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July 28, 2004

Ms. Sharon Bell Tacoma Pierce County Health Department 3629 South D Street Tacoma, WA 98418-6813

Subject: 2003-2004 Monitoring Report; Darling International, Inc. LUST's Site;

Parcel No.: 0320031019

Dear Ms. Bell:

On behalf of Darling International, Inc. (DII), please find enclosed the 2003-2004 Monitoring Report for the DII facility (the "Site") located at 2041 Marc Avenue in Tacoma, Washington. The report presents the quarterly monitoring data collected between September 2003 and June 2004. The report also presents site-specific risk assessment was performed to evaluate potential risks to human and ecological receptors related to residual petroleum hydrocarbons at the Site and to evaluate the need to establish site-specific cleanup levels.

Please contact Natalie Morrow at (406) 543-3045 with questions or comments regarding the enclosed

Sincerely,

Maxim Technologies

Natalie J. Morrow, L.G., L.HG.

Project Hydrogeologist

NIM:bms Enclosure

cc: Bill McMurtry - Darling International, Inc. Carol Johnston - Southwest Department of Ecology Pat Behling - Pastor, Behling, & Wheeler

2003-2004 GROUNDWATER MONITORING REPORT DARLING INTERNATIONAL, INC. LUSTs SITE 2041 MARC AVENUE TACOMA, WASHINGTON

Maxim Technologies Project No.: 4570484



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July 28, 2004

Prepared for:

Darling International, Inc. 251 O'Conner Ridge Boulevard Irving, Texas 75038

Prepared by:

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PROFESSIONAL CERTIFICATION

This report has been prepared by Maxim Technologies under the professional supervision of Natalie J. Morrow. The findings, recommendations, specifications and/or professional opinions presented in this report have been prepared in accordance with generally accepted professional hydrogeologic practice, and within the scope of the project. There is no other warranty, either express or implied.



Natalie J. Morrow Washington L.G, L.HG. No. 230 Project Hydrogeologist Maxim Technologies, Inc.

1.0 INTRODUCTION / PREVIOUS INVESTIGATIONS

Quarterly monitoring events presented in this report include the 2003-2004 monitoring year at the Darling International, Inc. (DII) animal by-products recycling facility located at 2041 Marc Avenue in Tacoma, Washington. Quarterly sampling events were completed in September 2003, December 2003, March 2004, and June 2004. Investigation and groundwater monitoring at the Site were performed to address Tacoma Pierce County Health Department (TPCHD) concerns regarding possible petroleum hydrocarbons left in the subsurface after removal of two underground storage tanks (USTs) at the facility in May 1989. The purpose of the 2002 subsurface investigation and groundwater monitoring activities was to evaluate groundwater flow direction in the shallow groundwater zone at the facility and evaluate the nature and extent of petroleum hydrocarbons present in subsurface materials and groundwater.

This report is organized as follows. Section I provides an introduction, including Site information and a summary of previous site investigation activities. Section 2 discusses the methods of investigation. Quarterly groundwater monitoring results are discussed in Section 3. Section 4 presents the site-specific risk assessment; Section 5 presents a summary and conclusions; recommendations are presented in Section 6, and references are in Section 7. Appendices A, B, C, and D contain the groundwater laboratory analytical data reports for the September 2003, December 2003, March 2004, and June 2004 groundwater monitoring events, respectively. The site-specific risk assessment spreadsheet tables are included in Appendix E.

1.1 SITE LOCATION AND BACKGROUND

DII owns and operates an animal by-products recycling facility (the "Site") located at 2041 Marc Avenue in Tacoma, Washington (Figure 1). The DII facility was previously known as Puget Sound By-Products. There are three buildings at the Site (Figure 2), including the office, the rendering plant, and a workshop. The Site is mostly asphalt paved with the exception of unpaved portions on the east and southeast areas of the Site where three wastewater treatment lagoons and a clarifier (now closed and backfilled) were formerly located.

The Site was constructed on the Tacoma Tideflats and within the boundaries of the Old Tacoma Tideflats Landfill (also known as the Lincoln Avenue Landfill; see Figure 1). The Site and surrounding area are zoned M3 (heavy industrial) by the City of Tacoma. The Site is located approximately 0.4 miles northeast of the Puyallup River and Commencement Bay of Puget Sound lies over 1.5 miles north to northwest of the Site.

