015 14:51
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:51
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:51
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:51
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 14:51
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-07  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 14:51
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:51
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:51
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 14:51
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 14:51
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 14:51
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 14:51
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 14:51
Surr: 2,4,6-Tribromophenol	79.0			42-124	%REC	1	22-Dec-2015 14:51
Surr: 2-Fluorobiphenyl	72.7			48-120	%REC	1	22-Dec-2015 14:51
Surr: 2-Fluorophenol	66.3			20-120	%REC	1	22-Dec-2015 14:51
Surr: 4-Terphenyl-d14	93.7			51-135	%REC	1	22-Dec-2015 14:51
Surr: Nitrobenzene-d5	72.8			41-120	%REC	1	22-Dec-2015 14:51
Surr: Phenol-d6	69.8			20-120	%REC	1	22-Dec-2015 14:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-07  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>		Prep:E608 / 20-Dec-2015		Analyst: STH	
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:31
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:31
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:31
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:31
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:31
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:43
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:43
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:43
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:43
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:43
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:43
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 15:43
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:31
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 03:31
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:31
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 03:31
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:31
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:31
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:31
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:31
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:31
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:31
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:31
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:31
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:31
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 03:31
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 03:31
Surr: Decachlorobiphenyl	116			61-154	%REC	1	30-Dec-2015 03:31
Surr: Decachlorobiphenyl	98.8			61-154	%REC	1	21-Dec-2015 15:43
Surr: Tetrachlor-m-xylene	124			60-144	%REC	1	30-Dec-2015 03:31
Surr: Tetrachlor-m-xylene	102			60-144	%REC	1	21-Dec-2015 15:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-07  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0605</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 14:06
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 14:06
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:06
<b>Barium</b>	<b>0.0141</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 14:06
Beryllium	U		0.0100	0.100	mg/L	20	29-Dec-2015 15:55
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 14:06
<b>Calcium</b>	<b>447</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:06
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:06
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 14:06
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:06
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 14:06
Lead	U		0.0100	0.100	mg/L	20	29-Dec-2015 15:55
<b>Magnesium</b>	<b>1,350</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:06
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 14:06
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 14:06
<b>Potassium</b>	<b>436</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:06
<b>Selenium</b>	<b>0.0169</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 14:06
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 14:06
<b>Sodium</b>	<b>10,300</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:24
Thallium	U		0.0160	0.0400	mg/L	20	29-Dec-2015 15:55
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:06
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 14:06
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>360</b>		<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 14:55
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.062</b>		<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>5.30</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>39,400</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-07  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 10:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-08  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:14
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 15:14
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 15:14
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:14
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 15:14
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 15:14
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 15:14
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:14
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:14
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:14
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:14
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:14
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 15:14
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-08  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 15:14
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:14
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:14
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:14
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:14
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:14
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:14
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:14
Surr: 2,4,6-Tribromophenol	81.4			42-124	%REC	1	22-Dec-2015 15:14
Surr: 2-Fluorobiphenyl	75.3			48-120	%REC	1	22-Dec-2015 15:14
Surr: 2-Fluorophenol	68.5			20-120	%REC	1	22-Dec-2015 15:14
Surr: 4-Terphenyl-d14	92.3			51-135	%REC	1	22-Dec-2015 15:14
Surr: Nitrobenzene-d5	74.9			41-120	%REC	1	22-Dec-2015 15:14
Surr: Phenol-d6	70.8			20-120	%REC	1	22-Dec-2015 15:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-08  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>			Prep:E608 / 20-Dec-2015		Analyst: STH
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:44
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:44
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:44
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:44
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:44
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:00
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:00
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:00
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:00
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:00
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:00
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:00
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:44
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 03:44
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:44
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 03:44
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:44
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:44
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:44
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:44
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:44
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:44
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:44
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:44
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:44
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 03:44
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 03:44
Surr: Decachlorobiphenyl		126		61-154	%REC	1	30-Dec-2015 03:44
Surr: Decachlorobiphenyl		94.3		61-154	%REC	1	21-Dec-2015 16:00
Surr: Tetrachlor-m-xylene		113		60-144	%REC	1	21-Dec-2015 16:00
Surr: Tetrachlor-m-xylene		130		60-144	%REC	1	30-Dec-2015 03:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-08  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0532</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 14:09
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 14:09
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:09
<b>Barium</b>	<b>0.0141</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 14:09
Beryllium	U		0.0100	0.100	mg/L	20	29-Dec-2015 15:58
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 14:09
<b>Calcium</b>	<b>473</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:09
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:09
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 14:09
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:09
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 14:09
Lead	U		0.0100	0.100	mg/L	20	29-Dec-2015 15:58
<b>Magnesium</b>	<b>1,390</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:09
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 14:09
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 14:09
<b>Potassium</b>	<b>460</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:09
<b>Selenium</b>	<b>0.0204</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 14:09
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 14:09
<b>Sodium</b>	<b>10,500</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:27
Thallium	U		0.0160	0.0400	mg/L	20	29-Dec-2015 15:58
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:09
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 14:09
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>260</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 14:57
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.028</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>5.20</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>38,300</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L3-B Dup  
 Collection Date: 16-Dec-2015 14:25

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-08  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>			<b>Method:E300</b>			Analyst: JBA	
Nitrate/Nitrite (as N)	1.87	J	0.600	4.00	mg/L	20	22-Dec-2015 12:23

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-S  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-09  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:36
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 15:36
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 15:36
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:36
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 15:36
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 15:36
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 15:36
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:36
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:36
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:36
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:36
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:36
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 15:36
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-S  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-09  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 15:36
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:36
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:36
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:36
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:36
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:36
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:36
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:36
Surr: 2,4,6-Tribromophenol	84.3			42-124	%REC	1	22-Dec-2015 15:36
Surr: 2-Fluorobiphenyl	77.0			48-120	%REC	1	22-Dec-2015 15:36
Surr: 2-Fluorophenol	71.6			20-120	%REC	1	22-Dec-2015 15:36
Surr: 4-Terphenyl-d14	99.5			51-135	%REC	1	22-Dec-2015 15:36
Surr: Nitrobenzene-d5	74.1			41-120	%REC	1	22-Dec-2015 15:36
Surr: Phenol-d6	73.8			20-120	%REC	1	22-Dec-2015 15:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-S  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-09  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>			Prep:E608 / 20-Dec-2015		Analyst: STH
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:57
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:57
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:57
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:57
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:57
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:16
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:16
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:16
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:16
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:16
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:16
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:16
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:57
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 03:57
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:57
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 03:57
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 03:57
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:57
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:57
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:57
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:57
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 03:57
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:57
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:57
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 03:57
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 03:57
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 03:57
Surr: Decachlorobiphenyl		127		61-154	%REC	1	30-Dec-2015 03:57
Surr: Decachlorobiphenyl		98.1		61-154	%REC	1	21-Dec-2015 16:16
Surr: Tetrachlor-m-xylene		108		60-144	%REC	1	21-Dec-2015 16:16
Surr: Tetrachlor-m-xylene		138		60-144	%REC	1	30-Dec-2015 03:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-S  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-09  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0673</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 14:12
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 14:12
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:12
<b>Barium</b>	<b>0.0137</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 14:12
Beryllium	U		0.0100	0.100	mg/L	20	29-Dec-2015 16:01
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 14:12
<b>Calcium</b>	<b>419</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:12
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:12
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 14:12
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:12
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 14:12
Lead	U		0.0100	0.100	mg/L	20	29-Dec-2015 16:01
<b>Magnesium</b>	<b>1,220</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:12
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 14:12
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 14:12
<b>Potassium</b>	<b>403</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:12
<b>Selenium</b>	<b>0.0204</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 14:12
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 14:12
<b>Sodium</b>	<b>9,820</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:36
Thallium	U		0.0160	0.0400	mg/L	20	29-Dec-2015 16:01
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:12
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 14:12
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>260</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 14:59
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.060</b>		<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>5.70</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>38,100</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-S  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-09  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>			Analyst: JBA		
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 12:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-B  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-10  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:59
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 15:59
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 15:59
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:59
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 15:59
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 15:59
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 15:59
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:59
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.019</b>		<b>0.00080</b>	<b>0.0050</b>	<b>mg/L</b>	1	22-Dec-2015 15:59
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:59
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:59
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:59
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 15:59
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-B  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-10  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 15:59
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:59
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:59
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 15:59
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 15:59
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 15:59
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 15:59
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 15:59
Surr: 2,4,6-Tribromophenol	79.8			42-124	%REC	1	22-Dec-2015 15:59
Surr: 2-Fluorobiphenyl	71.6			48-120	%REC	1	22-Dec-2015 15:59
Surr: 2-Fluorophenol	67.7			20-120	%REC	1	22-Dec-2015 15:59
Surr: 4-Terphenyl-d14	94.4			51-135	%REC	1	22-Dec-2015 15:59
Surr: Nitrobenzene-d5	73.3			41-120	%REC	1	22-Dec-2015 15:59
Surr: Phenol-d6	70.6			20-120	%REC	1	22-Dec-2015 15:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-B  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-10  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>			Prep:E608 / 20-Dec-2015		Analyst: STH
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:10
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:10
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:10
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 04:10
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 04:10
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:32
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:32
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:32
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:32
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:32
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:32
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:32
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 04:10
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 04:10
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 04:10
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 04:10
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 04:10
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:10
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:10
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:10
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:10
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:10
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 04:10
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 04:10
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 04:10
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 04:10
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 04:10
Surr: Decachlorobiphenyl	118			61-154	%REC	1	30-Dec-2015 04:10
Surr: Decachlorobiphenyl	97.7			61-154	%REC	1	21-Dec-2015 16:32
Surr: Tetrachlor-m-xylene	130			60-144	%REC	1	30-Dec-2015 04:10
Surr: Tetrachlor-m-xylene	101			60-144	%REC	1	21-Dec-2015 16:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-B  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-10  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0708</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 14:15
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 14:15
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:15
<b>Barium</b>	<b>0.0136</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 14:15
Beryllium	U		0.0100	0.100	mg/L	20	29-Dec-2015 16:04
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 14:15
<b>Calcium</b>	<b>509</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:15
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:15
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 14:15
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:15
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 14:15
Lead	U		0.0100	0.100	mg/L	20	29-Dec-2015 16:04
<b>Magnesium</b>	<b>1,480</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:15
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 14:15
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 14:15
<b>Potassium</b>	<b>485</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 14:15
<b>Selenium</b>	<b>0.0178</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 14:15
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 14:15
<b>Sodium</b>	<b>10,400</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 15:40
Thallium	U		0.0160	0.0400	mg/L	20	29-Dec-2015 16:04
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 14:15
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 14:15
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>280</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 15:01
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.055</b>		<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>6.30</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>39,000</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4A-B  
 Collection Date: 16-Dec-2015 13:30

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-10  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>			Analyst: JBA		
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 13:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-S  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-11  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:21
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 16:21
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 16:21
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:21
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 16:21
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 16:21
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 16:21
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:21
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:21
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:21
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:21
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:21
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 16:21
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-S  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-11  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 16:21
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:21
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:21
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:21
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:21
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:21
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:21
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:21
Surr: 2,4,6-Tribromophenol	74.5			42-124	%REC	1	22-Dec-2015 16:21
Surr: 2-Fluorobiphenyl	70.0			48-120	%REC	1	22-Dec-2015 16:21
Surr: 2-Fluorophenol	63.9			20-120	%REC	1	22-Dec-2015 16:21
Surr: 4-Terphenyl-d14	93.1			51-135	%REC	1	22-Dec-2015 16:21
Surr: Nitrobenzene-d5	70.8			41-120	%REC	1	22-Dec-2015 16:21
Surr: Phenol-d6	66.6			20-120	%REC	1	22-Dec-2015 16:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-S  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-11  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>			Prep:E608 / 20-Dec-2015		Analyst: STH
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:24
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:24
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:24
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 04:24
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 04:24
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:49
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:49
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:49
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:49
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:49
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:49
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 16:49
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 04:24
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 04:24
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 04:24
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 04:24
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 04:24
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:24
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:24
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:24
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:24
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 04:24
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 04:24
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 04:24
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 04:24
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 04:24
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 04:24
Surr: Decachlorobiphenyl	132			61-154	%REC	1	30-Dec-2015 04:24
Surr: Decachlorobiphenyl	120			61-154	%REC	1	21-Dec-2015 16:49
Surr: Tetrachlor-m-xylene	116			60-144	%REC	1	21-Dec-2015 16:49
Surr: Tetrachlor-m-xylene	136			60-144	%REC	1	30-Dec-2015 04:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-S  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-11  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0629</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:06
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:06
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:06
<b>Barium</b>	<b>0.0153</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:06
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:06
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:06
<b>Calcium</b>	<b>459</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:06
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:06
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:06
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:06
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:06
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:06
<b>Magnesium</b>	<b>1,500</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:06
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:06
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:06
<b>Potassium</b>	<b>456</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:06
<b>Selenium</b>	<b>0.00667</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:06
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:06
<b>Sodium</b>	<b>10,900</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 14:28
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:06
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:06
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:06
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>280</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 15:02
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.039</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>15.6</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>38,700</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-S  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-11  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 13:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-B  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-12  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:44
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 16:44
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 16:44
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:44
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 16:44
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 16:44
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 16:44
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:44
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.043</b>		<b>0.00080</b>	<b>0.0050</b>	<b>mg/L</b>	1	22-Dec-2015 16:44
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:44
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:44
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:44
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 16:44
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-B  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-12  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 16:44
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:44
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:44
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 16:44
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 16:44
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 16:44
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 16:44
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 16:44
Surr: 2,4,6-Tribromophenol	75.2			42-124	%REC	1	22-Dec-2015 16:44
Surr: 2-Fluorobiphenyl	69.5			48-120	%REC	1	22-Dec-2015 16:44
Surr: 2-Fluorophenol	65.3			20-120	%REC	1	22-Dec-2015 16:44
Surr: 4-Terphenyl-d14	93.1			51-135	%REC	1	22-Dec-2015 16:44
Surr: Nitrobenzene-d5	70.8			41-120	%REC	1	22-Dec-2015 16:44
Surr: Phenol-d6	69.3			20-120	%REC	1	22-Dec-2015 16:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-B  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-12  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>			Prep:E608 / 20-Dec-2015		Analyst: STH
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 09:27
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 09:27
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 09:27
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 09:27
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 09:27
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:05
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:05
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:05
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:05
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:05
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:05
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:05
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 09:27
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 09:27
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 09:27
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 09:27
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 09:27
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 09:27
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 09:27
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 09:27
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 09:27
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 09:27
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 09:27
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 09:27
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 09:27
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 09:27
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 09:27
Surr: Decachlorobiphenyl	86.0			61-154	%REC	1	30-Dec-2015 09:27
Surr: Decachlorobiphenyl	121			61-154	%REC	1	21-Dec-2015 17:05
Surr: Tetrachlor-m-xylene	132			60-144	%REC	1	21-Dec-2015 17:05
Surr: Tetrachlor-m-xylene	104			60-144	%REC	1	30-Dec-2015 09:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-B  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-12  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0540</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:09
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:09
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:09
<b>Barium</b>	<b>0.0124</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:09
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:09
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:09
<b>Calcium</b>	<b>423</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:09
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:09
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:09
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:09
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:09
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:09
<b>Magnesium</b>	<b>1,400</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:09
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:09
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:09
<b>Potassium</b>	<b>414</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:09
<b>Selenium</b>	<b>0.0123</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:09
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:09
<b>Sodium</b>	<b>10,200</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 14:31
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:09
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:09
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:09
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>240</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 15:04
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.029</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>16.6</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>39,100</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4B-B  
 Collection Date: 16-Dec-2015 13:15

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-12  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 13:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-S  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-13  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:06
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 17:06
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 17:06
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:06
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 17:06
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 17:06
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 17:06
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:06
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:06
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:06
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:06
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:06
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 17:06
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-S  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-13  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 17:06
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:06
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:06
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:06
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:06
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:06
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:06
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:06
<i>Surr: 2,4,6-Tribromophenol</i>		84.9		42-124	%REC	1	22-Dec-2015 17:06
<i>Surr: 2-Fluorobiphenyl</i>		70.1		48-120	%REC	1	22-Dec-2015 17:06
<i>Surr: 2-Fluorophenol</i>		65.3		20-120	%REC	1	22-Dec-2015 17:06
<i>Surr: 4-Terphenyl-d14</i>		91.9		51-135	%REC	1	22-Dec-2015 17:06
<i>Surr: Nitrobenzene-d5</i>		72.4		41-120	%REC	1	22-Dec-2015 17:06
<i>Surr: Phenol-d6</i>		69.2		20-120	%REC	1	22-Dec-2015 17:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-S  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-13  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>		Prep:E608 / 20-Dec-2015		Analyst: STH	
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:09
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:09
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:09
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 06:09
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 06:09
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:21
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:21
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:21
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:21
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:21
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:21
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:21
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 06:09
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 06:09
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 06:09
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 06:09
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 06:09
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:09
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:09
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:09
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:09
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:09
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 06:09
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 06:09
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 06:09
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 06:09
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 06:09
Surr: Decachlorobiphenyl	92.6			61-154	%REC	1	30-Dec-2015 06:09
Surr: Decachlorobiphenyl	98.6			61-154	%REC	1	21-Dec-2015 17:21
Surr: Tetrachlor-m-xylene	108			60-144	%REC	1	21-Dec-2015 17:21
Surr: Tetrachlor-m-xylene	101			60-144	%REC	1	30-Dec-2015 06:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-S  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-13  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0621</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:12
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:12
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:12
<b>Barium</b>	<b>0.0135</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:12
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:12
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:12
<b>Calcium</b>	<b>433</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:12
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:12
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:12
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:12
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:12
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:12
<b>Magnesium</b>	<b>1,450</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:12
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:12
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:12
<b>Potassium</b>	<b>432</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:12
<b>Selenium</b>	<b>0.0150</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:12
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:12
<b>Sodium</b>	<b>10,600</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 14:33
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:12
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:12
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:12
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 17-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	22-Dec-2015 13:02
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>260</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 15:06
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.028</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>6.70</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>38,400</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-S  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-13  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 14:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-B  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-14  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:29
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 17:29
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 17:29
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:29
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 17:29
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 17:29
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 17:29
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:29
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.017</b>		<b>0.00080</b>	<b>0.0050</b>	<b>mg/L</b>	1	22-Dec-2015 17:29
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:29
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:29
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:29
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 17:29
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-B  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-14  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 17:29
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:29
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:29
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:29
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:29
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:29
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:29
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:29
Surr: 2,4,6-Tribromophenol	79.0			42-124	%REC	1	22-Dec-2015 17:29
Surr: 2-Fluorobiphenyl	66.4			48-120	%REC	1	22-Dec-2015 17:29
Surr: 2-Fluorophenol	61.6			20-120	%REC	1	22-Dec-2015 17:29
Surr: 4-Terphenyl-d14	94.1			51-135	%REC	1	22-Dec-2015 17:29
Surr: Nitrobenzene-d5	68.7			41-120	%REC	1	22-Dec-2015 17:29
Surr: Phenol-d6	66.0			20-120	%REC	1	22-Dec-2015 17:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-B  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-14  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>		Prep:E608 / 20-Dec-2015		Analyst: STH	
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:22
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:22
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:22
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 06:22
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 06:22
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:37
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:37
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:37
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:37
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:37
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:37
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:37
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 06:22
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 06:22
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 06:22
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 06:22
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 06:22
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:22
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:22
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:22
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:22
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 06:22
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 06:22
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 06:22
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 06:22
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 06:22
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 06:22
Surr: Decachlorobiphenyl	92.9			61-154	%REC	1	30-Dec-2015 06:22
Surr: Decachlorobiphenyl	117			61-154	%REC	1	21-Dec-2015 17:37
Surr: Tetrachlor-m-xylene	120			60-144	%REC	1	21-Dec-2015 17:37
Surr: Tetrachlor-m-xylene	95.8			60-144	%REC	1	30-Dec-2015 06:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-B  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-14  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0707</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:15
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:15
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:15
<b>Barium</b>	<b>0.0136</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:15
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:15
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:15
<b>Calcium</b>	<b>447</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:15
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:15
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:15
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:15
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:15
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:15
<b>Magnesium</b>	<b>1,430</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:15
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:15
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:15
<b>Potassium</b>	<b>438</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:15
<b>Selenium</b>	<b>0.0183</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:15
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:15
<b>Sodium</b>	<b>9,780</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 14:36
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:15
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:15
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:15
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 17-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	22-Dec-2015 13:02
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>220</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 15:07
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.035</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>8.25</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>38,900</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: L4C-B  
 Collection Date: 16-Dec-2015 11:30