The Old Tacoma Tideflats Landfill was constructed on top of dredged sediment fill material in a former tide flat area and was further filled with waste material so the land could be used for industrial and commercial development. The landfill was operated by the City of Tacoma from the 1940's through approximately 1964 and can generally be characterized as an unregulated dumping area for municipal waste for residents of Tacoma. In addition, TPCHD believes that industries may have deposited solid and/or hazardous waste materials in the landfill (TPCHD 2001). Burning of landfill materials was common practice to reduce the volume of the various materials present in the landfill (TPCHD 2001).

This area of Tacoma, Washington contains numerous sites contaminated with a variety of constituents ranging from heavy metals, petroleum hydrocarbons, and a variety of other hazardous inorganic and organic compounds. Groundwater and subsurface soil/fill material at several other sites in the vicinity of the Site are known to be contaminated. For example, the Milwaukee Railyard, located north of the Site, has soil and groundwater contaminated with diesel, bunker fuels, lubricating oils, arsenic, chromium, copper, pentachlorophenol, and naphthalene. Another example is the Cascade Pole and

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Lumber Company, also located north of the Site. Soil and groundwater at this facility contain pentachlorophenol, chromated copper arsenate, creosote, and define PAHs. In addition, results from other sampling of landfill soil/fill material have indicated low levels of PAHs and groundwater results showed low levels of metals and total organic halogens (Pierce County, 1985).

One likely source of PAHs present is soil and groundwater at the Site and nearby sites is the Old Tacoma Tideflats Landfill. While some heavy range petroleum hydrocarbons may contain PAHs, the incomplete burning/combustion of organic matter (lawn cuttings, tree trimings, other wood and organic material, and other disposed waste items) are a possible origin for PAHs found in the landfill debris material.

A discrepancy was observed between what had previously been noted as the north direction on maps obtained from the reports prepared by Rittenhouse-Zeman & Associates, Inc. (RZA, 1989) and Whitman Environmental Sciences (WES, 1998) and the north direction noted by APS Survey and Mapping (APS) during the February 2002 site investigation (MFG, 2002b). APS was contacted regarding the discrepancy and, after review of their survey data, it was determined that the north direction at the Site is as APS located it and as shown on Figure 2. When referencing information from the RZA (1989) and WES (1988) reports, the following text was adjusted to reflect the correct direction, as determined by APS surveying.

1.2 UNDERGROUND STORAGE TANKS REMOVAL

Two 10,000-gallon USTs were previously located at the Site. The tanks were located adjacent to the north-northeast side of the workshop (Figure 2). One tank contained diesel fuel for use by company trucks and the other tank contained Bunker C fuel oil for use in the facility boiler. The two USTs and associated piping were removed on May 11, 1989 (WES, 1998).

Approximately 112 cubic yards of soil were excavated during the removal of the USTs (WES, 1998). The soil was stockpiled and sampled. The samples were analyzed for total petroleum hydrocarbons (TPH) using U.S. Environmental Protection Agency (EPA) Method 418.1, and benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020. EPA Method 418.1 does not differentiate TPH constituents. Therefore, the results were presented as a total value for TPH. TPH results ranged from 4,672 milligrams per kilogram (mg/kg) to 8,370 mg/kg; ethybenzene was detected at 0.41 mg/kg, and xylenes at 1.93 mg/kg. No benzene or toluene was detected in the stockpile soil. The soil contained in the stockpiles was removed from the Site for off-site disposal on May 23, 1989 (WES, 1998).

The Washington Department of Ecology (Ecology) collected soil samples from the walls of the UST excavation and a grab sample was collected from groundwater in the excavation (WES, 1998). The soil samples were analyzed for TPH only and the groundwater sample was analyzed for TPH and BTEX. Soil TPH results ranged from 1,874 mg/kg to 2,854 mg/kg. TPH in the groundwater sample was 4,565 mg/L and ethylbenzene and xylenes were detected at 0.5 mg/L and 0.44 mg/L, respectively. Benzene and toluene were not detected in the groundwater sample. According to the WES (1998) report, the analytical results for soil and groundwater collected from the excavation indicated exceedances of the Washington MTCA Method A Cleanup Levels used at the time of the removal.

1.3 1989 SITE ASSESSMENT

A subsurface investigation was performed at the Site in September 1989 by RZA and WES performed a UST closure review for the Site in 1998. Three borings were installed during the site investigation. RZA completed the borings as groundwater monitoring wells in the shallow groundwater zone at the

Site. Total boring depths ranged from 14 to 16.5 feet below ground surface (bgs) and groundwater was encountered approximately nine feet bgs (WES 1998). One well (MW-4) was completed to the northwest of the former USTs location, on the north side of the workshop (Figure 2). A second well (MW-5) was installed east of the former USTs location and a third well (MW-6) was installed southwest of the former USTs location, on the south side of the workshop. All groundwater-monitoring wells at the Site were abandoned in 1997 (RZA 1989 and WES 1998). It is unknown why the wells were abandoned.

Fill material was encountered to depths of 12 to 16.5 feet bgs during drilling (RZA 1989 and WES 1998). The fill material consisted of medium dense, gray to brown silty sand with some gravel, followed by loose to medium dense black silty sand with wood chip waste, glass, metal, and organic matter. Soil material encountered below the fill material consisted of stiff to medium-stiff gray silt. This soil material is likely dredged fill material. The approximate groundwater flow direction in the upper groundwater zone at the Site, as inferred from these three wells, was to the north.

Soil samples were collected during drilling and analyzed for TPH using EPA Method 418.1. Samples were collected at 7.5 feet in boring B-4 contained 141 mg/kg TPH and a sample from five feet bgs in boring B-6 contained 645 mg/kg TPH (RZA 1989 and WES 1998). Groundwater analytical results from sampling performed in September 1989, after completion of the wells, indicated no TPH above the 10 mg/L method detection limit. However, continued sampling from 1990 through 1993 showed that TPH concentrations in MW-4 ranged from less than 1.0 to 20 mg/L; concentrations in MW-5 ranged from less than 1.0 mg/L to 44 mg/L; and TPH concentrations in MW-6 ranged from 2.2 mg/L to 82 mg/L (WES 1998).

Three other wells (MW-1, MW-2, and MW-3) were installed to monitor groundwater quality upgradient and downgradient of three wastewater treatment lagoons and one clarifier (Figure 2). The lagoons and clarifier are no longer present at the Site. The wells were completed at a depth of approximately 30 feet bgs. These three wells, completed in the lower groundwater zone beneath the Site, were also abandoned in 1997 by a licensed well driller (WES 1998). The approximate groundwater flow direction of the lower groundwater zone at the Site, as previously inferred from these three wells, is to the east.

1.4 2002 SUBSURFACE INVESTIGATION AND GROUNDWATER MONITORING

MFG, Inc. performed a subsurface site investigation during February 2002 (MFG 2002b) and quarterly groundwater monitoring (MFG 2002b and 2002c). The investigation was performed in accordance with the Site Investigation Work Plan developed for the Site (MFG 2002a). Investigation activities included:

- 1. A document review for the Site and surrounding properties;
- 2. The completion of four groundwater monitoring wells (MFG-1, MFG-2, MFG-3, and MFG-4);
- 3. Sampling and analysis of subsurface soil and groundwater to evaluate the extent and magnitude of petroleum hydrocarbons in subsurface materials and groundwater;
- 4. Water level measurements to evaluate the direction of groundwater flow at the Site;
- 5. Obtaining the horizontal and vertical coordinates for each monitoring well by a licensed surveyor; and

6. Completion of a site investigation report. Well completion information is presented in Table 1.

1.4.1 Subsurface Soil

The results of the MFG investigation indicated that fill material and landfill debris is 13 to 15 feet thick at the Site and the upper groundwater zone is located within the fill material and landfill debris. The fill material primarily consisting of sand and gravel and the landfill debris contain an abundance of wood, sticks, and other fine organic material. Metal, glass, and wire are also present in the landfill material. During drilling and completion of the well, water level measurements indicated a rise in the water table elevations of approximately one to two feet in each well, indicating the shallow groundwater zone may be semi-confined. The February 2002 site investigation report provides boring logs from the investigation (MFG 2002b).

1.4.2 Subsurface Soil Analytical Results

Analysis of the subsurface soil samples included semivolatile TPHs by NWTPH-Dx, EPHs by modified WDOE TPH Policy Method, PAHs and naphthalenes by GC/MS-SIM, and BTEX by Method 8021B. Soil samples results indicated the presence of heavy oil range TPH and total PAHs at concentrations that exceeded MTCA Method A Soil Cleanup levels for both unrestricted and industrial properties.

The subsurface sample (MFG-B3(7.5-8')) collected from 7.5 to eight feet bgs was the only subsurface sample collected during the investigation shown to exceed petroleum hydrocarbon MTCA Method A Soil Cleanup Levels for unrestricted land use and industrial properties. MFG-B3(7.5-8') had a heavy oil range concentration of 3,000 mg/kg. Two subsurface soil samples MFG-B3(7.5-8') and MFG-B4(8-8.5') contained concentrations of total carcinogenic PAHs above the MTCA Method A Soil Cleanup Level for unrestricted land use of 0.1 mg/kg and 2 mg/kg for industrial properties. Concentrations of PAHs in these samples were 22.5 mg/kg in MFG-B3(7.5-8') and 2.3 mg/kg in MFG-B4(8-8.5'). Table 2 and Figure 3 present the soil analytical data from the February 2002 site investigation.