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-14  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 14:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-S  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-15  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:51
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 17:51
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 17:51
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:51
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 17:51
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 17:51
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 17:51
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:51
Bis(2-ethylhexyl)phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:51
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:51
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:51
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:51
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 17:51
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-S  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-15  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 17:51
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:51
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:51
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 17:51
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 17:51
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 17:51
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 17:51
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 17:51
Surr: 2,4,6-Tribromophenol	72.5			42-124	%REC	1	22-Dec-2015 17:51
Surr: 2-Fluorobiphenyl	63.5			48-120	%REC	1	22-Dec-2015 17:51
Surr: 2-Fluorophenol	46.7			20-120	%REC	1	22-Dec-2015 17:51
Surr: 4-Terphenyl-d14	84.4			51-135	%REC	1	22-Dec-2015 17:51
Surr: Nitrobenzene-d5	61.5			41-120	%REC	1	22-Dec-2015 17:51
Surr: Phenol-d6	52.1			20-120	%REC	1	22-Dec-2015 17:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-S  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-15  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>			Prep:E608 / 20-Dec-2015		Analyst: STH
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:46
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:46
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:46
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:46
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:46
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:54
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:54
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:54
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:54
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:54
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:54
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 17:54
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:46
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 10:46
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:46
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 10:46
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:46
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:46
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:46
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:46
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:46
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:46
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:46
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:46
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:46
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 10:46
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 10:46
Surr: Decachlorobiphenyl	93.3			61-154	%REC	1	30-Dec-2015 10:46
Surr: Decachlorobiphenyl	118			61-154	%REC	1	21-Dec-2015 17:54
Surr: Tetrachlor-m-xylene	121			60-144	%REC	1	21-Dec-2015 17:54
Surr: Tetrachlor-m-xylene	99.2			60-144	%REC	1	30-Dec-2015 10:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-S  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-15  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>		Prep:E200.8 / 23-Dec-2015		Analyst: JDE	
<b>Aluminum</b>	<b>0.0613</b>	J	<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:18
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:18
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:18
<b>Barium</b>	<b>0.0226</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:18
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:18
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:18
<b>Calcium</b>	<b>420</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:18
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:18
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:18
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:18
Iron	U		0.500	2.00	mg/L	10	29-Dec-2015 13:18
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:18
<b>Magnesium</b>	<b>1,310</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:18
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:18
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:18
<b>Potassium</b>	<b>409</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:18
<b>Selenium</b>	<b>0.0230</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:18
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:18
<b>Sodium</b>	<b>9,480</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 14:39
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:18
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:18
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:18
<b>BOD</b>		<b>Method:SM5210 B</b>		Prep:SM5210 B / 18-Dec-2015		Analyst: KMU	
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>				Analyst: KMU	
<b>Chemical Oxygen Demand</b>	<b>200</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>		Prep:E245.1 / 23-Dec-2015		Analyst: OFO	
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 15:09
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>		Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD	
<b>Nitrogen, Ammonia (as N)</b>	<b>0.029</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>		Prep:SM4500P E / 22-Dec-2015		Analyst: JHD	
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>				Analyst: KAH	
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>7.26</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>				Analyst: KAH	
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>36,000</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-S  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-15  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>		Analyst: JBA			
Nitrate/Nitrite (as N)	U		0.600	4.00	mg/L	20	22-Dec-2015 14:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-B  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-16  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
1,2,4-Trichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
1,2-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
1,2-Diphenylhydrazine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
1,3-Dichlorobenzene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
1,4-Dichlorobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
2,4,6-Trichlorophenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
2,4-Dichlorophenol	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
2,4-Dimethylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
2,4-Dinitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
2,4-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
2,6-Dinitrotoluene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
2-Chloronaphthalene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 18:13
2-Chlorophenol	U		0.0010	0.0050	mg/L	1	22-Dec-2015 18:13
2-Nitrophenol	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
3,3'-Dichlorobenzidine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
4,6-Dinitro-2-methylphenol	U		0.00090	0.0050	mg/L	1	22-Dec-2015 18:13
4-Bromophenyl phenyl ether	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
4-Chloro-3-methylphenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
4-Chlorophenyl phenyl ether	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
4-Nitrophenol	U		0.00060	0.0050	mg/L	1	22-Dec-2015 18:13
Acenaphthene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
Acenaphthylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
Anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
Benz(a)anthracene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
Benzidine	U		0.0050	0.0050	mg/L	1	22-Dec-2015 18:13
Benzo(a)pyrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
Benzo(b)fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
Benzo(g,h,i)perylene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
Benzo(k)fluoranthene	U		0.00070	0.0050	mg/L	1	22-Dec-2015 18:13
Bis(2-chloroethoxy)methane	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
Bis(2-chloroethyl)ether	U		0.00070	0.0050	mg/L	1	22-Dec-2015 18:13
Bis(2-chloroisopropyl)ether	U		0.00080	0.0050	mg/L	1	22-Dec-2015 18:13
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.0032</b>	<b>J</b>	<b>0.00080</b>	<b>0.0050</b>	<b>mg/L</b>	<b>1</b>	<b>22-Dec-2015 18:13</b>
Butyl benzyl phthalate	U		0.00060	0.0050	mg/L	1	22-Dec-2015 18:13
Chrysene	U		0.00080	0.0050	mg/L	1	22-Dec-2015 18:13
Dibenz(a,h)anthracene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 18:13
Diethyl phthalate	U		0.00070	0.0050	mg/L	1	22-Dec-2015 18:13
Dimethyl phthalate	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
Di-n-butyl phthalate	U		0.00080	0.0050	mg/L	1	22-Dec-2015 18:13

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-B  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-16  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>SEMIVOLATILES</b>		<b>Method:E625</b>			Prep:E625 / 21-Dec-2015		Analyst: GEY
Di-n-octyl phthalate	U		0.0020	0.0050	mg/L	1	22-Dec-2015 18:13
Fluoranthene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
Fluorene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
Hexachlorobenzene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
Hexachlorobutadiene	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
Hexachlorocyclopentadiene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
Hexachloroethane	U		0.00080	0.0050	mg/L	1	22-Dec-2015 18:13
Indeno(1,2,3-cd)pyrene	U		0.00060	0.0050	mg/L	1	22-Dec-2015 18:13
Isophorone	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
Naphthalene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
Nitrobenzene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
N-Nitrosodimethylamine	U		0.00060	0.0050	mg/L	1	22-Dec-2015 18:13
N-Nitrosodi-n-propylamine	U		0.00050	0.0050	mg/L	1	22-Dec-2015 18:13
N-Nitrosodiphenylamine	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
Pentachlorophenol	U		0.00080	0.0050	mg/L	1	22-Dec-2015 18:13
Phenanthrene	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
Phenol	U		0.00040	0.0050	mg/L	1	22-Dec-2015 18:13
Pyrene	U		0.00030	0.0050	mg/L	1	22-Dec-2015 18:13
Surr: 2,4,6-Tribromophenol	80.1			42-124	%REC	1	22-Dec-2015 18:13
Surr: 2-Fluorobiphenyl	62.4			48-120	%REC	1	22-Dec-2015 18:13
Surr: 2-Fluorophenol	61.0			20-120	%REC	1	22-Dec-2015 18:13
Surr: 4-Terphenyl-d14	87.9			51-135	%REC	1	22-Dec-2015 18:13
Surr: Nitrobenzene-d5	67.3			41-120	%REC	1	22-Dec-2015 18:13
Surr: Phenol-d6	65.5			20-120	%REC	1	22-Dec-2015 18:13

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-B  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-16  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>CHLORINATED PEST/PCBS BY E608</b>		<b>Method:E608</b>		Prep:E608 / 20-Dec-2015		Analyst: STH	
4,4'-DDD	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:59
4,4'-DDE	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:59
4,4'-DDT	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:59
Aldrin	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:59
alpha-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:59
Aroclor 1016	U		0.000200	0.000500	mg/L	1	21-Dec-2015 18:10
Aroclor 1221	U		0.000200	0.000500	mg/L	1	21-Dec-2015 18:10
Aroclor 1232	U		0.000200	0.000500	mg/L	1	21-Dec-2015 18:10
Aroclor 1242	U		0.000200	0.000500	mg/L	1	21-Dec-2015 18:10
Aroclor 1248	U		0.000200	0.000500	mg/L	1	21-Dec-2015 18:10
Aroclor 1254	U		0.000200	0.000500	mg/L	1	21-Dec-2015 18:10
Aroclor 1260	U		0.000200	0.000500	mg/L	1	21-Dec-2015 18:10
beta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:59
Chlordane	U		0.000100	0.000500	mg/L	1	30-Dec-2015 10:59
delta-BHC	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:59
Dieldrin	U		0.00000500	0.000100	mg/L	1	30-Dec-2015 10:59
Endosulfan I	U		0.0000100	0.0000500	mg/L	1	30-Dec-2015 10:59
Endosulfan II	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:59
Endosulfan sulfate	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:59
Endrin	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:59
Endrin aldehyde	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:59
Endrin Ketone	U		0.0000100	0.000100	mg/L	1	30-Dec-2015 10:59
gamma-BHC	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:59
Heptachlor	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:59
Heptachlor epoxide	U		0.00000500	0.0000500	mg/L	1	30-Dec-2015 10:59
Methoxychlor	U		0.0000500	0.000500	mg/L	1	30-Dec-2015 10:59
Toxaphene	U		0.000130	0.000500	mg/L	1	30-Dec-2015 10:59
Surr: Decachlorobiphenyl	84.2			61-154	%REC	1	30-Dec-2015 10:59
Surr: Decachlorobiphenyl	102			61-154	%REC	1	21-Dec-2015 18:10
Surr: Tetrachlor-m-xylene	111			60-144	%REC	1	21-Dec-2015 18:10
Surr: Tetrachlor-m-xylene	91.3			60-144	%REC	1	30-Dec-2015 10:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-B  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**  
 WorkOrder:HS15120747  
 Lab ID:HS15120747-16  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>TOTAL METALS BY E200.8</b>		<b>Method:E200.8</b>			Prep:E200.8 / 23-Dec-2015		Analyst: JDE
<b>Aluminum</b>	<b>0.183</b>		<b>0.0500</b>	<b>0.100</b>	<b>mg/L</b>	10	29-Dec-2015 13:21
Antimony	U		0.00600	0.0500	mg/L	10	29-Dec-2015 13:21
Arsenic	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:21
<b>Barium</b>	<b>0.0177</b>	J	<b>0.0100</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:21
Beryllium	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:21
Cadmium	U		0.00600	0.0200	mg/L	10	29-Dec-2015 13:21
<b>Calcium</b>	<b>449</b>		<b>0.500</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:21
Chromium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:21
Cobalt	U		0.00800	0.0500	mg/L	10	29-Dec-2015 13:21
Copper	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:21
<b>Iron</b>	<b>0.532</b>	J	<b>0.500</b>	<b>2.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:21
Lead	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:21
<b>Magnesium</b>	<b>1,390</b>		<b>0.820</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:21
Manganese	U		0.0220	0.0500	mg/L	10	29-Dec-2015 13:21
Nickel	U		0.00500	0.0500	mg/L	10	29-Dec-2015 13:21
<b>Potassium</b>	<b>434</b>		<b>0.590</b>	<b>5.00</b>	<b>mg/L</b>	10	29-Dec-2015 13:21
<b>Selenium</b>	<b>0.00752</b>	J	<b>0.00500</b>	<b>0.0500</b>	<b>mg/L</b>	10	29-Dec-2015 13:21
Silver	U		0.00500	0.0200	mg/L	10	29-Dec-2015 13:21
<b>Sodium</b>	<b>10,600</b>		<b>30.5</b>	<b>100</b>	<b>mg/L</b>	500	29-Dec-2015 14:42
Thallium	U		0.00800	0.0200	mg/L	10	29-Dec-2015 13:21
Vanadium	U		0.0100	0.0500	mg/L	10	29-Dec-2015 13:21
Zinc	U		0.0200	0.0500	mg/L	10	29-Dec-2015 13:21
<b>BOD</b>		<b>Method:SM5210 B</b>			Prep:SM5210 B / 18-Dec-2015		Analyst: KMU
Biochemical Oxygen Demand	U		2.00	2.00	mg/L	1	23-Dec-2015 12:22
<b>CHEMICAL OXYGEN DEMAND BY E410.4</b>		<b>Method:E410.4</b>					Analyst: KMU
<b>Chemical Oxygen Demand</b>	<b>240</b>	J	<b>100</b>	<b>300</b>	<b>mg/L</b>	20	29-Dec-2015 18:30
<b>MERCURY BY E245.1</b>		<b>Method:E245.1</b>			Prep:E245.1 / 23-Dec-2015		Analyst: OFO
Mercury	U		0.0000400	0.000200	mg/L	1	23-Dec-2015 15:11
<b>AMMONIA AS N BY SM4500 NH3-B-F</b>		<b>Method:SM4500 NH3-B-F</b>			Prep:M4500-NH3 B / 22-Dec-2015		Analyst: JHD
<b>Nitrogen, Ammonia (as N)</b>	<b>0.031</b>	J	<b>0.025</b>	<b>0.050</b>	<b>mg/L</b>	1	23-Dec-2015 17:52
<b>PHOSPHORUS BY SM4500P E</b>		<b>Method:SM4500P E</b>			Prep:SM4500P E / 22-Dec-2015		Analyst: JHD
Phosphorus, Total (As P)	U		0.0200	0.0500	mg/L	1	23-Dec-2015 14:43
<b>TOTAL SUSPENDED SOLIDS BY SM 2540D</b>		<b>Method:M2540D</b>					Analyst: KAH
<b>Suspended Solids (Residue, Non-Filterable)</b>	<b>9.60</b>		<b>2.00</b>	<b>2.00</b>	<b>mg/L</b>	1	23-Dec-2015 11:45
<b>TOTAL DISSOLVED SOLIDS BY SM2540C</b>		<b>Method:M2540C</b>					Analyst: KAH
<b>Total Dissolved Solids (Residue, Filterable)</b>	<b>37,900</b>		<b>5.00</b>	<b>10.0</b>	<b>mg/L</b>	1	22-Dec-2015 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Ecology & Environment, Inc  
 Project: Delfin LNG  
 Sample ID: Bypass-B  
 Collection Date: 16-Dec-2015 18:45

**ANALYTICAL REPORT**

WorkOrder:HS15120747  
 Lab ID:HS15120747-16  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>NITRATE/NITRITE BY E300.0</b>		<b>Method:E300</b>			Analyst: JBA		
Nitrate/Nitrite (as N)	10.9		0.600	4.00	mg/L	20	22-Dec-2015 15:13

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**WEIGHT LOG**

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**Batch ID: 99911 Method: BOD Prep: BOD\_PR 5210B**

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120747-13	1	300	300 (mL)	1
HS15120747-14	1	300	300 (mL)	1

**Batch ID: 99944 Method: BOD Prep: BOD\_PR 5210B**

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120747-01	1	300	300 (mL)	1
HS15120747-02	1	300	300 (mL)	1
HS15120747-03	1	300	300 (mL)	1
HS15120747-04	1	300	300 (mL)	1
HS15120747-05	1	300	300 (mL)	1
HS15120747-06	1	300	300 (mL)	1
HS15120747-07	1	300	300 (mL)	1
HS15120747-08	1	300	300 (mL)	1
HS15120747-09	1	300	300 (mL)	1
HS15120747-10	1	300	300 (mL)	1
HS15120747-11	1	300	300 (mL)	1
HS15120747-12	1	300	300 (mL)	1
HS15120747-15	1	300	300 (mL)	1
HS15120747-16	1	300	300 (mL)	1

**Batch ID: 99989 Method: SEMIVOLATILES Prep: 625PRF**

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120747-01	1	1000	1 (mL)	0.001
HS15120747-02	1	1000	1 (mL)	0.001
HS15120747-03	1	1000	1 (mL)	0.001
HS15120747-04	1	1000	1 (mL)	0.001
HS15120747-05	1	1000	1 (mL)	0.001
HS15120747-06	1	1000	1 (mL)	0.001
HS15120747-07	1	1000	1 (mL)	0.001
HS15120747-08	1	1000	1 (mL)	0.001
HS15120747-09	1	1000	1 (mL)	0.001
HS15120747-10	1	1000	1 (mL)	0.001
HS15120747-11	1	1000	1 (mL)	0.001
HS15120747-12	1	1000	1 (mL)	0.001
HS15120747-13	1	1000	1 (mL)	0.001
HS15120747-14	1	1000	1 (mL)	0.001
HS15120747-15	1	1000	1 (mL)	0.001
HS15120747-16	1	1000	1 (mL)	0.001

## WEIGHT LOG

Client: Ecology &amp; Environment, Inc

Project: Delfin LNG

WorkOrder: HS15120747

Batch ID: 100039 Method: AMMONIA AS N BY SM4500 NH3-B-F Prep: NIT\_AMM\_W\_PR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120747-01	1	50	50 (mL)	1
HS15120747-02	1	50	50 (mL)	1
HS15120747-03	1	50	50 (mL)	1
HS15120747-04	1	50	50 (mL)	1
HS15120747-05	1	50	50 (mL)	1
HS15120747-06	1	50	50 (mL)	1
HS15120747-07	1	50	50 (mL)	1
HS15120747-08	1	50	50 (mL)	1
HS15120747-09	1	50	50 (mL)	1
HS15120747-10	1	50	50 (mL)	1
HS15120747-11	1	50	50 (mL)	1
HS15120747-12	1	50	50 (mL)	1
HS15120747-13	1	50	50 (mL)	1
HS15120747-14	1	50	50 (mL)	1
HS15120747-15	1	50	50 (mL)	1
HS15120747-16	1	50	50 (mL)	1

Batch ID: 100043 Method: PHOSPHORUS BY SM4500P E Prep: P\_TW\_PR4500

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120747-01	1	50	50 (mL)	1
HS15120747-02	1	50	50 (mL)	1
HS15120747-03	1	50	50 (mL)	1
HS15120747-04	1	50	50 (mL)	1
HS15120747-05	1	50	50 (mL)	1
HS15120747-06	1	50	50 (mL)	1
HS15120747-07	1	50	50 (mL)	1
HS15120747-08	1	50	50 (mL)	1
HS15120747-09	1	50	50 (mL)	1
HS15120747-10	1	50	50 (mL)	1
HS15120747-11	1	50	50 (mL)	1
HS15120747-12	1	50	50 (mL)	1
HS15120747-13	1	50	50 (mL)	1
HS15120747-14	1	50	50 (mL)	1
HS15120747-15	1	50	50 (mL)	1
HS15120747-16	1	50	50 (mL)	1

Batch ID: 100078 Method: TOTAL METALS BY E200.8 Prep: 200.8PR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120747-01	1	50	50 (mL)	1
HS15120747-02	1	50	50 (mL)	1
HS15120747-03	1	50	50 (mL)	1
HS15120747-04	1	50	50 (mL)	1
HS15120747-05	1	50	50 (mL)	1
HS15120747-06	1	50	50 (mL)	1
HS15120747-07	1	50	50 (mL)	1
HS15120747-08	1	50	50 (mL)	1
HS15120747-09	1	50	50 (mL)	1
HS15120747-10	1	50	50 (mL)	1

**WEIGHT LOG**

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**Batch ID:** 100079      **Method:** TOTAL METALS BY E200.8      **Prep:** 200.8PR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120747-11	1	50	50 (mL)	1
HS15120747-12	1	50	50 (mL)	1
HS15120747-13	1	50	50 (mL)	1
HS15120747-14	1	50	50 (mL)	1
HS15120747-15	1	50	50 (mL)	1
HS15120747-16	1	50	50 (mL)	1

**Batch ID:** 100084      **Method:** MERCURY BY E245.1      **Prep:** HG\_WW\_245PR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS15120747-01	1	40	40 (mL)	1
HS15120747-02	1	40	40 (mL)	1
HS15120747-03	1	40	40 (mL)	1
HS15120747-04	1	40	40 (mL)	1
HS15120747-05	1	40	40 (mL)	1
HS15120747-06	1	40	40 (mL)	1
HS15120747-07	1	40	40 (mL)	1
HS15120747-08	1	40	40 (mL)	1
HS15120747-09	1	40	40 (mL)	1
HS15120747-10	1	40	40 (mL)	1
HS15120747-11	1	40	40 (mL)	1
HS15120747-12	1	40	40 (mL)	1
HS15120747-13	1	40	40 (mL)	1
HS15120747-14	1	40	40 (mL)	1
HS15120747-15	1	40	40 (mL)	1
HS15120747-16	1	40	40 (mL)	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> 100039	<b>Test Name :</b> AMMONIA AS N BY SM4500 NH3-B-F			<b>Matrix:</b> Water		
HS15120747-01	L1-S	16 Dec 2015 15:00		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-02	L1-B	16 Dec 2015 15:00		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-03	L2A-S	16 Dec 2015 13:50		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-04	L2A-B	16 Dec 2015 13:50		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-05	L3-S	16 Dec 2015 14:25		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-07	L3-B	16 Dec 2015 14:25		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-09	L4A-S	16 Dec 2015 13:30		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-10	L4A-B	16 Dec 2015 13:30		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-11	L4B-S	16 Dec 2015 13:15		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-12	L4B-B	16 Dec 2015 13:15		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-13	L4C-S	16 Dec 2015 11:30		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-14	L4C-B	16 Dec 2015 11:30		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-15	Bypass-S	16 Dec 2015 18:45		22 Dec 2015 11:23	23 Dec 2015 17:52	1
HS15120747-16	Bypass-B	16 Dec 2015 18:45		22 Dec 2015 11:23	23 Dec 2015 17:52	1
<b>Batch ID</b> 100043	<b>Test Name :</b> PHOSPHORUS BY SM4500P E			<b>Matrix:</b> Water		
HS15120747-01	L1-S	16 Dec 2015 15:00		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-02	L1-B	16 Dec 2015 15:00		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-03	L2A-S	16 Dec 2015 13:50		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-04	L2A-B	16 Dec 2015 13:50		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-05	L3-S	16 Dec 2015 14:25		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-07	L3-B	16 Dec 2015 14:25		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-09	L4A-S	16 Dec 2015 13:30		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-10	L4A-B	16 Dec 2015 13:30		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-11	L4B-S	16 Dec 2015 13:15		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-12	L4B-B	16 Dec 2015 13:15		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-13	L4C-S	16 Dec 2015 11:30		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-14	L4C-B	16 Dec 2015 11:30		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-15	Bypass-S	16 Dec 2015 18:45		22 Dec 2015 12:10	23 Dec 2015 14:43	1
HS15120747-16	Bypass-B	16 Dec 2015 18:45		22 Dec 2015 12:10	23 Dec 2015 14:43	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> 100078	<b>Test Name :</b> TOTAL METALS BY E200.8			<b>Matrix:</b> Water		
HS15120747-01	L1-S	16 Dec 2015 15:00		23 Dec 2015 09:38	29 Dec 2015 15:03	500
HS15120747-01	L1-S	16 Dec 2015 15:00		23 Dec 2015 09:38	29 Dec 2015 13:30	10
HS15120747-02	L1-B	16 Dec 2015 15:00		23 Dec 2015 09:38	29 Dec 2015 15:09	500
HS15120747-02	L1-B	16 Dec 2015 15:00		23 Dec 2015 09:38	29 Dec 2015 13:45	10
HS15120747-03	L2A-S	16 Dec 2015 13:50		23 Dec 2015 09:38	29 Dec 2015 15:12	500
HS15120747-03	L2A-S	16 Dec 2015 13:50		23 Dec 2015 09:38	29 Dec 2015 13:48	10
HS15120747-04	L2A-B	16 Dec 2015 13:50		23 Dec 2015 09:38	29 Dec 2015 15:15	500
HS15120747-04	L2A-B	16 Dec 2015 13:50		23 Dec 2015 09:38	29 Dec 2015 13:51	10
HS15120747-05	L3-S	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 15:52	20
HS15120747-05	L3-S	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 15:18	500
HS15120747-05	L3-S	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 13:54	10
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 15:49	20
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 15:21	500
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 13:57	10
HS15120747-07	L3-B	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 15:55	20
HS15120747-07	L3-B	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 15:24	500
HS15120747-07	L3-B	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 14:06	10
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 15:58	20
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 15:27	500
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		23 Dec 2015 09:38	29 Dec 2015 14:09	10
HS15120747-09	L4A-S	16 Dec 2015 13:30		23 Dec 2015 09:38	29 Dec 2015 16:01	20
HS15120747-09	L4A-S	16 Dec 2015 13:30		23 Dec 2015 09:38	29 Dec 2015 15:36	500
HS15120747-09	L4A-S	16 Dec 2015 13:30		23 Dec 2015 09:38	29 Dec 2015 14:12	10
HS15120747-10	L4A-B	16 Dec 2015 13:30		23 Dec 2015 09:38	29 Dec 2015 16:04	20
HS15120747-10	L4A-B	16 Dec 2015 13:30		23 Dec 2015 09:38	29 Dec 2015 15:40	500
HS15120747-10	L4A-B	16 Dec 2015 13:30		23 Dec 2015 09:38	29 Dec 2015 14:15	10
<b>Batch ID</b> 100079	<b>Test Name :</b> TOTAL METALS BY E200.8			<b>Matrix:</b> Water		
HS15120747-11	L4B-S	16 Dec 2015 13:15		23 Dec 2015 09:46	29 Dec 2015 14:28	500
HS15120747-11	L4B-S	16 Dec 2015 13:15		23 Dec 2015 09:46	29 Dec 2015 13:06	10
HS15120747-12	L4B-B	16 Dec 2015 13:15		23 Dec 2015 09:46	29 Dec 2015 14:31	500
HS15120747-12	L4B-B	16 Dec 2015 13:15		23 Dec 2015 09:46	29 Dec 2015 13:09	10
HS15120747-13	L4C-S	16 Dec 2015 11:30		23 Dec 2015 09:46	29 Dec 2015 14:33	500
HS15120747-13	L4C-S	16 Dec 2015 11:30		23 Dec 2015 09:46	29 Dec 2015 13:12	10
HS15120747-14	L4C-B	16 Dec 2015 11:30		23 Dec 2015 09:46	29 Dec 2015 14:36	500
HS15120747-14	L4C-B	16 Dec 2015 11:30		23 Dec 2015 09:46	29 Dec 2015 13:15	10
HS15120747-15	Bypass-S	16 Dec 2015 18:45		23 Dec 2015 09:46	29 Dec 2015 14:39	500
HS15120747-15	Bypass-S	16 Dec 2015 18:45		23 Dec 2015 09:46	29 Dec 2015 13:18	10
HS15120747-16	Bypass-B	16 Dec 2015 18:45		23 Dec 2015 09:46	29 Dec 2015 14:42	500
HS15120747-16	Bypass-B	16 Dec 2015 18:45		23 Dec 2015 09:46	29 Dec 2015 13:21	10

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID 100084</b>		<b>Test Name : MERCURY BY E245.1</b>		<b>Matrix: Water</b>		
HS15120747-01	L1-S	16 Dec 2015 15:00		23 Dec 2015 10:44	23 Dec 2015 14:43	1
HS15120747-02	L1-B	16 Dec 2015 15:00		23 Dec 2015 10:44	23 Dec 2015 14:38	1
HS15120747-03	L2A-S	16 Dec 2015 13:50		23 Dec 2015 10:44	23 Dec 2015 14:45	1
HS15120747-04	L2A-B	16 Dec 2015 13:50		23 Dec 2015 10:44	23 Dec 2015 14:47	1
HS15120747-05	L3-S	16 Dec 2015 14:25		23 Dec 2015 10:44	23 Dec 2015 14:49	1
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		23 Dec 2015 10:44	23 Dec 2015 14:50	1
HS15120747-07	L3-B	16 Dec 2015 14:25		23 Dec 2015 10:44	23 Dec 2015 14:55	1
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		23 Dec 2015 10:44	23 Dec 2015 14:57	1
HS15120747-09	L4A-S	16 Dec 2015 13:30		23 Dec 2015 10:44	23 Dec 2015 14:59	1
HS15120747-10	L4A-B	16 Dec 2015 13:30		23 Dec 2015 10:44	23 Dec 2015 15:01	1
HS15120747-11	L4B-S	16 Dec 2015 13:15		23 Dec 2015 10:44	23 Dec 2015 15:02	1
HS15120747-12	L4B-B	16 Dec 2015 13:15		23 Dec 2015 10:44	23 Dec 2015 15:04	1
HS15120747-13	L4C-S	16 Dec 2015 11:30		23 Dec 2015 10:44	23 Dec 2015 15:06	1
HS15120747-14	L4C-B	16 Dec 2015 11:30		23 Dec 2015 10:44	23 Dec 2015 15:07	1
HS15120747-15	Bypass-S	16 Dec 2015 18:45		23 Dec 2015 10:44	23 Dec 2015 15:09	1
HS15120747-16	Bypass-B	16 Dec 2015 18:45		23 Dec 2015 10:44	23 Dec 2015 15:11	1
<b>Batch ID 99911</b>		<b>Test Name : BOD</b>		<b>Matrix: Water</b>		
HS15120747-13	L4C-S	16 Dec 2015 11:30		17 Dec 2015 20:00	22 Dec 2015 13:02	1
HS15120747-14	L4C-B	16 Dec 2015 11:30		17 Dec 2015 20:00	22 Dec 2015 13:02	1
<b>Batch ID 99944</b>		<b>Test Name : BOD</b>		<b>Matrix: Water</b>		
HS15120747-01	L1-S	16 Dec 2015 15:00		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-02	L1-B	16 Dec 2015 15:00		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-03	L2A-S	16 Dec 2015 13:50		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-04	L2A-B	16 Dec 2015 13:50		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-05	L3-S	16 Dec 2015 14:25		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-07	L3-B	16 Dec 2015 14:25		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-09	L4A-S	16 Dec 2015 13:30		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-10	L4A-B	16 Dec 2015 13:30		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-11	L4B-S	16 Dec 2015 13:15		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-12	L4B-B	16 Dec 2015 13:15		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-15	Bypass-S	16 Dec 2015 18:45		18 Dec 2015 10:30	23 Dec 2015 12:22	1
HS15120747-16	Bypass-B	16 Dec 2015 18:45		18 Dec 2015 10:30	23 Dec 2015 12:22	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> 99972b	<b>Test Name :</b> CHLORINATED PEST/PCBS BY E608			<b>Matrix:</b> Water		
HS15120747-01	L1-S	16 Dec 2015 15:00		20 Dec 2015 10:34	30 Dec 2015 11:39	1
HS15120747-01	L1-S	16 Dec 2015 15:00		20 Dec 2015 10:34	21 Dec 2015 13:50	1
HS15120747-02	L1-B	16 Dec 2015 15:00		20 Dec 2015 10:34	30 Dec 2015 11:52	1
HS15120747-02	L1-B	16 Dec 2015 15:00		20 Dec 2015 10:34	21 Dec 2015 14:06	1
HS15120747-03	L2A-S	16 Dec 2015 13:50		20 Dec 2015 10:34	30 Dec 2015 12:05	1
HS15120747-03	L2A-S	16 Dec 2015 13:50		20 Dec 2015 10:34	21 Dec 2015 14:22	1
HS15120747-04	L2A-B	16 Dec 2015 13:50		20 Dec 2015 10:34	30 Dec 2015 10:20	1
HS15120747-04	L2A-B	16 Dec 2015 13:50		20 Dec 2015 10:34	21 Dec 2015 14:38	1
HS15120747-05	L3-S	16 Dec 2015 14:25		20 Dec 2015 10:34	30 Dec 2015 10:33	1
HS15120747-05	L3-S	16 Dec 2015 14:25		20 Dec 2015 10:34	21 Dec 2015 14:55	1
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		20 Dec 2015 10:34	30 Dec 2015 03:18	1
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		20 Dec 2015 10:34	21 Dec 2015 15:11	1
HS15120747-07	L3-B	16 Dec 2015 14:25		20 Dec 2015 10:34	30 Dec 2015 03:31	1
HS15120747-07	L3-B	16 Dec 2015 14:25		20 Dec 2015 10:34	21 Dec 2015 15:43	1
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		20 Dec 2015 10:34	30 Dec 2015 03:44	1
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		20 Dec 2015 10:34	21 Dec 2015 16:00	1
HS15120747-09	L4A-S	16 Dec 2015 13:30		20 Dec 2015 10:34	30 Dec 2015 03:57	1
HS15120747-09	L4A-S	16 Dec 2015 13:30		20 Dec 2015 10:34	21 Dec 2015 16:16	1
HS15120747-10	L4A-B	16 Dec 2015 13:30		20 Dec 2015 10:34	30 Dec 2015 04:10	1
HS15120747-10	L4A-B	16 Dec 2015 13:30		20 Dec 2015 10:34	21 Dec 2015 16:32	1
HS15120747-11	L4B-S	16 Dec 2015 13:15		20 Dec 2015 10:34	30 Dec 2015 04:24	1
HS15120747-11	L4B-S	16 Dec 2015 13:15		20 Dec 2015 10:34	21 Dec 2015 16:49	1
HS15120747-12	L4B-B	16 Dec 2015 13:15		20 Dec 2015 10:34	30 Dec 2015 09:27	1
HS15120747-12	L4B-B	16 Dec 2015 13:15		20 Dec 2015 10:34	21 Dec 2015 17:05	1
HS15120747-13	L4C-S	16 Dec 2015 11:30		20 Dec 2015 10:34	30 Dec 2015 06:09	1
HS15120747-13	L4C-S	16 Dec 2015 11:30		20 Dec 2015 10:34	21 Dec 2015 17:21	1
HS15120747-14	L4C-B	16 Dec 2015 11:30		20 Dec 2015 10:34	30 Dec 2015 06:22	1
HS15120747-14	L4C-B	16 Dec 2015 11:30		20 Dec 2015 10:34	21 Dec 2015 17:37	1
HS15120747-15	Bypass-S	16 Dec 2015 18:45		20 Dec 2015 10:34	30 Dec 2015 10:46	1
HS15120747-15	Bypass-S	16 Dec 2015 18:45		20 Dec 2015 10:34	21 Dec 2015 17:54	1
HS15120747-16	Bypass-B	16 Dec 2015 18:45		20 Dec 2015 10:34	30 Dec 2015 10:59	1
HS15120747-16	Bypass-B	16 Dec 2015 18:45		20 Dec 2015 10:34	21 Dec 2015 18:10	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> 99989		<b>Test Name :</b> SEMIVOLATILES		<b>Matrix:</b> Water		
HS15120747-01	L1-S	16 Dec 2015 15:00		21 Dec 2015 11:25	22 Dec 2015 12:36	1
HS15120747-02	L1-B	16 Dec 2015 15:00		21 Dec 2015 11:25	22 Dec 2015 12:59	1
HS15120747-03	L2A-S	16 Dec 2015 13:50		21 Dec 2015 11:25	22 Dec 2015 13:21	1
HS15120747-04	L2A-B	16 Dec 2015 13:50		21 Dec 2015 11:25	22 Dec 2015 13:44	1
HS15120747-05	L3-S	16 Dec 2015 14:25		21 Dec 2015 11:25	22 Dec 2015 14:06	1
HS15120747-06	L3-S Dup	16 Dec 2015 14:25		21 Dec 2015 11:25	22 Dec 2015 14:29	1
HS15120747-07	L3-B	16 Dec 2015 14:25		21 Dec 2015 11:25	22 Dec 2015 14:51	1
HS15120747-08	L3-B Dup	16 Dec 2015 14:25		21 Dec 2015 11:25	22 Dec 2015 15:14	1
HS15120747-09	L4A-S	16 Dec 2015 13:30		21 Dec 2015 11:25	22 Dec 2015 15:36	1
HS15120747-10	L4A-B	16 Dec 2015 13:30		21 Dec 2015 11:25	22 Dec 2015 15:59	1
HS15120747-11	L4B-S	16 Dec 2015 13:15		21 Dec 2015 11:25	22 Dec 2015 16:21	1
HS15120747-12	L4B-B	16 Dec 2015 13:15		21 Dec 2015 11:25	22 Dec 2015 16:44	1
HS15120747-13	L4C-S	16 Dec 2015 11:30		21 Dec 2015 11:25	22 Dec 2015 17:06	1
HS15120747-14	L4C-B	16 Dec 2015 11:30		21 Dec 2015 11:25	22 Dec 2015 17:29	1
HS15120747-15	Bypass-S	16 Dec 2015 18:45		21 Dec 2015 11:25	22 Dec 2015 17:51	1
HS15120747-16	Bypass-B	16 Dec 2015 18:45		21 Dec 2015 11:25	22 Dec 2015 18:13	1
<b>Batch ID</b> R266769		<b>Test Name :</b> NITRATE/NITRITE BY E300.0		<b>Matrix:</b> Water		
HS15120747-01	L1-S	16 Dec 2015 15:00			22 Dec 2015 08:51	20
HS15120747-02	L1-B	16 Dec 2015 15:00			22 Dec 2015 09:12	20
HS15120747-03	L2A-S	16 Dec 2015 13:50			22 Dec 2015 09:34	20
HS15120747-04	L2A-B	16 Dec 2015 13:50			22 Dec 2015 09:55	20
HS15120747-05	L3-S	16 Dec 2015 14:25			22 Dec 2015 10:16	20
HS15120747-06	L3-S Dup	16 Dec 2015 14:25			22 Dec 2015 10:37	20
HS15120747-07	L3-B	16 Dec 2015 14:25			22 Dec 2015 10:58	20
HS15120747-08	L3-B Dup	16 Dec 2015 14:25			22 Dec 2015 12:23	20
HS15120747-09	L4A-S	16 Dec 2015 13:30			22 Dec 2015 12:44	20
HS15120747-10	L4A-B	16 Dec 2015 13:30			22 Dec 2015 13:06	20
HS15120747-11	L4B-S	16 Dec 2015 13:15			22 Dec 2015 13:27	20
HS15120747-12	L4B-B	16 Dec 2015 13:15			22 Dec 2015 13:48	20
HS15120747-13	L4C-S	16 Dec 2015 11:30			22 Dec 2015 14:09	20
HS15120747-14	L4C-B	16 Dec 2015 11:30			22 Dec 2015 14:30	20
HS15120747-15	Bypass-S	16 Dec 2015 18:45			22 Dec 2015 14:52	20
HS15120747-16	Bypass-B	16 Dec 2015 18:45			22 Dec 2015 15:13	20

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID R266824</b>		<b>Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C</b>			<b>Matrix: Water</b>	
HS15120747-01	L1-S	16 Dec 2015 15:00			22 Dec 2015 17:00	1
HS15120747-02	L1-B	16 Dec 2015 15:00			22 Dec 2015 17:00	1
HS15120747-03	L2A-S	16 Dec 2015 13:50			22 Dec 2015 17:00	1
HS15120747-04	L2A-B	16 Dec 2015 13:50			22 Dec 2015 17:00	1
HS15120747-05	L3-S	16 Dec 2015 14:25			22 Dec 2015 17:00	1
HS15120747-06	L3-S Dup	16 Dec 2015 14:25			22 Dec 2015 17:00	1
HS15120747-07	L3-B	16 Dec 2015 14:25			22 Dec 2015 17:00	1
HS15120747-08	L3-B Dup	16 Dec 2015 14:25			22 Dec 2015 17:00	1
HS15120747-09	L4A-S	16 Dec 2015 13:30			22 Dec 2015 17:00	1
HS15120747-10	L4A-B	16 Dec 2015 13:30			22 Dec 2015 17:00	1
HS15120747-11	L4B-S	16 Dec 2015 13:15			22 Dec 2015 17:00	1
HS15120747-12	L4B-B	16 Dec 2015 13:15			22 Dec 2015 17:00	1
HS15120747-13	L4C-S	16 Dec 2015 11:30			22 Dec 2015 17:00	1
HS15120747-14	L4C-B	16 Dec 2015 11:30			22 Dec 2015 17:00	1
HS15120747-15	Bypass-S	16 Dec 2015 18:45			22 Dec 2015 17:00	1
HS15120747-16	Bypass-B	16 Dec 2015 18:45			22 Dec 2015 17:00	1
<b>Batch ID R266835</b>		<b>Test Name : TOTAL SUSPENDED SOLIDS BY SM 2540D</b>			<b>Matrix: Water</b>	
HS15120747-01	L1-S	16 Dec 2015 15:00			23 Dec 2015 11:45	1
HS15120747-02	L1-B	16 Dec 2015 15:00			23 Dec 2015 11:45	1
HS15120747-03	L2A-S	16 Dec 2015 13:50			23 Dec 2015 11:45	1
HS15120747-04	L2A-B	16 Dec 2015 13:50			23 Dec 2015 11:45	1
HS15120747-05	L3-S	16 Dec 2015 14:25			23 Dec 2015 11:45	1
HS15120747-06	L3-S Dup	16 Dec 2015 14:25			23 Dec 2015 11:45	1
HS15120747-07	L3-B	16 Dec 2015 14:25			23 Dec 2015 11:45	1
HS15120747-08	L3-B Dup	16 Dec 2015 14:25			23 Dec 2015 11:45	1
HS15120747-09	L4A-S	16 Dec 2015 13:30			23 Dec 2015 11:45	1
HS15120747-10	L4A-B	16 Dec 2015 13:30			23 Dec 2015 11:45	1
HS15120747-11	L4B-S	16 Dec 2015 13:15			23 Dec 2015 11:45	1
HS15120747-12	L4B-B	16 Dec 2015 13:15			23 Dec 2015 11:45	1
HS15120747-13	L4C-S	16 Dec 2015 11:30			23 Dec 2015 11:45	1
HS15120747-14	L4C-B	16 Dec 2015 11:30			23 Dec 2015 11:45	1
HS15120747-15	Bypass-S	16 Dec 2015 18:45			23 Dec 2015 11:45	1
HS15120747-16	Bypass-B	16 Dec 2015 18:45			23 Dec 2015 11:45	1

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> R267022	<b>Test Name :</b> CHEMICAL OXYGEN DEMAND BY E410.4			<b>Matrix:</b> Water		
HS15120747-01	L1-S	16 Dec 2015 15:00			29 Dec 2015 18:30	20
HS15120747-02	L1-B	16 Dec 2015 15:00			29 Dec 2015 18:30	20
HS15120747-03	L2A-S	16 Dec 2015 13:50			29 Dec 2015 18:30	20
HS15120747-04	L2A-B	16 Dec 2015 13:50			29 Dec 2015 18:30	20
HS15120747-05	L3-S	16 Dec 2015 14:25			29 Dec 2015 18:30	20
HS15120747-06	L3-S Dup	16 Dec 2015 14:25			29 Dec 2015 18:30	20
HS15120747-07	L3-B	16 Dec 2015 14:25			29 Dec 2015 18:30	20
HS15120747-08	L3-B Dup	16 Dec 2015 14:25			29 Dec 2015 18:30	20
HS15120747-09	L4A-S	16 Dec 2015 13:30			29 Dec 2015 18:30	20
HS15120747-10	L4A-B	16 Dec 2015 13:30			29 Dec 2015 18:30	20
HS15120747-11	L4B-S	16 Dec 2015 13:15			29 Dec 2015 18:30	20
HS15120747-12	L4B-B	16 Dec 2015 13:15			29 Dec 2015 18:30	20
HS15120747-13	L4C-S	16 Dec 2015 11:30			29 Dec 2015 18:30	20
HS15120747-14	L4C-B	16 Dec 2015 11:30			29 Dec 2015 18:30	20
HS15120747-15	Bypass-S	16 Dec 2015 18:45			29 Dec 2015 18:30	20
HS15120747-16	Bypass-B	16 Dec 2015 18:45			29 Dec 2015 18:30	20