1.4.3 Groundwater Analytical Results

MFG completed quarterly groundwater monitoring in the months of February, June, September, and December 2002. Field parameters monitored during well development and groundwater sampling included specific conductance, pH, and temperature. Specific conductance in the upper groundwater zone at the Site ranged from 689 micro-Siemens (µS) to 1,043 µS, pH ranged from 6.1 to 6.6 standard units, and temperature ranged from 12.8 degrees Celsius (°C) to 15.5°C. Oxidation-reduction potential, also monitored during well development and sampling in 2002, ranged from -81 millivolts (mV) to -363 mV; indicating the upper groundwater zone at the Site is strongly reduced.

Groundwater analyses included TPH by NWTPH-Dx, EPH by WDOE TPH Policy Method, carcinogenic PAHs and naphthalenes by GC/MS-SIM, and BTEX by EPA Method 8021B. Table 3 presents the groundwater analytical data for the site.

Groundwater analytical results indicated the presence of diesel range, heavy oil range, and mineral range TPH at concentrations exceeding MTCA Method A Groundwater Cleanup Levels. Diesel range TPH in groundwater ranged from 1,270 micrograms per liter (µg/L) to 6,100 µg/L; heavy oil range TPH ranged from 514 to 1,590 μ g/L; and mineral oil range TPH ranged from 904 μ g/L to 7,300 μ g/L. Total EPHs ranged from 79.9 µg/L to 148 µg/L.

Carcinogenic PAHs were detected in samples collected from MFG-2, MFG-3, and MFG-4 during the September 2002 monitoring event. Concentrations of total carcinogenic PAHs ranged from 0.100

Maxim Technologies July 2004 μ g/L to 0.910 μ g/L, above MTCA Method A Groundwater Cleanup Levels. Because PAHs have low solubilities and octanol-water partition coefficients, they do not readily dissolve into water. Therefore, the PAHs detected in the samples were likely in the form of PAHs sorbed to fine-grained landfill materials entrained in the sample. Total naphthalene concentrations ranged from 0.12 μ g/L to 4.36 μ g/L.

BTEX constituents detected in the samples include benzene, toluene, and total xylenes. Benzene concentrations ranged from 0.598 μ g/L to 2.24 μ g/L, toluene ranged from 0.504 μ g/L to 0.648 μ g/L, and total xylenes ranged from 1.08 μ g/L to 1.38 μ g/L.

1.4.4 Hydrogeology

Groundwater during 2002 was encountered between 4.5 to six feet bgs. Table 4 presents water table elevation data for the Site. The groundwater gradient at the Site ranges from 0.0002 ft/ft to 0.0005 ft/ft. Groundwater elevations at the Site vary by one to a few hundredths of a foot from well to well.

2.0 METHODS OF GROUNDWATER INVESTIGATION

Quarterly groundwater monitoring was performed at the Site during September 2003, December 2003, March 2004, and June 2004. Personnel from MCS Environmental Inc. of Missoula, Montana sampled the wells for the first three quarters of the 2003-2004 monitoring year. Maxim Technologies, Inc. personnel completed the June 2004 monitoring event. The following sections discuss the quarterly groundwater monitoring.

2.1 PURPOSE OF INVESTIGATION

The purpose of quarterly groundwater monitoring was to: 1) evaluate the direction of groundwater flow; and 2) evaluate the nature and extent of petroleum hydrocarbons in groundwater in the vicinity of the former USTs.

To meet these goals, the following activities were performed on a quarterly basis: 1) collection of water level measurements; and 2) sampling and analysis of groundwater.

2.2 GROUNDWATER SAMPLING

Sampling methods were generally constistent with the 2002 monitoring events. Low-flow purging and sampling were performed at each well. Field personnel purged each well at a rate of less than 0.5 to one liter per minute using a persitsitic pump, with the tube intake placed approximately one to two feet below the top of the well screen. Specific conductance, pH, and temperature were monitored during purging. Groundwater samples were collected after pH had stabilized to +/- 0.1 pH units, specific conductance to +/- 10 percent, and temperature to +/- 0.5 °C.

Field personnel collected samples in laboratory-provided sample containers and preserved the samples in the field as requested by the analytical laboratory. After samples were collected, they were immediately placed in a cooler containing doubled Ziploc $^{\text{TM}}$ bags filled with ice.