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID: 99972b</b>		<b>Instrument: ECD_1</b>		<b>Method: E608</b>					
<b>MBLK</b>	Sample ID: <b>MBLK-99972</b>	Units: <b>ug/L</b>			Analysis Date: <b>23-Dec-2015 17:27</b>				
Client ID:	Run ID: <b>ECD_1_266836</b>	SeqNo: <b>3542505</b>		PrepDate: <b>20-Dec-2015</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

4,4'-DDD	U	0.100							
4,4'-DDE	U	0.100							
4,4'-DDT	U	0.100							
Aldrin	U	0.0500							
alpha-BHC	U	0.0500							
beta-BHC	U	0.0500							
Chlordane	U	0.500							
delta-BHC	U	0.0500							
Dieldrin	U	0.100							
Endosulfan I	U	0.0500							
Endosulfan II	U	0.100							
Endosulfan sulfate	U	0.100							
Endrin	U	0.100							
Endrin aldehyde	U	0.100							
Endrin Ketone	U	0.100							
gamma-BHC	U	0.0500							
Heptachlor	U	0.0500							
Heptachlor epoxide	U	0.0500							
Methoxychlor	U	0.500							
Toxaphene	U	0.500							
<i>Surr: Decachlorobiphenyl</i>	<i>0.2052</i>	<i>0.100</i>	<i>0.2</i>	<i>0</i>	<i>103</i>	<i>61 - 154</i>			
<i>Surr: Tetrachlor-m-xylene</i>	<i>0.1224</i>	<i>0.0500</i>	<i>0.2</i>	<i>0</i>	<i>61.2</i>	<i>60 - 144</i>			

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID: 99972b</b>		<b>Instrument: ECD_1</b>		<b>Method: E608</b>					
<b>MBLK</b>	Sample ID: <b>MBLK-99972</b>	Units: <b>ug/L</b>			Analysis Date: <b>21-Dec-2015 12:45</b>				
Client ID:	Run ID: <b>ECD_7_266830</b>	SeqNo: <b>3542549</b>		PrepDate: <b>20-Dec-2015</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Aroclor 1016	U	0.500							
Aroclor 1221	U	0.500							
Aroclor 1232	U	0.500							
Aroclor 1242	U	0.500							
Aroclor 1248	U	0.500							
Aroclor 1254	U	0.500							
Aroclor 1260	U	0.500							
<i>Surr: Decachlorobiphenyl</i>	<i>0.1953</i>	<i>0.100</i>	<i>0.2</i>	<i>0</i>	<i>97.7</i>	<i>61 - 154</i>			
<i>Surr: Tetrachlor-m-xylene</i>	<i>0.2426</i>	<i>0.0500</i>	<i>0.2</i>	<i>0</i>	<i>121</i>	<i>60 - 144</i>			

<b>LCS</b>	Sample ID: <b>LCS-99972</b>	Units: <b>ug/L</b>			Analysis Date: <b>23-Dec-2015 17:43</b>				
Client ID:	Run ID: <b>ECD_1_266836</b>	SeqNo: <b>3542506</b>		PrepDate: <b>20-Dec-2015</b>		DF: <b>1</b>			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

4,4'-DDD	0.3752	0.100	0.5	0	75.0	53 - 144			
4,4'-DDE	0.3754	0.100	0.5	0	75.1	55 - 144			
4,4'-DDT	0.3654	0.100	0.5	0	73.1	53 - 149			
Aldrin	0.1822	0.0500	0.25	0	72.9	47 - 141			
alpha-BHC	0.1705	0.0500	0.25	0	68.2	51 - 141			
beta-BHC	0.1856	0.0500	0.25	0	74.2	58 - 144			
delta-BHC	0.1659	0.0500	0.25	0	66.4	48 - 146			
Dieldrin	0.3815	0.100	0.5	0	76.3	56 - 144			
Endosulfan I	0.1946	0.0500	0.25	0	77.9	55 - 141			
Endosulfan II	0.3913	0.100	0.5	0	78.3	57 - 144			
Endosulfan sulfate	0.3963	0.100	0.5	0	79.3	58 - 145			
Endrin	0.3675	0.100	0.5	0	73.5	60 - 163			
Endrin aldehyde	0.4023	0.100	0.5	0	80.5	59 - 158			
Endrin Ketone	0.3926	0.100	0.5	0	78.5	59 - 154			
gamma-BHC	0.1668	0.0500	0.25	0	66.7	53 - 142			
Heptachlor	0.1858	0.0500	0.25	0	74.3	51 - 144			
Heptachlor epoxide	0.1864	0.0500	0.25	0	74.5	55 - 142			
Methoxychlor	2.039	0.500	2.5	0	81.5	59 - 150			
<i>Surr: Decachlorobiphenyl</i>	<i>0.1446</i>	<i>0.100</i>	<i>0.2</i>	<i>0</i>	<i>72.3</i>	<i>61 - 154</i>			
<i>Surr: Tetrachlor-m-xylene</i>	<i>0.1221</i>	<i>0.0500</i>	<i>0.2</i>	<i>0</i>	<i>61.0</i>	<i>60 - 144</i>			

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 99972b	<b>Instrument:</b> ECD_1	<b>Method:</b> E608
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LCS		Sample ID: LCS-99972	Units: ug/L			Analysis Date: 21-Dec-2015 13:01				
Client ID:		Run ID: ECD_7_266830	SeqNo: 3542550		PrepDate: 20-Dec-2015		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	5.365	0.500	5	0	107	54 - 138				
Aroclor 1260	5.43	0.500	5	0	109	57 - 136				
Surr: Decachlorobiphenyl	0.2128	0.100	0.2	0	106	61 - 154				
Surr: Tetrachlor-m-xylene	0.2538	0.0500	0.2	0	127	60 - 144				

LCSD		Sample ID: LCSD-99972	Units: ug/L			Analysis Date: 23-Dec-2015 18:00				
Client ID:		Run ID: ECD_1_266836	SeqNo: 3542509		PrepDate: 20-Dec-2015		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4'-DDD	0.3212	0.100	0.5	0	64.2	53 - 144	0.3752	15.5	20	
4,4'-DDE	0.3236	0.100	0.5	0	64.7	55 - 144	0.3754	14.8	20	
4,4'-DDT	0.3026	0.100	0.5	0	60.5	53 - 149	0.3654	18.8	20	
Aldrin	0.1559	0.0500	0.25	0	62.4	47 - 141	0.1822	15.5	20	
alpha-BHC	0.151	0.0500	0.25	0	60.4	51 - 141	0.1705	12.2	20	
beta-BHC	0.1609	0.0500	0.25	0	64.4	58 - 144	0.1856	14.2	20	
delta-BHC	0.1407	0.0500	0.25	0	56.3	48 - 146	0.1659	16.5	20	
Dieldrin	0.3278	0.100	0.5	0	65.6	56 - 144	0.3815	15.1	20	
Endosulfan I	0.1659	0.0500	0.25	0	66.4	55 - 141	0.1946	15.9	20	
Endosulfan II	0.335	0.100	0.5	0	67.0	57 - 144	0.3913	15.5	20	
Endosulfan sulfate	0.3426	0.100	0.5	0	68.5	58 - 145	0.3963	14.5	20	
Endrin	0.31	0.100	0.5	0	62.0	60 - 163	0.3675	17	20	
Endrin aldehyde	0.3567	0.100	0.5	0	71.3	59 - 158	0.4023	12	20	
Endrin Ketone	0.3389	0.100	0.5	0	67.8	59 - 154	0.3926	14.7	20	
gamma-BHC	0.1427	0.0500	0.25	0	57.1	53 - 142	0.1668	15.6	20	
Heptachlor	0.1632	0.0500	0.25	0	65.3	51 - 144	0.1858	13	20	
Heptachlor epoxide	0.1632	0.0500	0.25	0	65.3	55 - 142	0.1864	13.3	20	
Methoxychlor	1.723	0.500	2.5	0	68.9	59 - 150	2.039	16.8	20	
Surr: Decachlorobiphenyl	0.1245	0.100	0.2	0	62.3	61 - 154	0.1446	14.9	20	
Surr: Tetrachlor-m-xylene	0.122	0.0500	0.2	0	61.0	60 - 144	0.1221	0.041	20	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID: 99972b</b>		<b>Instrument: ECD_1</b>		<b>Method: E608</b>						
<b>LCSD</b>	Sample ID: <b>LCSD-99972</b>	Units: <b>ug/L</b>			Analysis Date: <b>21-Dec-2015 13:17</b>					
Client ID:	Run ID: <b>ECD_7_266830</b>	SeqNo: <b>3542551</b>		PrepDate: <b>20-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Aroclor 1016	4.949	0.500	5	0	99.0	54 - 138	5.365	8.06	20	
Aroclor 1260	4.763	0.500	5	0	95.3	57 - 136	5.43	13.1	20	
<i>Surr: Decachlorobiphenyl</i>	<i>0.1617</i>	<i>0.100</i>	<i>0.2</i>	<i>0</i>	<i>80.8</i>	<i>61 - 154</i>	<i>0.2128</i>	<i>27.3</i>	<i>20</i>	<i>R</i>
<i>Surr: Tetrachlor-m-xylene</i>	<i>0.1946</i>	<i>0.0500</i>	<i>0.2</i>	<i>0</i>	<i>97.3</i>	<i>60 - 144</i>	<i>0.2538</i>	<i>26.4</i>	<i>20</i>	<i>R</i>

The following samples were analyzed in this batch:

HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
HS15120747-13	HS15120747-14	HS15120747-15	HS15120747-16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 100078		Instrument: ICPMS05		Method: E200.8						
<b>MBLK</b>	Sample ID: <b>MBLK-100078</b>	Units: <b>ug/L</b>		Analysis Date: <b>29-Dec-2015 11:13</b>						
Client ID:	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3537959</b>	PrepDate: <b>23-Dec-2015</b>	DF: <b>1</b>						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	8.133	10.0								J
Antimony	U	5.00								
Arsenic	U	5.00								
Barium	U	5.00								
Beryllium	U	5.00								
Cadmium	U	2.00								
Calcium	U	500								
Chromium	U	5.00								
Cobalt	U	5.00								
Copper	U	5.00								
Iron	U	200								
Lead	U	5.00								
Magnesium	U	500								
Manganese	U	5.00								
Nickel	U	5.00								
Potassium	U	500								
Selenium	U	5.00								
Silver	U	2.00								
Sodium	U	200								
Thallium	U	2.00								
Vanadium	U	5.00								
Zinc	U	5.00								

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 100078	<b>Instrument:</b> ICPMS05	<b>Method:</b> E200.8
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LCS		Sample ID: MLCS-100078			Units: ug/L		Analysis Date: 29-Dec-2015 11:19			
Client ID:		Run ID: ICPMS05_266946			SeqNo: 3537961		PrepDate: 23-Dec-2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	102.4	10.0	100	0	102	85 - 115				
Antimony	49.49	5.00	50	0	99.0	85 - 115				
Arsenic	48.46	5.00	50	0	96.9	85 - 115				
Barium	47.79	5.00	50	0	95.6	85 - 115				
Beryllium	49.74	5.00	50	0	99.5	85 - 115				
Cadmium	49.04	2.00	50	0	98.1	85 - 115				
Calcium	4879	500	5000	0	97.6	85 - 115				
Chromium	49.59	5.00	50	0	99.2	85 - 115				
Cobalt	49.9	5.00	50	0	99.8	85 - 115				
Copper	50.56	5.00	50	0	101	85 - 115				
Iron	5107	200	5000	0	102	85 - 115				
Lead	47.12	5.00	50	0	94.2	85 - 115				
Magnesium	5048	500	5000	0	101	85 - 115				
Manganese	48.51	5.00	50	0	97.0	85 - 115				
Nickel	49.65	5.00	50	0	99.3	85 - 115				
Potassium	4896	500	5000	0	97.9	85 - 115				
Selenium	47.74	5.00	50	0	95.5	85 - 115				
Silver	49.9	2.00	50	0	99.8	85 - 115				
Sodium	4921	200	5000	0	98.4	85 - 115				
Vanadium	47.49	5.00	50	0	95.0	85 - 115				
Zinc	51.51	5.00	50	0	103	85 - 115				

LCS		Sample ID: MLCS-100078			Units: ug/L		Analysis Date: 29-Dec-2015 12:38			
Client ID:		Run ID: ICPMS03_266960			SeqNo: 3538189		PrepDate: 23-Dec-2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Thallium	42.83	2.00	50	0	85.7	85 - 115				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 100078		Instrument: ICPMS05		Method: E200.8						
MS	Sample ID: HS15120747-01MS	Units: ug/L			Analysis Date: 29-Dec-2015 13:36					
Client ID: L1-S	Run ID: ICPMS05_266946	SeqNo: 3538464	PrepDate: 23-Dec-2015	DF: 10						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	181.3	100	100	77.28	104	70 - 130				
Antimony	49.44	50.0	50	0.133	98.6	70 - 130				J
Arsenic	58.81	50.0	50	3.159	111	70 - 130				
Barium	63.84	50.0	50	14.14	99.4	70 - 130				
Beryllium	52.23	50.0	50	0.028	104	70 - 130				
Cadmium	49.23	20.0	50	0.484	97.5	70 - 130				
Calcium	451400	5000	5000	456200	-96.6	70 - 130				SO
Chromium	62.85	50.0	50	3.965	118	70 - 130				
Cobalt	54.36	50.0	50	0.321	108	70 - 130				
Copper	51.6	50.0	50	-5.035	113	70 - 130				
Iron	5538	2000	5000	107.8	109	70 - 130				
Lead	52.31	50.0	50	0.235	104	70 - 130				
Magnesium	1366000	5000	5000	1423000	-1140	70 - 130				SO
Manganese	55.38	50.0	50	1.855	107	70 - 130				
Nickel	50.42	50.0	50	-2.748	106	70 - 130				
Potassium	436500	5000	5000	444500	-160	70 - 130				SO
Selenium	64.27	50.0	50	17.91	92.7	70 - 130				
Silver	47.1	20.0	50	0.336	93.5	70 - 130				
Sodium	U	2000	5000	0	0	70 - 130				S
Thallium	45.32	20.0	50	0.301	90.0	70 - 130				
Vanadium	57.69	50.0	50	3.519	108	70 - 130				
Zinc	50.36	50.0	50	0.072	101	70 - 130				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 100078		Instrument: ICPMS05		Method: E200.8						
MSD	Sample ID: HS15120747-01MSD	Units: ug/L			Analysis Date: 29-Dec-2015 13:39					
Client ID: L1-S	Run ID: ICPMS05_266946	SeqNo: 3538465	PrepDate: 23-Dec-2015	DF: 10						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	197.4	100	100	77.28	120	70 - 130	181.3	8.52	20	
Antimony	47.6	50.0	50	0.133	94.9	70 - 130	49.44	0	20	J
Arsenic	58.76	50.0	50	3.159	111	70 - 130	58.81	0.0816	20	
Barium	65.71	50.0	50	14.14	103	70 - 130	63.84	2.89	20	
Beryllium	55.28	50.0	50	0.028	111	70 - 130	52.23	5.67	20	
Cadmium	51.6	20.0	50	0.484	102	70 - 130	49.23	4.71	20	
Calcium	441600	5000	5000	456200	-293	70 - 130	451400	2.19	20	SO
Chromium	60.22	50.0	50	3.965	113	70 - 130	62.85	4.28	20	
Cobalt	54.51	50.0	50	0.321	108	70 - 130	54.36	0.288	20	
Copper	48.15	50.0	50	-5.035	106	70 - 130	51.6	0	20	J
Iron	5694	2000	5000	107.8	112	70 - 130	5538	2.78	20	
Lead	52.51	50.0	50	0.235	105	70 - 130	52.31	0.368	20	
Magnesium	1380000	5000	5000	1423000	-874	70 - 130	1366000	0.98	20	SO
Manganese	57.79	50.0	50	1.855	112	70 - 130	55.38	4.26	20	
Nickel	51.89	50.0	50	-2.748	109	70 - 130	50.42	2.87	20	
Potassium	432400	5000	5000	444500	-242	70 - 130	436500	0.935	20	SO
Selenium	78.79	50.0	50	17.91	122	70 - 130	64.27	20.3	20	R
Silver	46.63	20.0	50	0.336	92.6	70 - 130	47.1	1.01	20	
Sodium	U	2000	5000	0	0	70 - 130	0	0	20	S
Thallium	44.86	20.0	50	0.301	89.1	70 - 130	45.32	1.02	20	
Vanadium	61.63	50.0	50	3.519	116	70 - 130	57.69	6.6	20	
Zinc	49.19	50.0	50	0.072	98.2	70 - 130	50.36	0	20	J

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 100078	<b>Instrument:</b> ICPMS05	<b>Method:</b> E200.8
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<b>PDS</b>		Sample ID: <b>HS15120747-01BS</b>			Units: <b>ug/L</b>		Analysis Date: <b>29-Dec-2015 13:42</b>			
Client ID: <b>L1-S</b>		Run ID: <b>ICPMS05_266946</b>		SeqNo: <b>3538466</b>	PrepDate: <b>23-Dec-2015</b>	DF: <b>10</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1062	100	1000	77.28	98.5	70 - 130				
Antimony	883.4	50.0	1000	0.133	88.3	70 - 130				
Arsenic	962.2	50.0	1000	3.159	95.9	70 - 130				
Barium	941.6	50.0	1000	14.14	92.7	70 - 130				
Beryllium	900.3	50.0	1000	0.028	90.0	70 - 130				
Cadmium	898.5	20.0	1000	0.484	89.8	70 - 130				
Calcium	516100	5000	100000	456200	59.9	70 - 130				SO
Chromium	992.3	50.0	1000	3.965	98.8	70 - 130				
Cobalt	973.8	50.0	1000	0.321	97.3	70 - 130				
Copper	946.8	50.0	1000	-5.035	95.2	70 - 130				
Iron	101800	2000	100000	107.8	102	70 - 130				
Lead	927.8	50.0	1000	0.235	92.8	70 - 130				
Magnesium	1431000	5000	100000	1423000	7.52	70 - 130				SO
Manganese	966.9	50.0	1000	1.855	96.5	70 - 130				
Nickel	961	50.0	1000	-2.748	96.4	70 - 130				
Potassium	514100	5000	100000	444500	69.6	70 - 130				SO
Selenium	933.5	50.0	1000	17.91	91.6	70 - 130				
Silver	853.3	20.0	1000	0.336	85.3	70 - 130				
Thallium	900.1	20.0	1000	0.301	90.0	70 - 130				
Vanadium	1036	50.0	1000	3.519	103	70 - 130				
Zinc	938	50.0	1000	0.072	93.8	70 - 130				

<b>PDS</b>		Sample ID: <b>HS15120747-01BS</b>			Units: <b>ug/L</b>		Analysis Date: <b>29-Dec-2015 15:06</b>			
Client ID: <b>L1-S</b>		Run ID: <b>ICPMS05_266946</b>		SeqNo: <b>3538882</b>	PrepDate: <b>23-Dec-2015</b>	DF: <b>500</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	13540000	100000	5e+006	9374000	83.4	70 - 130				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 100078		Instrument: ICPMS05		Method: E200.8						
<b>SD</b>	Sample ID: <b>HS15120747-01 DIL SX</b>	Units: <b>ug/L</b>		Analysis Date: <b>29-Dec-2015 13:33</b>						
Client ID: <b>L1-S</b>	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3538463</b>	PrepDate: <b>23-Dec-2015</b>	DF: <b>50</b>						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual
Aluminum	U	500					77.28	0	10	
Antimony	U	250					0.133	0	10	
Arsenic	U	250					3.159	0	10	
Barium	U	250					14.14	0	10	
Beryllium	U	250					0.028	0	10	
Cadmium	U	100					0.484	0	10	
Calcium	406600	25000					456200	10.9	10	R
Chromium	U	250					3.965	0	10	
Cobalt	U	250					0.321	0	10	
Copper	U	250					-5.035	0	10	
Iron	U	10000					107.8	0	10	
Lead	U	250					0.235	0	10	
Magnesium	1259000	25000					1423000	11.5	10	R
Manganese	U	250					1.855	0	10	
Nickel	U	250					-2.748	0	10	
Potassium	396300	25000					444500	10.8	10	R
Selenium	61.63	250					17.91	0	10	J
Silver	U	100					0.336	0	10	
Thallium	U	100					0.301	0	10	
Vanadium	U	250					3.519	0	10	
Zinc	U	250					0.072	0	10	

<b>SD</b>	Sample ID: <b>HS15120747-01 DIL SX</b>	Units: <b>ug/L</b>		Analysis Date: <b>29-Dec-2015 15:00</b>						
Client ID: <b>L1-S</b>	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3538880</b>	PrepDate: <b>23-Dec-2015</b>	DF: <b>2500</b>						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual
Sodium	10160000	500000					9374000	8.34	10	

<b>The following samples were analyzed in this batch:</b>	HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
	HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
	HS15120747-09	HS15120747-10		

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID: 100079</b>		<b>Instrument: ICPMS05</b>		<b>Method: E200.8</b>						
<b>MBLK</b>	Sample ID: <b>MBLK-100079</b>	Units: <b>ug/L</b>		Analysis Date: <b>28-Dec-2015 18:18</b>						
Client ID:	Run ID: <b>ICPMS05_266883</b>	SeqNo: <b>3537483</b>	PrepDate: <b>23-Dec-2015</b>	DF: <b>1</b>						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Aluminum	U	10.0								
Arsenic	U	5.00								
Barium	U	5.00								
Beryllium	U	5.00								
Cadmium	U	2.00								
Calcium	U	500								
Chromium	U	5.00								
Cobalt	U	5.00								
Iron	U	200								
Lead	U	5.00								
Magnesium	U	500								
Manganese	U	5.00								
Potassium	U	500								
Selenium	U	5.00								
Thallium	U	2.00								
Vanadium	U	5.00								
Zinc	U	5.00								

<b>MBLK</b>	Sample ID: <b>MBLK-100079</b>	Units: <b>ug/L</b>		Analysis Date: <b>29-Dec-2015 11:10</b>						
Client ID:	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3537958</b>	PrepDate: <b>23-Dec-2015</b>	DF: <b>1</b>						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Antimony	U	5.00								
Copper	U	5.00								
Nickel	U	5.00								
Silver	U	2.00								
Sodium	U	200								

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 100079	<b>Instrument:</b> ICPMS05	<b>Method:</b> E200.8
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<b>LCS</b>		Sample ID: <b>MLCS-100079</b>			Units: <b>ug/L</b>		Analysis Date: <b>28-Dec-2015 18:21</b>			
Client ID:		Run ID: <b>ICPMS05_266883</b>			SeqNo: <b>3537484</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	98.28	10.0	100	0	98.3	85 - 115				
Arsenic	48.58	5.00	50	0	97.2	85 - 115				
Barium	48.38	5.00	50	0	96.8	85 - 115				
Beryllium	53.47	5.00	50	0	107	85 - 115				
Cadmium	50.14	2.00	50	0	100	85 - 115				
Calcium	4930	500	5000	0	98.6	85 - 115				
Chromium	48.56	5.00	50	0	97.1	85 - 115				
Cobalt	49.08	5.00	50	0	98.2	85 - 115				
Iron	4927	200	5000	0	98.5	85 - 115				
Lead	48.83	5.00	50	0	97.7	85 - 115				
Magnesium	4797	500	5000	0	95.9	85 - 115				
Manganese	48.05	5.00	50	0	96.1	85 - 115				
Potassium	4863	500	5000	0	97.3	85 - 115				
Selenium	45.42	5.00	50	0	90.8	85 - 115				
Vanadium	47.24	5.00	50	0	94.5	85 - 115				
Zinc	52.42	5.00	50	0	105	85 - 115				

<b>LCS</b>		Sample ID: <b>MLCS-100079</b>			Units: <b>ug/L</b>		Analysis Date: <b>29-Dec-2015 11:16</b>			
Client ID:		Run ID: <b>ICPMS05_266946</b>			SeqNo: <b>3537960</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	49.9	5.00	50	0	99.8	85 - 115				
Copper	50.09	5.00	50	0	100	85 - 115				
Nickel	48.87	5.00	50	0	97.7	85 - 115				
Silver	49.86	2.00	50	0	99.7	85 - 115				
Sodium	4864	200	5000	0	97.3	85 - 115				

<b>LCS</b>		Sample ID: <b>MLCS-100079</b>			Units: <b>ug/L</b>		Analysis Date: <b>29-Dec-2015 12:42</b>			
Client ID:		Run ID: <b>ICPMS03_266960</b>			SeqNo: <b>3538190</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Thallium	42.73	2.00	50	0	85.5	85 - 115				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 100079		Instrument: ICPMS05			Method: E200.8					
<b>MS</b>	Sample ID: <b>HS15120794-01MS</b>	Units: <b>ug/L</b>			Analysis Date: <b>28-Dec-2015 18:54</b>					
Client ID:	Run ID: <b>ICPMS05_266883</b>	SeqNo: <b>3537495</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	162.7	10.0	100	55.06	108	70 - 130				
Arsenic	47.74	5.00	50	0	95.5	70 - 130				
Barium	111.1	5.00	50	65.71	90.7	70 - 130				
Beryllium	53.28	5.00	50	0	107	70 - 130				
Cadmium	48.41	2.00	50	0	96.8	70 - 130				
Calcium	100400	500	5000	94020	127	70 - 130				O
Chromium	46.05	5.00	50	0	92.1	70 - 130				
Cobalt	45.42	5.00	50	0	90.8	70 - 130				
Iron	4759	200	5000	105.6	93.1	70 - 130				
Lead	50.02	5.00	50	0	100	70 - 130				
Magnesium	45860	500	5000	38560	146	70 - 130				SO
Manganese	104.8	5.00	50	57.32	95.0	70 - 130				
Potassium	12450	500	5000	7487	99.2	70 - 130				
Selenium	50.59	5.00	50	3.085	95.0	70 - 130				
Thallium	45.25	2.00	50	0	90.5	70 - 130				
Vanadium	49.78	5.00	50	1.521	96.5	70 - 130				
Zinc	60.8	5.00	50	16.3	89.0	70 - 130				

<b>MS</b>	Sample ID: <b>HS15120794-01MS</b>	Units: <b>ug/L</b>			Analysis Date: <b>29-Dec-2015 11:29</b>					
Client ID:	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3537964</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	47.12	5.00	50	0.037	94.2	70 - 130				
Copper	49.02	5.00	50	-0.188	98.4	70 - 130				
Nickel	51.12	5.00	50	2.383	97.5	70 - 130				
Silver	45.01	2.00	50	0.034	90.0	70 - 130				
Sodium	U	200	5000	0	0	70 - 130				S

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 100079		Instrument: ICPMS05			Method: E200.8					
<b>MSD</b>	Sample ID: <b>HS15120794-01MSD</b>	Units: <b>ug/L</b>			Analysis Date: <b>28-Dec-2015 18:57</b>					
Client ID:	Run ID: <b>ICPMS05_266883</b>	SeqNo: <b>3537496</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	161.7	10.0	100	55.06	107	70 - 130	162.7	0.57	20	
Arsenic	48.53	5.00	50	0	97.1	70 - 130	47.74	1.64	20	
Barium	111	5.00	50	65.71	90.5	70 - 130	111.1	0.0901	20	
Beryllium	53.61	5.00	50	0	107	70 - 130	53.28	0.608	20	
Cadmium	48.12	2.00	50	0	96.2	70 - 130	48.41	0.615	20	
Calcium	99140	500	5000	94020	102	70 - 130	100400	1.24	20	O
Chromium	45.95	5.00	50	0	91.9	70 - 130	46.05	0.23	20	
Cobalt	45.08	5.00	50	0	90.2	70 - 130	45.42	0.771	20	
Iron	4751	200	5000	105.6	92.9	70 - 130	4759	0.157	20	
Lead	48.99	5.00	50	0	98.0	70 - 130	50.02	2.06	20	
Magnesium	45820	500	5000	38560	145	70 - 130	45860	0.0992	20	SO
Manganese	104.7	5.00	50	57.32	94.8	70 - 130	104.8	0.106	20	
Potassium	12310	500	5000	7487	96.5	70 - 130	12450	1.09	20	
Selenium	49.18	5.00	50	3.085	92.2	70 - 130	50.59	2.83	20	
Thallium	44.35	2.00	50	0	88.7	70 - 130	45.25	2	20	
Vanadium	49.79	5.00	50	1.521	96.5	70 - 130	49.78	0.0141	20	
Zinc	62.84	5.00	50	16.3	93.1	70 - 130	60.8	3.3	20	

<b>MSD</b>	Sample ID: <b>HS15120794-01MSD</b>	Units: <b>ug/L</b>			Analysis Date: <b>29-Dec-2015 11:32</b>					
Client ID:	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3537965</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	47.84	5.00	50	0.037	95.6	70 - 130	47.12	1.52	20	
Copper	49.72	5.00	50	-0.188	99.8	70 - 130	49.02	1.41	20	
Nickel	52.43	5.00	50	2.383	100	70 - 130	51.12	2.53	20	
Silver	46.54	2.00	50	0.034	93.0	70 - 130	45.01	3.34	20	
Sodium	U	200	5000	0	0	70 - 130	0	0	20	S

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 100079		Instrument: ICPMS05			Method: E200.8					
<b>PDS</b>	Sample ID: <b>HS15120794-01BS</b>	Units: <b>ug/L</b>			Analysis Date: <b>28-Dec-2015 19:00</b>					
Client ID:	Run ID: <b>ICPMS05_266883</b>	SeqNo: <b>3537497</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	153.7	10.0	100	55.06	98.6	70 - 130				
Arsenic	89.28	5.00	100	0	89.3	70 - 130				
Barium	154.6	5.00	100	65.71	88.9	70 - 130				
Beryllium	100.5	5.00	100	0	101	70 - 130				
Cadmium	93.08	2.00	100	0	93.1	70 - 130				
Calcium	100400	500	10000	94020	63.3	70 - 130				SO
Chromium	85.91	5.00	100	0	85.9	70 - 130				
Cobalt	83.74	5.00	100	0	83.7	70 - 130				
Iron	8816	200	10000	105.6	87.1	70 - 130				
Lead	92.77	5.00	100	0	92.8	70 - 130				
Magnesium	50020	500	10000	38560	115	70 - 130				
Manganese	141.9	5.00	100	57.32	84.6	70 - 130				
Potassium	16500	500	10000	7487	90.1	70 - 130				
Selenium	90.33	5.00	100	3.085	87.2	70 - 130				
Thallium	92.96	2.00	100	0	93.0	70 - 130				
Vanadium	92.26	5.00	100	1.521	90.7	70 - 130				
Zinc	102.8	5.00	100	16.3	86.5	70 - 130				
<b>PDS</b>	Sample ID: <b>HS15120794-01BS</b>	Units: <b>ug/L</b>			Analysis Date: <b>29-Dec-2015 11:35</b>					
Client ID:	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3537966</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>1</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	92.03	5.00	100	0.037	92.0	70 - 130				
Copper	91.05	5.00	100	-0.188	91.2	70 - 130				
Nickel	92.21	5.00	100	2.383	89.8	70 - 130				
Silver	91.23	2.00	100	0.034	91.2	70 - 130				
<b>PDS</b>	Sample ID: <b>HS15120794-01BS</b>	Units: <b>ug/L</b>			Analysis Date: <b>29-Dec-2015 12:26</b>					
Client ID:	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3538178</b>		PrepDate: <b>23-Dec-2015</b>		DF: <b>10</b>				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	282200	2000	100000	192700	89.6	70 - 130				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 100079	<b>Instrument:</b> ICPMS05	<b>Method:</b> E200.8
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<b>SD</b>	Sample ID: <b>HS15120794-01 DIL SX</b>	Units: <b>ug/L</b>	Analysis Date: <b>29-Dec-2015 11:26</b>							
Client ID:	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3537963</b>	PrepDate: <b>23-Dec-2015</b> DF: <b>5</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual

Aluminum	63.17	50.0					62.56	0.972	10	
Antimony	U	25.0					0.037	0	10	
Copper	U	25.0					-0.188	0	10	
Nickel	U	25.0					2.383	0	10	
Silver	U	10.0					0.034	0	10	

<b>SD</b>	Sample ID: <b>HS15120794-01 DIL SX</b>	Units: <b>ug/L</b>	Analysis Date: <b>28-Dec-2015 18:45</b>							
Client ID:	Run ID: <b>ICPMS05_266883</b>	SeqNo: <b>3537492</b>	PrepDate: <b>23-Dec-2015</b> DF: <b>5</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual

Arsenic	U	25.0					0.909	0	10	
Barium	64.43	25.0					65.71	1.95	10	
Beryllium	U	25.0					0.003	0	10	
Cadmium	U	10.0					0.02	0	10	
Calcium	99120	2500					94020	5.43	10	
Chromium	U	25.0					-0.107	0	10	
Cobalt	U	25.0					0.076	0	10	
Iron	U	1000					105.6	0	10	
Lead	U	25.0					0.188	0	10	
Magnesium	39350	2500					38560	2.07	10	
Manganese	57.93	25.0					57.32	1.06	10	
Potassium	7955	2500					7487	6.25	10	
Selenium	16.03	25.0					3.085	0	10	J
Thallium	U	10.0					0.029	0	10	
Vanadium	6.858	25.0					1.521	0	10	J
Zinc	15.59	25.0					16.3	0	10	J

<b>SD</b>	Sample ID: <b>HS15120794-01 DIL SX</b>	Units: <b>ug/L</b>	Analysis Date: <b>29-Dec-2015 12:23</b>							
Client ID:	Run ID: <b>ICPMS05_266946</b>	SeqNo: <b>3538177</b>	PrepDate: <b>23-Dec-2015</b> DF: <b>50</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual

Sodium	189600	10000					192700	1.58	10	
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<b>The following samples were analyzed in this batch:</b>	HS15120747-11	HS15120747-12	HS15120747-13	HS15120747-14
	HS15120747-15	HS15120747-16		

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 100084	<b>Instrument:</b> HG03	<b>Method:</b> E245.1
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<b>MBLK</b>	Sample ID: <b>MBLK-100084</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 14:35</b>							
Client ID:	Run ID: <b>HG03_266816</b>	SeqNo: <b>3535240</b>	PrepDate: <b>23-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.000200

<b>LCS</b>	Sample ID: <b>LCS-100084</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 14:37</b>							
Client ID:	Run ID: <b>HG03_266816</b>	SeqNo: <b>3535241</b>	PrepDate: <b>23-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.00501 0.000200 0.005 0 100 85 - 115

<b>MS</b>	Sample ID: <b>HS15120747-02MS</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 14:40</b>							
Client ID: <b>L1-B</b>	Run ID: <b>HG03_266816</b>	SeqNo: <b>3535243</b>	PrepDate: <b>23-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.00498 0.000200 0.005 -0.000034 100 70 - 130

<b>MSD</b>	Sample ID: <b>HS15120747-02MSD</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 14:42</b>							
Client ID: <b>L1-B</b>	Run ID: <b>HG03_266816</b>	SeqNo: <b>3535244</b>	PrepDate: <b>23-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.00504 0.000200 0.005 -0.000034 101 70 - 130 0.00498 1.2 20

<b>The following samples were analyzed in this batch:</b>	HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
	HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
	HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
	HS15120747-13	HS15120747-14	HS15120747-15	HS15120747-16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 99989		Instrument: SV-5		Method: E625						
MBLK	Sample ID: MBLK-99989	Units: ug/L			Analysis Date: 22-Dec-2015 11:29					
Client ID:	Run ID: SV-5_266728	SeqNo: 3532875	PrepDate: 21-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	5.00								
1,2-Dichlorobenzene	U	5.00								
1,2-Diphenylhydrazine	U	5.00								
1,3-Dichlorobenzene	U	5.00								
1,4-Dichlorobenzene	U	5.00								
2,4,6-Trichlorophenol	U	5.00								
2,4-Dichlorophenol	U	5.00								
2,4-Dimethylphenol	U	5.00								
2,4-Dinitrophenol	U	5.00								
2,4-Dinitrotoluene	U	5.00								
2,6-Dinitrotoluene	U	5.00								
2-Chloronaphthalene	U	5.00								
2-Chlorophenol	U	5.00								
2-Nitrophenol	U	5.00								
3,3'-Dichlorobenzidine	U	5.00								
4,6-Dinitro-2-methylphenol	U	5.00								
4-Bromophenyl phenyl ether	U	5.00								
4-Chloro-3-methylphenol	U	5.00								
4-Chlorophenyl phenyl ether	U	5.00								
4-Nitrophenol	U	5.00								
Acenaphthene	U	5.00								
Acenaphthylene	U	5.00								
Anthracene	U	5.00								
Benz(a)anthracene	U	5.00								
Benzidine	U	5.00								
Benzo(a)pyrene	U	5.00								
Benzo(b)fluoranthene	U	5.00								
Benzo(g,h,i)perylene	U	5.00								
Benzo(k)fluoranthene	U	5.00								
Bis(2-chloroethoxy)methane	U	5.00								
Bis(2-chloroethyl)ether	U	5.00								
Bis(2-chloroisopropyl)ether	U	5.00								
Bis(2-ethylhexyl)phthalate	U	5.00								
Butyl benzyl phthalate	U	5.00								

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 99989		Instrument: SV-5		Method: E625						
MBLK	Sample ID: MBLK-99989	Units: ug/L			Analysis Date: 22-Dec-2015 11:29					
Client ID:	Run ID: SV-5_266728	SeqNo: 3532875	PrepDate: 21-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chrysene	U	5.00								
Dibenz(a,h)anthracene	U	5.00								
Diethyl phthalate	U	5.00								
Dimethyl phthalate	U	5.00								
Di-n-butyl phthalate	U	5.00								
Di-n-octyl phthalate	U	5.00								
Fluoranthene	U	5.00								
Fluorene	U	5.00								
Hexachlorobenzene	U	5.00								
Hexachlorobutadiene	U	5.00								
Hexachlorocyclopentadiene	U	5.00								
Hexachloroethane	U	5.00								
Indeno(1,2,3-cd)pyrene	U	5.00								
Isophorone	U	5.00								
Naphthalene	U	5.00								
Nitrobenzene	U	5.00								
N-Nitrosodimethylamine	U	5.00								
N-Nitrosodi-n-propylamine	U	5.00								
N-Nitrosodiphenylamine	U	5.00								
Pentachlorophenol	U	5.00								
Phenanthrene	U	5.00								
Phenol	U	5.00								
Pyrene	U	5.00								
<i>Surr: 2,4,6-Tribromophenol</i>	81.27	5.00	100	0	81.3	42 - 124				
<i>Surr: 2-Fluorobiphenyl</i>	76.65	5.00	100	0	76.6	48 - 120				
<i>Surr: 2-Fluorophenol</i>	71.72	5.00	100	0	71.7	20 - 120				
<i>Surr: 4-Terphenyl-d14</i>	95.96	5.00	100	0	96.0	51 - 135				
<i>Surr: Nitrobenzene-d5</i>	76.43	5.00	100	0	76.4	41 - 120				
<i>Surr: Phenol-d6</i>	73.81	5.00	100	0	73.8	20 - 120				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 99989		Instrument: SV-5		Method: E625						
LCS	Sample ID: LCS-99989	Units: ug/L			Analysis Date: 22-Dec-2015 11:51					
Client ID:	Run ID: SV-5_266728	SeqNo: 3532876	PrepDate: 21-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	80.94	5.00	100	0	80.9	54 - 118				
1,2-Dichlorobenzene	82.73	5.00	100	0	82.7	49 - 115				
1,2-Diphenylhydrazine	98.12	5.00	100	0	98.1	57 - 134				
1,3-Dichlorobenzene	80.17	5.00	100	0	80.2	56 - 115				
1,4-Dichlorobenzene	81.36	5.00	100	0	81.4	56 - 115				
2,4,6-Trichlorophenol	90.06	5.00	100	0	90.1	56 - 115				
2,4-Dichlorophenol	88.18	5.00	100	0	88.2	53 - 115				
2,4-Dimethylphenol	88.34	5.00	100	0	88.3	53 - 115				
2,4-Dinitrophenol	82.17	5.00	100	0	82.2	47 - 115				
2,4-Dinitrotoluene	87.41	5.00	100	0	87.4	56 - 115				
2,6-Dinitrotoluene	89.47	5.00	100	0	89.5	57 - 115				
2-Chloronaphthalene	99.99	5.00	100	0	100.0	65 - 125				
2-Chlorophenol	89.87	5.00	100	0	89.9	54 - 115				
2-Nitrophenol	81.45	5.00	100	0	81.4	53 - 115				
3,3'-Dichlorobenzidine	66.51	5.00	100	0	66.5	25 - 115				
4,6-Dinitro-2-methylphenol	83.48	5.00	100	0	83.5	51 - 121				
4-Bromophenyl phenyl ether	92.93	5.00	100	0	92.9	49 - 115				
4-Chloro-3-methylphenol	96.85	5.00	100	0	96.9	51 - 115				
4-Chlorophenyl phenyl ether	93.29	5.00	100	0	93.3	56 - 115				
4-Nitrophenol	93.26	5.00	100	0	93.3	26 - 133				
Acenaphthene	87.47	5.00	100	0	87.5	57 - 115				
Acenaphthylene	85.75	5.00	100	0	85.7	57 - 118				
Anthracene	90.5	5.00	100	0	90.5	65 - 115				
Benz(a)anthracene	87.63	5.00	100	0	87.6	53 - 115				
Benzidine	27.52	5.00	100	0	27.5	10 - 115				
Benzo(a)pyrene	85.49	5.00	100	0	85.5	57 - 115				
Benzo(b)fluoranthene	104.4	5.00	100	0	104	54 - 117				
Benzo(g,h,i)perylene	82.18	5.00	100	0	82.2	56 - 115				
Benzo(k)fluoranthene	79.48	5.00	100	0	79.5	50 - 115				
Bis(2-chloroethoxy)methane	83.61	5.00	100	0	83.6	54 - 115				
Bis(2-chloroethyl)ether	95.89	5.00	100	0	95.9	56 - 115				
Bis(2-chloroisopropyl)ether	85.53	5.00	100	0	85.5	48 - 115				
Bis(2-ethylhexyl)phthalate	88.56	5.00	100	0	88.6	50 - 115				
Butyl benzyl phthalate	88.16	5.00	100	0	88.2	51 - 115				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 99989		Instrument: SV-5		Method: E625						
LCS	Sample ID: LCS-99989	Units: ug/L			Analysis Date: 22-Dec-2015 11:51					
Client ID:	Run ID: SV-5_266728	SeqNo: 3532876		PrepDate: 21-Dec-2015		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chrysene	81.91	5.00	100	0	81.9	52 - 120				
Dibenz(a,h)anthracene	84.75	5.00	100	0	84.8	56 - 115				
Diethyl phthalate	87.3	5.00	100	0	87.3	57 - 115				
Dimethyl phthalate	88.02	5.00	100	0	88.0	56 - 115				
Di-n-butyl phthalate	87.34	5.00	100	0	87.3	54 - 115				
Di-n-octyl phthalate	94.99	5.00	100	0	95.0	49 - 115				
Fluoranthene	86.79	5.00	100	0	86.8	58 - 115				
Fluorene	91.91	5.00	100	0	91.9	56 - 115				
Hexachlorobenzene	90.28	5.00	100	0	90.3	54 - 115				
Hexachlorobutadiene	76.55	5.00	100	0	76.5	51 - 115				
Hexachlorocyclopentadiene	69.31	5.00	100	0	69.3	48 - 115				
Hexachloroethane	82.32	5.00	100	0	82.3	54 - 115				
Indeno(1,2,3-cd)pyrene	90.72	5.00	100	0	90.7	51 - 115				
Isophorone	86.29	5.00	100	0	86.3	55 - 115				
Naphthalene	83.21	5.00	100	0	83.2	55 - 115				
Nitrobenzene	82.84	5.00	100	0	82.8	40 - 124				
N-Nitrosodimethylamine	78.52	5.00	100	0	78.5	42 - 115				
N-Nitrosodi-n-propylamine	92.37	5.00	100	0	92.4	55 - 119				
N-Nitrosodiphenylamine	89.73	5.00	100	0	89.7	52 - 115				
Pentachlorophenol	67.14	5.00	100	0	67.1	45 - 125				
Phenanthrene	89.05	5.00	100	0	89.1	57 - 115				
Phenol	80.25	5.00	100	0	80.3	38 - 115				
Pyrene	88.45	5.00	100	0	88.5	54 - 119				
<i>Surr: 2,4,6-Tribromophenol</i>	<i>83.29</i>	<i>5.00</i>	<i>100</i>	<i>0</i>	<i>83.3</i>	<i>42 - 124</i>				
<i>Surr: 2-Fluorobiphenyl</i>	<i>77.9</i>	<i>5.00</i>	<i>100</i>	<i>0</i>	<i>77.9</i>	<i>48 - 120</i>				
<i>Surr: 2-Fluorophenol</i>	<i>86</i>	<i>5.00</i>	<i>100</i>	<i>0</i>	<i>86.0</i>	<i>20 - 120</i>				
<i>Surr: 4-Terphenyl-d14</i>	<i>88.63</i>	<i>5.00</i>	<i>100</i>	<i>0</i>	<i>88.6</i>	<i>51 - 135</i>				
<i>Surr: Nitrobenzene-d5</i>	<i>79.36</i>	<i>5.00</i>	<i>100</i>	<i>0</i>	<i>79.4</i>	<i>41 - 120</i>				
<i>Surr: Phenol-d6</i>	<i>91.65</i>	<i>5.00</i>	<i>100</i>	<i>0</i>	<i>91.6</i>	<i>20 - 120</i>				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 99989		Instrument: SV-5			Method: E625					
LCSD		Sample ID: LCSD-99989			Units: ug/L		Analysis Date: 22-Dec-2015 12:14			
Client ID:		Run ID: SV-5_266728			SeqNo: 3532877		PrepDate: 21-Dec-2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	80.56	5.00	100	0	80.6	54 - 118	80.94	0.481	20	
1,2-Dichlorobenzene	82.96	5.00	100	0	83.0	49 - 115	82.73	0.275	20	
1,2-Diphenylhydrazine	94.74	5.00	100	0	94.7	57 - 134	98.12	3.51	20	
1,3-Dichlorobenzene	78.67	5.00	100	0	78.7	56 - 115	80.17	1.88	20	
1,4-Dichlorobenzene	80.67	5.00	100	0	80.7	56 - 115	81.36	0.855	20	
2,4,6-Trichlorophenol	88.66	5.00	100	0	88.7	56 - 115	90.06	1.58	20	
2,4-Dichlorophenol	87.17	5.00	100	0	87.2	53 - 115	88.18	1.14	20	
2,4-Dimethylphenol	86.66	5.00	100	0	86.7	53 - 115	88.34	1.92	20	
2,4-Dinitrophenol	84.67	5.00	100	0	84.7	47 - 115	82.17	2.99	20	
2,4-Dinitrotoluene	87.63	5.00	100	0	87.6	56 - 115	87.41	0.254	20	
2,6-Dinitrotoluene	89.64	5.00	100	0	89.6	57 - 115	89.47	0.196	20	
2-Chloronaphthalene	105.4	5.00	100	0	105	65 - 125	99.99	5.3	20	
2-Chlorophenol	88.06	5.00	100	0	88.1	54 - 115	89.87	2.04	20	
2-Nitrophenol	80	5.00	100	0	80.0	53 - 115	81.45	1.79	20	
3,3'-Dichlorobenzidine	63.06	5.00	100	0	63.1	25 - 115	66.51	5.34	20	
4,6-Dinitro-2-methylphenol	82.72	5.00	100	0	82.7	51 - 121	83.48	0.911	20	
4-Bromophenyl phenyl ether	92.16	5.00	100	0	92.2	49 - 115	92.93	0.829	20	
4-Chloro-3-methylphenol	97.34	5.00	100	0	97.3	51 - 115	96.85	0.501	20	
4-Chlorophenyl phenyl ether	93.99	5.00	100	0	94.0	56 - 115	93.29	0.746	20	
4-Nitrophenol	94.78	5.00	100	0	94.8	26 - 133	93.26	1.61	20	
Acenaphthene	86.34	5.00	100	0	86.3	57 - 115	87.47	1.31	20	
Acenaphthylene	83.63	5.00	100	0	83.6	57 - 118	85.75	2.5	20	
Anthracene	88.83	5.00	100	0	88.8	65 - 115	90.5	1.86	20	
Benz(a)anthracene	85.64	5.00	100	0	85.6	53 - 115	87.63	2.3	20	
Benzidine	22.86	5.00	100	0	22.9	10 - 115	27.52	18.5	20	
Benzo(a)pyrene	86.36	5.00	100	0	86.4	57 - 115	85.49	1.02	20	
Benzo(b)fluoranthene	107.1	5.00	100	0	107	54 - 117	104.4	2.55	20	
Benzo(g,h,i)perylene	82.29	5.00	100	0	82.3	56 - 115	82.18	0.135	20	
Benzo(k)fluoranthene	77.46	5.00	100	0	77.5	50 - 115	79.48	2.58	20	
Bis(2-chloroethoxy)methane	83.42	5.00	100	0	83.4	54 - 115	83.61	0.229	20	
Bis(2-chloroethyl)ether	90.39	5.00	100	0	90.4	56 - 115	95.89	5.9	20	
Bis(2-chloroisopropyl)ether	83.99	5.00	100	0	84.0	48 - 115	85.53	1.81	20	
Bis(2-ethylhexyl)phthalate	90.09	5.00	100	0	90.1	50 - 115	88.56	1.71	20	
Butyl benzyl phthalate	88.44	5.00	100	0	88.4	51 - 115	88.16	0.318	20	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: 99989		Instrument: SV-5		Method: E625						
LCSD	Sample ID: LCSD-99989	Units: ug/L			Analysis Date: 22-Dec-2015 12:14					
Client ID:	Run ID: SV-5_266728	SeqNo: 3532877	PrepDate: 21-Dec-2015	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chrysene	84.17	5.00	100	0	84.2	52 - 120	81.91	2.72	20	
Dibenz(a,h)anthracene	90.11	5.00	100	0	90.1	56 - 115	84.75	6.13	20	
Diethyl phthalate	91.24	5.00	100	0	91.2	57 - 115	87.3	4.42	20	
Dimethyl phthalate	87.26	5.00	100	0	87.3	56 - 115	88.02	0.87	20	
Di-n-butyl phthalate	86.92	5.00	100	0	86.9	54 - 115	87.34	0.487	20	
Di-n-octyl phthalate	95.27	5.00	100	0	95.3	49 - 115	94.99	0.294	20	
Fluoranthene	85.56	5.00	100	0	85.6	58 - 115	86.79	1.42	20	
Fluorene	90.02	5.00	100	0	90.0	56 - 115	91.91	2.08	20	
Hexachlorobenzene	88.54	5.00	100	0	88.5	54 - 115	90.28	1.94	20	
Hexachlorobutadiene	76.88	5.00	100	0	76.9	51 - 115	76.55	0.432	20	
Hexachlorocyclopentadiene	65.93	5.00	100	0	65.9	48 - 115	69.31	4.99	20	
Hexachloroethane	82.92	5.00	100	0	82.9	54 - 115	82.32	0.72	20	
Indeno(1,2,3-cd)pyrene	89.83	5.00	100	0	89.8	51 - 115	90.72	0.98	20	
Isophorone	85.13	5.00	100	0	85.1	55 - 115	86.29	1.36	20	
Naphthalene	81.84	5.00	100	0	81.8	55 - 115	83.21	1.67	20	
Nitrobenzene	80.9	5.00	100	0	80.9	40 - 124	82.84	2.36	20	
N-Nitrosodimethylamine	76.88	5.00	100	0	76.9	42 - 115	78.52	2.11	20	
N-Nitrosodi-n-propylamine	92.26	5.00	100	0	92.3	55 - 119	92.37	0.121	20	
N-Nitrosodiphenylamine	89.25	5.00	100	0	89.3	52 - 115	89.73	0.536	20	
Pentachlorophenol	67.25	5.00	100	0	67.3	45 - 125	67.14	0.17	20	
Phenanthrene	87.16	5.00	100	0	87.2	57 - 115	89.05	2.15	20	
Phenol	81.02	5.00	100	0	81.0	38 - 115	80.25	0.951	20	
Pyrene	85.92	5.00	100	0	85.9	54 - 119	88.45	2.9	20	
Surr: 2,4,6-Tribromophenol	85.24	5.00	100	0	85.2	42 - 124	83.29	2.32	20	
Surr: 2-Fluorobiphenyl	79.06	5.00	100	0	79.1	48 - 120	77.9	1.48	20	
Surr: 2-Fluorophenol	85.57	5.00	100	0	85.6	20 - 120	86	0.503	20	
Surr: 4-Terphenyl-d14	91.72	5.00	100	0	91.7	51 - 135	88.63	3.43	20	
Surr: Nitrobenzene-d5	78.85	5.00	100	0	78.8	41 - 120	79.36	0.65	20	
Surr: Phenol-d6	86.66	5.00	100	0	86.7	20 - 120	91.65	5.59	20	

The following samples were analyzed in this batch:	HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
	HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
	HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
	HS15120747-13	HS15120747-14	HS15120747-15	HS15120747-16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 100039	<b>Instrument:</b> UV-2450	<b>Method:</b> SM4500 NH3-B-F
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<b>MBLK</b>	Sample ID: <b>MBLK-100039</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 17:52</b>							
Client ID:	Run ID: <b>UV-2450_266838</b>	SeqNo: <b>3535381</b>	PrepDate: <b>22-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Nitrogen, Ammonia (as N) U 0.050

<b>LCS</b>	Sample ID: <b>LCS-100039</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 17:52</b>							
Client ID:	Run ID: <b>UV-2450_266838</b>	SeqNo: <b>3535379</b>	PrepDate: <b>22-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Nitrogen, Ammonia (as N) 0.455 0.050 0.5 0 91.0 80 - 120

<b>MS</b>	Sample ID: <b>HS15120747-01MS</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 17:52</b>							
Client ID: <b>L1-S</b>	Run ID: <b>UV-2450_266838</b>	SeqNo: <b>3535380</b>	PrepDate: <b>22-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Nitrogen, Ammonia (as N) 0.448 0.050 0.5 0.025 84.6 80 - 120

<b>MSD</b>	Sample ID: <b>HS15120747-01MSD</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 17:52</b>							
Client ID: <b>L1-S</b>	Run ID: <b>UV-2450_266838</b>	SeqNo: <b>3535378</b>	PrepDate: <b>22-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Nitrogen, Ammonia (as N) 0.466 0.050 0.5 0.025 88.2 80 - 120 0.448 3.94 20

<b>The following samples were analyzed in this batch:</b>	HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
	HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
	HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
	HS15120747-13	HS15120747-14	HS15120747-15	HS15120747-16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 100043	<b>Instrument:</b> UV-2450	<b>Method:</b> SM4500P E
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<b>MBLK</b>	Sample ID: <b>MBLK-100043</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 14:43</b>							
Client ID:	Run ID: <b>UV-2450_266843</b>	SeqNo: <b>3535444</b>	PrepDate: <b>22-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Phosphorus, Total (As P) U 0.0500

<b>LCS</b>	Sample ID: <b>LCS-100043</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 14:43</b>							
Client ID:	Run ID: <b>UV-2450_266843</b>	SeqNo: <b>3535446</b>	PrepDate: <b>22-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Phosphorus, Total (As P) 0.258 0.0500 0.25 0 103 80 - 120

<b>MS</b>	Sample ID: <b>HS15120747-02MS</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 14:43</b>							
Client ID: <b>L1-B</b>	Run ID: <b>UV-2450_266843</b>	SeqNo: <b>3535445</b>	PrepDate: <b>22-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Phosphorus, Total (As P) 0.26 0.0500 0.25 0.017 97.2 80 - 120

<b>MSD</b>	Sample ID: <b>HS15120747-02MSD</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 14:43</b>							
Client ID: <b>L1-B</b>	Run ID: <b>UV-2450_266843</b>	SeqNo: <b>3535443</b>	PrepDate: <b>22-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Phosphorus, Total (As P) 0.264 0.0500 0.25 0.017 98.8 80 - 120 0.26 1.53 20

<b>The following samples were analyzed in this batch:</b>	HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
	HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
	HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
	HS15120747-13	HS15120747-14	HS15120747-15	HS15120747-16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 99911	<b>Instrument:</b> ManTech01	<b>Method:</b> SM5210 B
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<b>MBLK</b>	Sample ID: <b>MBLK-99911</b>	Units: <b>mg/L</b>	Analysis Date: <b>22-Dec-2015 13:02</b>							
Client ID:	Run ID: <b>ManTech01_266788</b>	SeqNo: <b>3534222</b>	PrepDate: <b>17-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Biochemical Oxygen Demand U 2.00

<b>LCS</b>	Sample ID: <b>LCS-99911</b>	Units: <b>mg/L</b>	Analysis Date: <b>22-Dec-2015 13:02</b>							
Client ID:	Run ID: <b>ManTech01_266788</b>	SeqNo: <b>3534221</b>	PrepDate: <b>17-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Biochemical Oxygen Demand 211.5 2.00 198 0 107 85 - 115

<b>LCSD</b>	Sample ID: <b>LCSD-99911</b>	Units: <b>mg/L</b>	Analysis Date: <b>22-Dec-2015 13:02</b>							
Client ID:	Run ID: <b>ManTech01_266788</b>	SeqNo: <b>3534219</b>	PrepDate: <b>17-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Biochemical Oxygen Demand 197 2.00 198 0 99.5 85 - 115 211.5 7.1 20

<b>DUP</b>	Sample ID: <b>HS15120638-01DUP</b>	Units: <b>mg/L</b>	Analysis Date: <b>22-Dec-2015 13:02</b>							
Client ID:	Run ID: <b>ManTech01_266788</b>	SeqNo: <b>3534220</b>	PrepDate: <b>17-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Biochemical Oxygen Demand U 2.00 0.59 0 20

The following samples were analyzed in this batch: HS15120747-13 HS15120747-14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> 99944	<b>Instrument:</b> ManTech01	<b>Method:</b> SM5210 B								
<b>MBLK</b>	Sample ID: <b>MBLK-99944</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 12:22</b>							
Client ID:	Run ID: <b>ManTech01_266800</b>	SeqNo: <b>3534416</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Biochemical Oxygen Demand U 2.00

<b>LCS</b>	Sample ID: <b>LCS-99944</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 12:22</b>							
Client ID:	Run ID: <b>ManTech01_266800</b>	SeqNo: <b>3534415</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Biochemical Oxygen Demand 197.5 2.00 198 0 99.7 85 - 115

<b>LCSD</b>	Sample ID: <b>LCSD-99944</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 12:22</b>							
Client ID:	Run ID: <b>ManTech01_266800</b>	SeqNo: <b>3534414</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Biochemical Oxygen Demand 146.5 2.00 198 0 74.0 85 - 115 197.5 29.7 20 SR

<b>DUP</b>	Sample ID: <b>HS15120747-16DUP</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 12:22</b>							
Client ID: <b>Bypass-B</b>	Run ID: <b>ManTech01_266800</b>	SeqNo: <b>3534413</b>	PrepDate: <b>18-Dec-2015</b> DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Biochemical Oxygen Demand U 2.00 0.5 0 20

<b>The following samples were analyzed in this batch:</b>	HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
	HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
	HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
	HS15120747-15	HS15120747-16		

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

Batch ID: R266769		Instrument: ICS3000			Method: E300				
<b>MBLK</b>	Sample ID: <b>WBLKW2-122115</b>	Units: <b>mg/L</b>			Analysis Date: <b>21-Dec-2015 16:19</b>				
Client ID:	Run ID: <b>ICS3000_266769</b>	SeqNo: <b>3533621</b>		PrepDate:			DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Nitrate/Nitrite (as N)	U	0.200							
<b>LCS</b>	Sample ID: <b>WLCSW2-122115</b>	Units: <b>mg/L</b>			Analysis Date: <b>21-Dec-2015 12:51</b>				
Client ID:	Run ID: <b>ICS3000_266769</b>	SeqNo: <b>3533615</b>		PrepDate:			DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Nitrate/Nitrite (as N)	7.922	0.200	8	0	99.0	90 - 110			
<b>LCSD</b>	Sample ID: <b>WLCSDW2-122115</b>	Units: <b>mg/L</b>			Analysis Date: <b>21-Dec-2015 13:12</b>				
Client ID:	Run ID: <b>ICS3000_266769</b>	SeqNo: <b>3533616</b>		PrepDate:			DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Nitrate/Nitrite (as N)	8.044	0.200	8	0	101	90 - 110	7.922	1.53	20
<b>MS</b>	Sample ID: <b>HS15120795-02MS</b>	Units: <b>mg/L</b>			Analysis Date: <b>21-Dec-2015 13:51</b>				
Client ID:	Run ID: <b>ICS3000_266769</b>	SeqNo: <b>3533617</b>		PrepDate:			DF: <b>5</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Nitrate/Nitrite (as N)	20.97	1.00	20	0.45	103	80 - 120			
<b>MS</b>	Sample ID: <b>HS15120747-01MS</b>	Units: <b>mg/L</b>			Analysis Date: <b>22-Dec-2015 08:09</b>				
Client ID: <b>L1-S</b>	Run ID: <b>ICS3000_266769</b>	SeqNo: <b>3533632</b>		PrepDate:			DF: <b>20</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Nitrate/Nitrite (as N)	80.47	4.00	80	0	101	80 - 120			
<b>MSD</b>	Sample ID: <b>HS15120795-02MSD</b>	Units: <b>mg/L</b>			Analysis Date: <b>21-Dec-2015 14:12</b>				
Client ID:	Run ID: <b>ICS3000_266769</b>	SeqNo: <b>3533618</b>		PrepDate:			DF: <b>5</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Nitrate/Nitrite (as N)	20.42	1.00	20	0.45	99.8	80 - 120	20.97	2.66	20

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID: R266769</b>		<b>Instrument: ICS3000</b>		<b>Method: E300</b>						
<b>MSD</b>	Sample ID: <b>HS15120747-01MS</b>	Units: <b>mg/L</b>		Analysis Date: <b>22-Dec-2015 08:30</b>						
Client ID: <b>L1-S</b>	Run ID: <b>ICS3000_266769</b>	SeqNo: <b>3533633</b>		PrepDate:	DF: <b>20</b>					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrate/Nitrite (as N)	82.56	4.00	80	0	103	80 - 120	80.47	2.57	20
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**The following samples were analyzed in this batch:**

HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
HS15120747-13	HS15120747-14	HS15120747-15	HS15120747-16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> R266824	<b>Instrument:</b> Balance1	<b>Method:</b> M2540C
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<b>MBLK</b>	Sample ID: <b>WBLK-122215</b>	Units: <b>mg/L</b>	Analysis Date: <b>22-Dec-2015 17:00</b>							
Client ID:	Run ID: <b>Balance1_266824</b>	SeqNo: <b>3534945</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

<b>LCS</b>	Sample ID: <b>WLCS-122215</b>	Units: <b>mg/L</b>	Analysis Date: <b>22-Dec-2015 17:00</b>							
Client ID:	Run ID: <b>Balance1_266824</b>	SeqNo: <b>3534946</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids (Residue, Filterable) 1040 10.0 1000 0 104 85 - 115

<b>DUP</b>	Sample ID: <b>HS15120788-06DUP</b>	Units: <b>mg/L</b>	Analysis Date: <b>22-Dec-2015 17:00</b>							
Client ID:	Run ID: <b>Balance1_266824</b>	SeqNo: <b>3534944</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids (Residue, Filterable) 310 10.0 314 1.28 5

<b>DUP</b>	Sample ID: <b>HS15120747-01DUP</b>	Units: <b>mg/L</b>	Analysis Date: <b>22-Dec-2015 17:00</b>							
Client ID: <b>L1-S</b>	Run ID: <b>Balance1_266824</b>	SeqNo: <b>3534924</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids (Residue, Filterable) 39540 10.0 39600 0.152 5

<b>The following samples were analyzed in this batch:</b>	HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
	HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
	HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
	HS15120747-13	HS15120747-14	HS15120747-15	HS15120747-16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> R266835	<b>Instrument:</b> Balance1	<b>Method:</b> M2540D
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<b>MBLK</b>	Sample ID: <b>WBLKW1-122315</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 11:45</b>							
Client ID:	Run ID: <b>Balance1_266835</b>	SeqNo: <b>3535208</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Suspended Solids (Residue, Non-Filterable) U 2.00

<b>LCS</b>	Sample ID: <b>WLCSW1-122315</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 11:45</b>							
Client ID:	Run ID: <b>Balance1_266835</b>	SeqNo: <b>3535209</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Suspended Solids (Residue, Non-Filterable) 102 2.00 100 0 102 78 - 120

<b>DUP</b>	Sample ID: <b>HS15120928-01DUP</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 11:45</b>							
Client ID:	Run ID: <b>Balance1_266835</b>	SeqNo: <b>3535206</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Suspended Solids (Residue, Non-Filterable) 5.8 2.00 5.6 3.51 5

<b>DUP</b>	Sample ID: <b>HS15120817-01DUP</b>	Units: <b>mg/L</b>	Analysis Date: <b>23-Dec-2015 11:45</b>							
Client ID:	Run ID: <b>Balance1_266835</b>	SeqNo: <b>3535204</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Suspended Solids (Residue, Non-Filterable) 50 2.00 51.6 3.15 5

<b>The following samples were analyzed in this batch:</b>	HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
	HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
	HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
	HS15120747-13	HS15120747-14	HS15120747-15	HS15120747-16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QC BATCH REPORT**

<b>Batch ID:</b> R267022	<b>Instrument:</b> WetChem_HS	<b>Method:</b> E410.4
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<b>MBLK</b>	Sample ID: <b>MBLK-267022</b>	Units: <b>mg/L</b>	Analysis Date: <b>29-Dec-2015 18:30</b>							
Client ID:	Run ID: <b>WetChem_HS_267022</b>	SeqNo: <b>3539652</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Chemical Oxygen Demand U 15.0

<b>LCS</b>	Sample ID: <b>LCS-267022</b>	Units: <b>mg/L</b>	Analysis Date: <b>29-Dec-2015 18:30</b>							
Client ID:	Run ID: <b>WetChem_HS_267022</b>	SeqNo: <b>3539653</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Chemical Oxygen Demand 106 15.0 100 0 106 85 - 115

<b>MS</b>	Sample ID: <b>HS15121057-01MS</b>	Units: <b>mg/L</b>	Analysis Date: <b>29-Dec-2015 18:30</b>							
Client ID:	Run ID: <b>WetChem_HS_267022</b>	SeqNo: <b>3539655</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Chemical Oxygen Demand 85 15.0 50 28 114 80 - 120

<b>DUP</b>	Sample ID: <b>HS15121057-01DUP</b>	Units: <b>mg/L</b>	Analysis Date: <b>29-Dec-2015 18:30</b>							
Client ID:	Run ID: <b>WetChem_HS_267022</b>	SeqNo: <b>3539654</b>	PrepDate: DF: <b>1</b>							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Chemical Oxygen Demand 30 15.0 28 6.9 20

<b>The following samples were analyzed in this batch:</b>	HS15120747-01	HS15120747-02	HS15120747-03	HS15120747-04
	HS15120747-05	HS15120747-06	HS15120747-07	HS15120747-08
	HS15120747-09	HS15120747-10	HS15120747-11	HS15120747-12
	HS15120747-13	HS15120747-14	HS15120747-15	HS15120747-16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**WorkOrder:** HS15120747

**QUALIFIERS,  
ACRONYMS, UNITS**

<b>Qualifier</b>	<b>Description</b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

<b>Acronym</b>	<b>Description</b>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<b>Unit Reported</b>	<b>Description</b>
mg/L	Milligrams per Liter

**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

<b>Agency</b>	<b>Number</b>	<b>Expire Date</b>
Arkansas	15-024-0	27-Mar-2016
California	2919	31-Jul-2016
Illinois	003622	09-May-2016
Kansas	E-10352 2014-2015	31-Jan-2016
Kentucky	KY 2015-2016	30-Apr-2016
Louisiana	03087 2015/2016	30-Jun-2016
North Carolina	624 - 2016	31-Dec-2016
North Dakota	R-193 2015-2016	30-Apr-2016
Oklahoma	2015-047	31-Aug-2016
Texas	T104704231-15-15	30-Apr-2016

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120747

**SAMPLE TRACKING**

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS15120747-01	L1-S	Login	12/17/2015 8:04:44 PM	PMG	13F
HS15120747-01	L1-S	Login	12/17/2015 8:04:44 PM	PMG	13F
HS15120747-01	L1-S	Login	12/17/2015 8:04:44 PM	PMG	19A
HS15120747-01	L1-S	Login	12/17/2015 8:04:44 PM	PMG	19A
HS15120747-01	L1-S	Login	12/17/2015 8:04:44 PM	PMG	19A
HS15120747-01	L1-S	Login	12/17/2015 8:04:44 PM	PMG	19A
HS15120747-01	L1-S	Login	12/17/2015 8:04:44 PM	PMG	19A
HS15120747-02	L1-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-02	L1-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-02	L1-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-02	L1-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-02	L1-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-02	L1-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-03	L2A-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-03	L2A-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-03	L2A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-03	L2A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-03	L2A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-03	L2A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-03	L2A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-04	L2A-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-04	L2A-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-04	L2A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-04	L2A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-04	L2A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-04	L2A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-04	L2A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-05	L3-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-05	L3-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-05	L3-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-05	L3-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-05	L3-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-05	L3-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-06	L3-S Dup	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-06	L3-S Dup	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-06	L3-S Dup	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-06	L3-S Dup	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-06	L3-S Dup	Login	12/17/2015 8:19:01 PM	PMG	19A

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120747

**SAMPLE TRACKING**

HS15120747-06	L3-S Dup	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-06	L3-S Dup	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-07	L3-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-07	L3-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-07	L3-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-07	L3-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-07	L3-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-07	L3-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-07	L3-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-08	L3-B Dup	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-08	L3-B Dup	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-08	L3-B Dup	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-08	L3-B Dup	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-08	L3-B Dup	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-08	L3-B Dup	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-08	L3-B Dup	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-09	L4A-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-09	L4A-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-09	L4A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-09	L4A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-09	L4A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-09	L4A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-09	L4A-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-10	L4A-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-10	L4A-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-10	L4A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-10	L4A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-10	L4A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-10	L4A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-10	L4A-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-11	L4B-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-11	L4B-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-11	L4B-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-11	L4B-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-11	L4B-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-11	L4B-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-11	L4B-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-12	L4B-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-12	L4B-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-12	L4B-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-12	L4B-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-12	L4B-B	Login	12/17/2015 8:19:01 PM	PMG	19A

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120747

**SAMPLE TRACKING**

HS15120747-12	L4B-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-12	L4B-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-13	L4C-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-13	L4C-S	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-13	L4C-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-13	L4C-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-13	L4C-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-13	L4C-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-13	L4C-S	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-14	L4C-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-14	L4C-B	Login	12/17/2015 8:19:01 PM	PMG	13F
HS15120747-14	L4C-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-14	L4C-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-14	L4C-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-14	L4C-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-14	L4C-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-14	L4C-B	Login	12/17/2015 8:19:01 PM	PMG	19A
HS15120747-15	Bypass-S	Login	12/17/2015 8:19:55 PM	PMG	13F
HS15120747-15	Bypass-S	Login	12/17/2015 8:19:55 PM	PMG	13F
HS15120747-15	Bypass-S	Login	12/17/2015 8:19:55 PM	PMG	19A
HS15120747-15	Bypass-S	Login	12/17/2015 8:19:55 PM	PMG	19A
HS15120747-15	Bypass-S	Login	12/17/2015 8:19:55 PM	PMG	19A
HS15120747-15	Bypass-S	Login	12/17/2015 8:19:55 PM	PMG	19A
HS15120747-15	Bypass-S	Login	12/17/2015 8:19:55 PM	PMG	19A
HS15120747-16	Bypass-B	Login	12/17/2015 8:22:02 PM	PMG	13F
HS15120747-16	Bypass-B	Login	12/17/2015 8:22:02 PM	PMG	13F
HS15120747-16	Bypass-B	Login	12/17/2015 8:22:02 PM	PMG	19A
HS15120747-16	Bypass-B	Login	12/17/2015 8:22:02 PM	PMG	19A
HS15120747-16	Bypass-B	Login	12/17/2015 8:22:02 PM	PMG	19A
HS15120747-16	Bypass-B	Login	12/17/2015 8:22:02 PM	PMG	19A
HS15120747-16	Bypass-B	Login	12/17/2015 8:22:02 PM	PMG	19A
HS15120747-01	L1-S	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-02	L1-B	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-03	L2A-S	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-04	L2A-B	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-05	L3-S	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-06	L3-S Dup	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-07	L3-B	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-08	L3-B Dup	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-09	L4A-S	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-10	L4A-B	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-11	L4B-S	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-12	L4B-B	Out	12/23/2015 1:56:10 PM	OFO	METPREP

**Client:** Ecology & Environment, Inc  
**Project:** Delfin LNG  
**Work Order:** HS15120747

**SAMPLE TRACKING**

HS15120747-13	L4C-S	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-14	L4C-B	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-15	Bypass-S	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-16	Bypass-B	Out	12/23/2015 1:56:10 PM	OFO	METPREP
HS15120747-01	L1-S	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-02	L1-B	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-03	L2A-S	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-04	L2A-B	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-05	L3-S	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-06	L3-S Dup	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-07	L3-B	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-08	L3-B Dup	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-09	L4A-S	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-10	L4A-B	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-11	L4B-S	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-12	L4B-B	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-13	L4C-S	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-14	L4C-B	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-15	Bypass-S	Return	12/23/2015 1:58:16 PM	OFO	19A
HS15120747-16	Bypass-B	Return	12/23/2015 1:58:16 PM	OFO	19A

Sample Receipt Checklist

Client Name: EE\_LA  
 Work Order: HS15120747

Date/Time Received: **17-Dec-2015 19:00**  
 Received by: **FBH**

Checklist completed by: Paresh M. Giga 17-Dec-2015 Reviewed by: Bernadette A. Fini 18-Dec-2015  
 eSignature Date eSignature Date

Matrices: **Water** Carrier name: **ALS Courier**

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- TX1005 solids received in hermetically sealed vials? Yes  No  N/A
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Container/Temp Blank temperature in compliance? Yes  No

Temperature(s)/Thermometer(s): 2.5c/3.0c,3.0c/3.5c,2.7c/3.2c,3.0c/3.5c,2.9c/3.4c,2.3c/2.8c,2.6c/3.1c U/C IR5

Cooler(s)/Kit(s): 24830,23636,23845,5161,3210,24652,5159

Date/Time sample(s) sent to storage: 12/17/15 21:15

Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted

Water - pH acceptable upon receipt? Yes  No  N/A

pH adjusted? Yes  No  N/A

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: 0 Regarding:

Comments:

Corrective Action:



Environmental

Cincinnati, OH  
+1 513 733 5336

Fort Collins, CO  
+1 970 490 1511

Everett, WA  
+1 425 356 2600

Holland, MI  
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# Chain of Custody For

Page 1 of 2

COC ID: 136341

HS15120747

Ecology & Environment, Inc

Delfin LNG

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ALS Project Manager:

Customer Information		Project Information	
Purchase Order		Project Name	Delfin LNG
Work Order		Project Number	
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.
Send Report To	Will Farrar	Invoice Attn	Accounts Payable
Address	2900 Westfork Dr. Suite 401	Address	368 Pleasant View Drive
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14086
Phone	(225) 298-5080	Phone	(716) 684-8060
Fax		Fax	
e-Mail Address		e-Mail Address	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	L2a-B	12/16	1350	W	see bottle	1												
2	↓	↓	↓	↓	↓	↓												
3	↓	↓	↓	↓	↓	↓	✓											
4	↓	↓	↓	↓	↓	↓		✓										
5	↓	↓	↓	↓	↓	↓			✓									
6	↓	↓	↓	↓	↓	↓				✓	✓	✓	✓					
7	↓	↓	↓	↓	↓	↓												
8	L1-S	12/16	1500	W	see bottle	1												
9	↓	↓	↓	↓	↓	↓												
10	↓	↓	↓	↓	↓	↓												

Sampler(s) Please Print & Sign: *E. Dren*

Shipment Method: \_\_\_\_\_ Required Turnaround Time: (Check Box) TAT 7 days Other: \_\_\_\_\_ Results Due Date: \_\_\_\_\_

Relinquished by: *[Signature]* Date: 12/17 Time: 11:25 am Received by: *[Signature]* Notes: \_\_\_\_\_

Relinquished by: *[Signature]* Date: 12/17 Time: 15:53 Received by (Laboratory): *[Signature]* Cooler ID: 23636 Cooler Temp.: \_\_\_\_\_ QC Package: (Check One Box Below)

Logged by (Laboratory): *[Signature]* Date: 12/17/15 Time: 19:00 Checked by (Laboratory): *[Signature]* QC Level: STD Other: \_\_\_\_\_

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub> 6-NaHSO<sub>4</sub> 7-Other 8-4°C 9-5035

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# Chain of Custody Form

Page 2 of 2

COC ID: **136337**

HS15120747

Ecology & Environment, Inc

Delfin LNG



ALS Project Manager:

Customer Information		Project Information	
Purchase Order		Project Name	Delfin LNG
Work Order		Project Number	
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.
Send Report To	Will Farrar	Invoice Attn	Accounts Payable
Address	2900 Westfork Dr. Sulta 401	Address	368 Pleasant Vlew Drive
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14088
Phone	(225) 298-5080	Phone	(716) 684-8060
Fax		Fax	
e-Mail Address		e-Mail Address	

- A BOD 5210B (5210B \*BOD\* (48Hr HoldTime))
- B TSS\_W 2540D (2540D TSS)
- C TDS\_W 2540C (2540C TDS)
- D NIT\_ AMMON\_W (4500 NH3 B F Ammonia)
- E P\_TW M4500P E (4500 P E Total Phosphorus)
- F 300\_W\_Nitrate/Nitrite (300.0 Nitrate+Nitrite)
- G COD (410.4 COD)
- H 625\_W (625 SVOCs)
- I 808\_W (808 Pesticides & PCBs)
- J 200,8 (200,8/245.1 TAL Metals (23))

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	L2Q-S	12/16	1350	W	see bottle	1											
2	↓	↓	↓	↓	↓	↓											
3	↓	↓	↓	↓	↓	↓	✓										
4	↓	↓	↓	↓	↓	↓		✓									
5	↓	↓	↓	↓	↓	↓			✓								
6	↓	↓	↓	↓	↓	↓				✓	✓	✓	✓				
7	↓	↓	↓	↓	↓	↓					✓	✓	✓	✓			
8	L1-B	12/16	1300	W	see bottle	1											
9	↓	↓	↓	↓	↓	↓											
10	↓	↓	↓	↓	↓	↓											

Sampler(s) Please Print & Sign <i>E. D. O'Connell</i>		Shipment Method		Required Turnaround Time: (Check Box) TAT <u>7 days</u> Other: _____		Results Due Date:	
Relinquished by: <i>[Signature]</i>	Date: <u>12/17</u>	Time: <u>11:25am</u>	Received by: <i>[Signature]</i>	Notes: (Delfin LNG)			
Relinquished by: <i>[Signature]</i>	Date: <u>12/17</u>	Time: <u>15:53</u>	Received by (Laboratory): <i>[Signature]</i>	Cooler ID: <u>23636</u>	Cooler Temp.	QC Package: (Check One Box Below)	
Logged by (Laboratory): <i>[Signature]</i>	Date: <u>12/17/15</u>	Time: <u>19:00</u>	Checked by (Laboratory): <i>[Signature]</i>			QC Level	STD
Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035				Other: _____			

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### Chain of Custody Form

Page 1 of 2

COC ID: 136334

HS15120747

Ecology & Environment, Inc  
Dellin, LNG



Customer Information				ALS Project Manager:														
Purchase Order	Project Name	Dellin LNG		Project Information														
Work Order	Project Number			A	BOD 5210B (5210B "BOD", (48-Hr HoldTime))													
Company Name	Ecology & Environment, Inc			B	TSS_W 2540D (2540D TSS)													
Send Report To	Will Farrar	Accounts Payable		C	TDS_W 2540C (2540C TDS)													
Address	2900 Westfork Dr, Suite 401	388 Pleasant View Drive		D	NIT_AMMON_W (4500 NH3 B F Ammonia)													
City/State/Zip	Baton Rouge, LA 70827	Lancaster, NY 14088		E	P_TW M4500P E (4500 P E Total Phosphorus)													
Phone	(225) 298-5080	(716) 884-8060		F	300_W Nitrate/Nitrite (300.0 Nitrate+Nitrite)													
Fax				G	COD (410.4 COD)													
e-Mail Address				H	625_W (625 SVOCs)													
				I	608_W (608 Pesticides & PCBs)													
				J	200_B (200_B/245.1 TAL Metals (23))													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	L3-S	12/16	1425	W		see bottle 1												
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10	L1-S	12/16	1500	W		see bottle 1												
Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		TAT: 7, 8, 9, 10		Other:		Results Due Date:								
Relinquished by:		Date:	12/17	Time:	11:25 AM	Relinquished by:		Notes:										
Relinquished by:		Date:	12/17	Time:	5:53	Received by Laboratory:		QC Packager: (Check One Box Below)										
Relinquished by:		Date:	12/17/15	Time:	1900	Checked by Laboratory:		Cooler ID	Cooler Temp.									
Logged by (Laboratory):								3270			QC Level		STD					
Preservative Key:	1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035																	

Notes:  
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# Chain of Custody Form

Page 2 of 2

COC ID: 136335

ALS Project Manager:

HS15120747

Ecology & Environment, Inc  
Delfin LNG



Customer Information		Project Information	
Purchase Order		Project Name	Delfin LNG
Work Order		Project Number	
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.
Send Report To	Will Farrar	Invoice Attn	Accounts Payable
Address	2900 Westfork Dr. Sulta 401	Address	368 Pleasant View Drive
Phone	(225) 298-5080	Phone	(716) 684-8060
Fax		Fax	
e-Mail Address		e-Mail Address	

A	BOD 5210B (5210B *BOD* (48Hr HoldTime))
B	TSS_W 2540D (2540D TSS)
C	TDS_W 2540C (2540C TDS)
D	NIT_AMMON_W (4500 NH3 B F Ammonia)
E	P_TW M4500P E (4500 P E Total Phosphorus)
F	300_W_Nitrate/Nitrite (300.0 Nitrate+Nitrite)
G	COD (410.4 COD)
H	625_W (625 SVOCs)
I	608_W (608 Pesticides & PCBs)
J	200.8 (200.8/245.1 TAL Metals (23))

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	L3-S Dup	12/16	1425	W	see bottle	1											
2	↓	↓	↓	↓	↓	↓								✓			
3	↓	↓	↓	↓	↓	↓	✓								✓		
4	↓	↓	↓	↓	↓	↓		✓									
5	↓	↓	↓	↓	↓	↓			✓								
6	↓	↓	↓	↓	↓	↓				✓							
7	↓	↓	↓	↓	↓	↓					✓	✓	✓	✓			
8	L1-S	12/16	1500	W	see bottle	1	✓										✓
9	↓	↓	↓	↓	↓	↓		✓									
10	↓	↓	↓	↓	↓	↓			✓								

Sampler(s) Please Print & Sign <i>E. Oren</i>		Shipment Method		Required Turnaround Time: (Check Box) TAT <u>7 days</u> Other:			Results Due Date:	
Relinquished by:	Date: <u>12/17</u>	Time: <u>11:25</u>	Received by:		Notes:			
Relinquished by:	Date: <u>12/17</u>	Time: <u>15:53</u>	Received by (Laboratory):		(Delfin LNG)		QC Package: (Check One Box Below)	
Logged by (Laboratory):	Date: <u>12/17/15</u>	Time: <u>1900</u>	Checked by (Laboratory):		Cooler ID	Cooler Temp.	QC Level <u>STD</u>	
Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035					3210		Other:	

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# Chain of Custody For

# HS15120747

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Page 1 of 2

COC ID: 136340

Ecology & Environment, Inc

Delfin LNG



ALS Project Manager:

Customer Information		Project Information			
Purchase Order		Project Name	Delfin LNG	A	BOD 5210B (5210B *BOD* (48Hr HoldTime))
Work Order		Project Number		B	TSS_W 2540D (2540D TSS)
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.	C	TDS_W 2540C (2540C TDS)
Send Report To	Will Farrar	Invoice Attn	Accounts Payable	D	NIT_AMMON_W (4500 NH3 B F Ammonia)
Address	2900 Westfork Dr. Suite 401	Address	388 Pleasant View Drive	E	P_TW M4500P E (4500 P E Total Phosphorus)
				F	300_W_Nitrate/Nitrite (300.0 Nitrate+Nitrite)
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14086	G	COD (410.4 COD)
Phone	(225) 298-5080	Phone	(716) 684-8060	H	625_W (625 SVOCs)
Fax		Fax		I	608_W (608 Pesticides & PCBs)
e-Mail Address		e-Mail Address		J	200,8 (200,8/245,1 TAL Metals (23))

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold						
1	L3-B	12/16	1425	W	see bottle	1								✓	✓								
2	↓	↓	↓	↓	↓	↓	✓																
3								✓															
4													✓										
5														✓									
6															✓								
7																✓	✓	✓	✓				
8																						✓	
9																							
10																							

Sampler(s) Please Print & Sign <i>E. Q. ...</i>		Shipment Method		Required Turnaround Time: (Check Box) TAT <u>7 days</u> Other:		Results Due Date:	
Relinquished by: <i>[Signature]</i>	Date: <u>12/17</u>	Time: <u>11:25 am</u>	Received by: <i>[Signature]</i>	Notes: [Delfin LNG]			
Relinquished by: <i>[Signature]</i>	Date: <u>12/17</u>	Time: <u>15:53</u>	Received by (Laboratory): <i>[Signature]</i>	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)	
Logged by (Laboratory): <i>[Signature]</i>	Date: <u>12/17/15</u>	Time: <u>19:00</u>	Checked by (Laboratory): <i>[Signature]</i>	<u>24830</u>		QC Level	STD
Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035						Other:	

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# Chain of Custody Form

Page 2 of 2

COC ID: 136347

HS15120747

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Ecology & Environment, Inc

Delfin LNG

ALS Project Manager:



## Environmental

Customer Information		Project Information	
Purchase Order		Project Name	Delfin LNG
Work Order		Project Number	
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.
Send Report To	Will Farrar	Invoice Attn	Accounts Payable
Address	2900 Westfork Dr. Suite 401	Address	368 Pleasant View Drive
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14088
Phone	(225) 298-5080	Phone	(716) 684-8060
Fax		Fax	
e-Mail Address		e-Mail Address	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	L3-B Dup	12/16	1425	W	see bottle	1												
2																		
3							✓											
4								✓										
5									✓									
6										✓	✓	✓	✓					
7																		
8																		
9																		
10																		

Sampler(s) Please Print & Sign <i>E. O'Brien</i>		Shipment Method		Required Turnaround Time: (Check Box) TAT <u>7 days</u> Other:		Results Due Date:	
Relinquished by: <i>[Signature]</i>	Date: <u>12/17</u>	Time: <u>11:25 am</u>	Received by: <i>[Signature]</i>		Notes: (Delfin LNG)		
Relinquished by: <i>[Signature]</i>	Date: <u>12/17</u>	Time: <u>15:53</u>	Received by (Laboratory): <i>[Signature]</i>		Cooler ID <u>24830</u>	Cooler Temp.	QC Package: (Check One Box Below)
Logged by (Laboratory): <i>[Signature]</i>	Date: <u>12/17/15</u>	Time: <u>19:00</u>	Checked by (Laboratory): <i>[Signature]</i>				QC Level <u>STD</u>
Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035							

note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.  
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# Chain of Custody For

Page 2 of 2

COC ID: 136344

HS15120747

Ecology & Environment, Inc

Delfin LNG



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8

## Environmental

ALS Project Manager:

Customer Information		Project Information		ALS Project Manager:	
Purchase Order		Project Name	Delfin LNG	A	BOD 5210B (5210B *BOD* (48Hr HoldTime))
Work Order		Project Number		B	TSS_W 2540D (2540D TSS)
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.	C	TDS_W 2540C (2540C TDS)
Send Report To	Will Farrar	Invoice Attn	Accounts Payable	D	NIT_ AMMON_W (4500 NH3 B F Ammonia)
Address	2900 Westfork Dr. Sulta 401	Address	368 Pleasant View Drive	E	P_TW M4500P E (4500 P E Total Phosphorus)
				F	300_W_Nitrate/Nitrite (300.0 Nitrate+Nitrite)
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14086	G	COD (410.4 COD)
Phone	(225) 298-5080	Phone	(716) 684-8060	H	625_W (625 SVOCs)
Fax		Fax		I	608_W (608 Pesticides & PCBs)
e-Mail Address		e-Mail Address		J	200.8 (200.8/245.1 TAL Metals (23))

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	L4a-S	12/16	1330	W	see bottle	1											
2	↓	↓	↓	↓	↓	↓											
3	↓	↓	↓	↓	↓	↓	✓										
4	↓	↓	↓	↓	↓	↓		✓									
5	↓	↓	↓	↓	↓	↓			✓								
6	↓	↓	↓	↓	↓	↓				✓							
7	↓	↓	↓	↓	↓	↓					✓						
8	↓	↓	↓	↓	↓	↓						✓					
9	↓	↓	↓	↓	↓	↓											
10	↓	↓	↓	↓	↓	↓											

Sampler(s) Please Print & Sign: E.O. ...

Relinquished by: [Signature] Date: 12/17 Time: 11:25 am

Relinquished by: [Signature] Date: 12/17 Time: 15:53

Logged by (Laboratory): [Signature] Date: 12/17/15 Time: 9:00

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 6-NaHSO<sub>4</sub> 7-Other 8-4°C 9-5035

Shipment Method: \_\_\_\_\_ Required Turnaround Time: (Check Box) TAT 7 days Other: \_\_\_\_\_ Results Due Date: \_\_\_\_\_

Received by: [Signature] Notes: (Delfin LNG)

Received by (Laboratory): [Signature] Checked by (Laboratory): [Signature]

Cooler ID: 5762 Z.F. Cooler Temp.: 5/57

QC Package: (Check One Box Below) QC Level: STD Other: \_\_\_\_\_

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Chain of Custody Fo

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COC ID: 136339

HS15120747

Ecology & Environment, Inc

Delfin LNG

ton, WV  
68

80



ALS Project Manager:

Customer Information		Project Information	
Purchase Order		Project Name	Delfin LNG
Work Order		Project Number	
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.
Send Report To	Will Farrar	Invoice Attn	Accounts Payable
Address	2900 Westfork Dr. Sulte 401	Address	388 Pleasant View Drive
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14086
Phone	(225) 298-5080	Phone	(716) 684-8060
Fax		Fax	
e-Mail Address		e-Mail Address	

A	BOD 5210B (5210B *BOD* (48Hr HoldTime))
B	TSS_W 2540D (2540D TSS)
C	TDS_W 2540C (2540C TDS)
D	NIT_ AMMON_W (4500 NH3 B F Ammonia)
E	P_TW M4500P E (4500 P E Total Phosphorus)
F	300_W Nitrate/Nitrite (300.0 Nitrate+Nitrite)
G	COD (410.4 COD)
H	625_W (625 SVOCs)
I	608_W (608 Pesticides & PCBs)
J	200.8 (200.8/245.1 TAL Metals (23))

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	L4Q-B	12/16	1330	W	see bottle	1											
2	↓	↓	↓	↓	↓	↓								✓			
3	↓	↓	↓	↓	↓	↓	✓								✓		
4	↓	↓	↓	↓	↓	↓		✓									
5	↓	↓	↓	↓	↓	↓			✓								
6	↓	↓	↓	↓	↓	↓				✓	✓	✓	✓				
7	↓	↓	↓	↓	↓	↓					✓	✓	✓	✓			
8	↓	↓	↓	↓	↓	↓											✓
9																	
10																	

Sampler(s) Please Print & Sign: *E. Oren* Shipment Method: \_\_\_\_\_ Required Turnaround Time: (Check Box) TAT 7 days Results Due Date: \_\_\_\_\_

Relinquished by: *[Signature]* Date: 12/17 Time: 11:25 am Received by: *[Signature]* Notes: [Delfin LNG]

Relinquished by: *[Signature]* Date: 12/17 Time: 15:53 Received by (Laboratory): *[Signature]* Cooler ID: 5155 Cooler Temp: AF QC Package: (Check One Box Below) QC Level: STD

Logged by (Laboratory): *[Signature]* Date: 12/15 Time: 1900 Checked by (Laboratory): *[Signature]* Other: \_\_\_\_\_

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 6-NaHSO<sub>4</sub> 7-Other 8-4°C 9-5035

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### Chain of Custody Form

HS15120747

Page 1 of 2  
COC ID: 136348

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Ecology & Environment, Inc  
Delfin LNG



ALS Project Manager:

Customer Information				Project Information														
Purchase Order	Project Name	Delfin LNG		A	BOD 5210B *BOD* (48-Hr HoldTime)													
Work Order	Project Number	Ecology & Environment, Inc		B	TSS_W 2540D (2540D TSS)													
Company Name	Bill To Company	Ecology & Environment, Inc		C	TDS_W 2540C (2540C TDS)													
Send Report To	Invoice Attn	Account Payable		D	NIT_AMMON_W (4500 NH3 B F Ammonia)													
Address	Address	388 Pleasant View Drive		E	P_TW M4500P E (4500 P E Total Phosphorus)													
City/State/Zip	City/State/Zip	Lancaster, NY 14086		F	300_W_Nitrate/Nitrite (300.0 Nitrate+Nitrite)													
Phone	Phone	(716) 684-6060		G	COD (410.4 COD)													
Fax	Fax			H	625_W (625 SVOCs)													
e-Mail Address	e-Mail Address			I	608_W (608 Pesticides & PCBs)													
				J	200.8 (200.8/245.1 TAL Metals (23))													
Sample No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
141	L4B-5	12/16	1315	W	GC/BAC	1												
143							✓											
148																		
149																		
150																		
151																		
152																		
153																		
154																		
155																		
156																		
157																		
158																		
159																		
160																		
Sampler(s) Please Print & Sign		I. O. 201		Shipment Method		Required Turnaround Time: (Check Box)		TAT		7-8hrs		Other:		Results Due Date:				
Relinquished by:	Date: 12/17	Time: 11:25a	Received by:	Delfin LNG		Cooler Temp:		QC Packages: (Check One Box Below)		Cooler ID		QC Level		STD				
Relinquished by:	Date: 12/17	Time: 15:53	Received by:	Ecology & Environment, Inc		8-4°C		2452		Other:								
Logged by (Laboratory):	Date: 12/19/15	Time: 1900	Checked by (Laboratory):	6-NaHSO <sub>4</sub>		7-Other		9-5035										
Preservative Key:	1-HCl	2-HNO <sub>3</sub>	3-H <sub>2</sub> SO <sub>4</sub>	4-NaOH	5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	6-NaHSO <sub>4</sub>	7-Other	8-4°C	9-5035									

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# Chain of Custody Form

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COC ID: 136338

HS15120747

Ecology & Environment, Inc

Delfin LNG



ALS Project Manager:

Customer Information		Project Information			
Purchase Order		Project Name	Delfin LNG	A	BOD 5210B (5210B *BOD* (48Hr HoldTime))
Work Order		Project Number		B	TSS_W 2540D (2540D TSS)
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.	C	TDS_W 2540C (2540C TDS)
Send Report To	Will Farrar	Invoice Attn	Accounts Payable	D	NIT_ AMMON_W (4500 NH3 B F Ammonia)
Address	2900 Westfork Dr. Suite 401	Address	368 Pleasant View Drive	E	P_TW M4500P E (4500 P E Total Phosphorus)
				F	300_W_Nitrate/Nitrite (300.0 Nitrate+Nitrite)
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14086	G	COD (410.4 COD)
Phone	(225) 298-5080	Phone	(716) 684-8060	H	625_W (625 SVOCs)
Fax		Fax		I	608_W (608 Pesticides & PCBs)
e-Mail Address		e-Mail Address		J	200.8 (200.8/245.1 TAL Metals (23))

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	L4B-B	12/16	1315	W	see bottle	1								✓			
2	↓	↓	↓	↓	↓	↓	✓								✓		
3	↓	↓	↓	↓	↓	↓		✓									
4	↓	↓	↓	↓	↓	↓			✓								
5	↓	↓	↓	↓	↓	↓				✓							
6	↓	↓	↓	↓	↓	↓					✓						
7	↓	↓	↓	↓	↓	↓						✓					
8	L1-B	12/16	1500	W			✓										✓
9	↓	↓	↓	↓	↓	↓		✓									
10									✓								

Sampler(s) Please Print & Sign: E.O. O'Neil Shipment Method: \_\_\_\_\_ Required Turnaround Time: (Check Box) TAT 7 days Other: \_\_\_\_\_ Results Due Date: \_\_\_\_\_

Relinquished by: [Signature] Date: 12/17 Time: 11:25 am Received by: [Signature] Notes: [Delfin LNG]

Relinquished by: [Signature] Date: 12/17 Time: 15:53 Received by (Laboratory): [Signature] Cooler ID: 24657 Cooler Temp: \_\_\_\_\_ QC Package: (Check One Box Below)

Logged by (Laboratory): [Signature] Date: 12/17/15 Time: 1900 Checked by (Laboratory): [Signature] QC Level: STD Other: \_\_\_\_\_

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 6-NaHSO<sub>4</sub> 7-Other 8-4°C 9-5035

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COC ID: 136346

HS15120747

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Ecology & Environment, Inc

Delfin LNG



ALS Project Manager:

Customer Information		Project Information		ALS Project Manager:	
Purchase Order		Project Name	Delfin LNG	A	BOD 5210B (5210B *BOD* (48-Hr HoldTime))
Work Order		Project Number		B	TSS_W 2540D (2540D TSS)
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.	C	TDS_W 2540C (2540C TDS)
Send Report To	Will Farrar	Invoice Attn	Accounts Payable	D	NIT_AMMON_W (4500 NH3 B F Ammonia)
Address	2900 Westfork Dr, Suite 401	Address	388 Pleasant View Drive	E	P_TW M4500P E (4500 P E Total Phosphorus)
				F	300_W_Nitrate/Nitrite (300.0 Nitrate+Nitrite)
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14088	G	COD (410.4 COD)
Phone	(225)298-5080	Phone	(716) 684-8060	H	625_W (625 SVOCs)
Fax		Fax		I	608_W (608 Pesticides & PCBs)
e-Mail Address		e-Mail Address		J	200.8 (200.8/245.1 TAL Metals (23))

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold						
1	L4C-S	12/16	1130	W	see bottle	1																	
2	↓	↓	↓	↓	↓	↓								✓									
3																				✓			
4													✓										
5														✓									
6															✓								
7																✓	✓	✓	✓				
8																							✓
9																							
10																							

Sampler(s) Please Print & Sign: E. Oien

Shipment Method: \_\_\_\_\_ Required Turnaround Time: (Check Box) TAT 7 days Other: \_\_\_\_\_ Results Due Date: \_\_\_\_\_

Relinquished by: [Signature] Date: 12/17 Time: 11:25 am Received by: [Signature] Notes: Delfin LNG

Relinquished by: [Signature] Date: 12/17 Time: 15:53 Received by (Laboratory): [Signature] Cooler ID: S111 Cooler Temp: \_\_\_\_\_ QC Package: (Check One Box Below)

Logged by (Laboratory): [Signature] Date: 12/17/15 Time: 1900 Checked by (Laboratory): [Signature] QC Level: STD Other: \_\_\_\_\_

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 6-NaHSO<sub>4</sub> 7-Other 8-4°C 9-5035

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### Chain of Custody Form

HS15120747

Page 1 of 2  
COC ID: 136336

Ecology & Environment, Inc  
Delfin LNG

### Environmental

ALS Project Manager:

Customer Information				Project Information												
Purchase Order	Project Name			Delfin LNG												
Work Order	Project Number			A BOD 5210B (5210B *BOD* (48Hr HoldTime))												
Company Name	Bill To Company			B TSS_W 2540D (2540D TSS)												
Send Report To	Invoice Attn			C TDS_W 2540C (2540C TDS)												
Address	Address			D NIT_AMMON_W (4500 NH3 B F Ammonia)												
City/State/Zip	City/State/Zip			E P_TW M4500P E (4500 P E Total Phosphorus)												
Phone	Phone			F 300_W_Nitrate/Nitrite (300.0 Nitrate+Nitrite)												
Fax	Fax			G COD (410.4 COD)												
e-Mail Address	e-Mail Address			H 525_W (625 SVOCs)												
				I 608_W (608 Pesticides & PCBs)												
				J 200.8 (200.8/245.1 TAL Metals (23))												
Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
L4C-B	12/16	11:30	W		2 bottles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Sampler(s) Please Print & Sign: *E. D. ex* Shipment Method: *SA* Required Turnaround Time: (Check Box) TAT 7 days Other: \_\_\_\_\_ Results Due Date: \_\_\_\_\_

Relinquished by: *[Signature]* Date: 12/17 Time: 11:25 AM Received by: *[Signature]* Date: 12/17 Time: 15:53 Notes: Delfin LNG

Relinquished by: *[Signature]* Date: 12/17 Time: 15:53 Received by: *[Signature]* Date: 12/17 Time: 19:00 Cooler ID: \_\_\_\_\_ Cooler Temp: \_\_\_\_\_ QC Package: (Check One Box Below)

Logged by (Laboratory): *[Signature]* Date: 12/17/15 Time: 19:00 Check by (Laboratory): *[Signature]* QC Level: STD Other: \_\_\_\_\_

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 6-NaHSO<sub>3</sub> 7-Other 8-4°C 9-5035

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Chain of Custody Form

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COC ID: 136350

HS15120747

Ecology & Environment, Inc

Delfin LNG



Customer Information		Project Information		ALS Project Manager:	
Purchase Order		Project Name	Delfin LNG	A	BOD 5210B (5210B *BOD* (48Hr HoldTime))
Work Order		Project Number		B	TSS_W 2540D (2540D TSS)
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.	C	TDS_W 2540C (2540C TDS) --
Send Report To	Will Farrar	Invoice Attn	Accounts Payable	D	NIT_ AMMON_W (4500 NH3 B F Ammonia)
Address	2900 Westfork Dr, Suite 401	Address	388 Pleasant View Drive	E	P_TW M4500P E (4500 P E Total Phosphorus)
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14086	F	300_W_Nitrate/Nitrite (300.0 Nitrate+Nitrite) --
Phone	(225) 298-5080	Phone	(716) 684-8060	G	COD (410.4 COD)
Fax		Fax		H	625_W (625 SVOCs) *
e-Mail Address		e-Mail Address		I	608_W (608 Pesticides & PCBs) *
				J	200.8 (200.8/245.1 TAL Metals (23))

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Bypass - S	12/16	1845	W	SEE Bottle	2								✓			
2	Bypass - S	12/16	1845	W		2									✓		
3	Bypass - S					1	✓										
4	Bypass - S					1		✓									
5	Bypass - S					1			✓								
6	Bypass - S					1				✓							
7	Bypass - S					1					✓						
8						1										✓	
9																	
10																	

Sampler(s) Please Print & Sign: *E Oren*

Shipment Method: \_\_\_\_\_ Required Turnaround Time: (Check Box) TAT 7 days Other: \_\_\_\_\_ Results Due Date: \_\_\_\_\_

Relinquished by: *E Oren* Date: 12/17 Time: 11:25 am Received by: *[Signature]*

Relinquished by: *[Signature]* Date: 12/17 Time: 15:53 Received by (Laboratory): *[Signature]*

Logged by (Laboratory): *[Signature]* Date: 12/17/15 Time: 19:00 Checked by (Laboratory): *[Signature]*

Notes: (Delfin LNG) Cooler ID: 23845 Cooler Temp: \_\_\_\_\_ QC Package: (Check One Box Below) QC Level: STD Other: \_\_\_\_\_

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 6-NaHSO<sub>4</sub> 7-Other 8-4°C 9-5035

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COC ID: 136343

HS15120747

Ecology & Environment, Inc  
Delfin LNG



ALS Project Manager:

Customer Information		Project Information	
Purchase Order		Project Name	Delfin LNG
Work Order		Project Number	
Company Name	Ecology & Environment, Inc	Bill To Company	Ecology & Environment, Inc.
Send Report To	Will Farrar	Invoice Attn	Accounts Payable
Address	2900 Westfork Dr. Suite 401	Address	368 Pleasant View Drive
City/State/Zip	Baton Rouge, LA 70827	City/State/Zip	Lancaster, NY 14086
Phone	(225) 298-5080	Phone	(716) 684-8060
Fax		Fax	
e-Mail Address		e-Mail Address	

A	BOD 5210B (5210B *BOD* (48Hr HoldTime))
B	TSS_W 2540D (2540D TSS)
C	TDS_W 2540C (2540C TDS)
D	NIT_ AMMON_W (4500 NH3 B F Ammonia)
E	P_TW M4500P E (4500 P E Total Phosphorus)
F	300_W_Nitrate/Nitrite (300,0 Nitrate+Nitrite)
G	COD (410,4 COD)
H	625_W (625 SVOCs)
I	608_W (608 Pesticides & PCBs)
J	200,8 (200,8/245,1 TAL Metals (23))

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Bypass - B	12/16	1845	W	SEE bottle	2									✓		
2						2										✓	
3						1	✓										
4						1		✓									
5						1			✓								
6						1				✓	✓	✓	✓				
7						1											
8						1											✓
9																	
10																	

Sampler(s) Please Print & Sign: [Signature] Shipment Method: \_\_\_\_\_ Required Turnaround Time: (Check Box) TAT 7 days Other: \_\_\_\_\_ Results Due Date: \_\_\_\_\_

Relinquished by: [Signature] Date: 12/17 Time: 11:25am Received by: [Signature] Notes: \_\_\_\_\_

Relinquished by: [Signature] Date: 12/17 Time: 15:53 Received by (Laboratory): [Signature] Cooler ID: 23845 Cooler Temp: \_\_\_\_\_ QC Package: (Check One Box Below) QC Level: STD Other: \_\_\_\_\_

Logged by (Laboratory): [Signature] Date: 12/17/15 Time: 1900 Checked by (Laboratory): [Signature]

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 6-NaHSO<sub>4</sub> 7-Other 8-4°C 9-5035

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