2.3 ANALYTICAL METHODS

Samples were hand delivered to North Creek Analytical in Bothell, Washington the same day of collection or the following day. The following table presents the analyses for each groundwater sample:

ANALYTE	ANALYTICAL METHOD	
BTEX	EPA Method 8021B	
PAHs (dissolved)	GC/MS-SIM	
Naphthalenes	GC/MS-SIM	
Petroleum Hydrocarbons	NWTPH-Dx without Acid/Silica Gel Cleanup NWTPH-Dx with Acid/Silica Gel Cleanup	
EPH	Modified WDOE Interim TPH Policy Method	

There are two differences in the analysis of groundwater samples for the 2003-2004 monitoring year versus the 2002 monitoring year, as agreed upon by Ms. Sharon Bell at TPCHD. These include:

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- I. Analysis of petroleum hydrocarbons by both NWTPH-Dx without Acid/Silica Gel Cleanup and NWTPH-Dx with Acid/Silica Gel Cleanup; and
- 2. Samples from the September 2002 monitoring event contained some PAHs but the detection of these was likely a result of very fine grained sediment in the sample. Because of their low solubility and low octanol-water partition coefficients, the carcinogenic PAHs should not readily dissolve into groundwater. Therefore, field personnel filtered the PAH samples in the field using a 0.45 micrometer (µm) for the analysis of dissolved PAHs, rather than total PAHs. This was used to evaluate the concentrations of PAHs dissolved in groundwater without interference of very fine grained sediment containing PAHs.

2.4 ACID SILICA GEL CLEANUP

Research has shown that TPH concentrations reported in groundwater samples frequently do not represent petroleum hydrocarbons but represent non-dissolved petroleum hydrocarbons or polar non-hydrocarbon compounds (Zemo and Foote 2003). Crude oils and refined products are extremely complex mixtures. They consist of hundreds to thousands of individual petroleum constituents. The constituents include both hydrocarbons and non-hydrocarbons (Zemo and Foote 2003). Solubilities of pure-compound constituents vary with water solubilities of the constituent.

Out of the thousands of petroleum constituents that make up the petroleum product, the measurable fraction of the water-soluble constituents is limited to a few petroleum constituents. The water-soluble fraction of a compound is controlled by the effective solubility of each constituent in the petroleum mixture (Zemo and Foote 2003). The solubility of petroleum products decreases over time as they weather. Weathering includes the leaching of soluble constituents and biodegradation. These factors, in turn, decrease the mole-fraction within the remaining petroleum mixture and further decrease their effective solubility (Zemo and Foote 2003). Eventually, the original soluble constituents in the residual petroleum product is depleated to the point where they will no longer partition into the dissolved phase (Zemo and Foote 2003). Constituents such as benzene have the highest relative pure-compound solubility, constituents like naphthalenes have low to very low solubility, and compounds like benzo(a)pyrene are relatively insoluble in water (Zemo and Foote 2003).

Non-hydrocarbons and naturally occurring hydrocarbons can cause significant interferences in hydrocarbon chromatography. Some sources of naturally occurring hydrocarbons include animals, vegetation (ADHS 1998), wood processing sites, tidal areas, and other areas where natural processes result in an organic rich matrix (Wiegel 2003). The non-hydrocarbons and naturally occurring hydrocarbons may co-extract with petroleum hydrocarbons (ADHS 1998), leading to false-positive petroleum hydrocarbon results.

During analysis, any organic compound contained in the sample will cause a response from the flame-ionization detector (DTSC 1999). This response will be included in the petroleum hydrocarbon result because it is included in the total chromatographic peak area, as long as it removed within the gas chromatograph retention window for carbon ranges (DTSC 1999).

A method to address this problem includes acid/silica gel cleanup of the sample. Silica gel is a regenerative absorbent of silica. It has weakly acidic properties and is produced from sodium silicate and sulfuric acid (EPA 1996). This method is used when evidence indicates that the petroleum content is biased due to interfering co-extractable organics. The method separates analytes from interfering compounds of different chemical polarity (EPA 1996), polar biogenic materials (PHOC 1997), polar non-petroleum hydrocarbons (Bishop 1997), and other naturally occurring and synthetic compounds and compound mixtures (Bishop 1997).

Implementing the acid/silica gel cleanup method is an important step in evaluating petroleum hydrocarbon concentrations in groundwater at the Site because the Site has residual petroleum hydrocarbons and multiple potential sources of non-hydrocarbons and polar biogenic materials in subsurface soil and groundwater. These sources include:

- Petroleum hydrocarbons in subsurface soil at the Site are heavier range petroleum hydrocarbons (heavy oil range and PAHs). As described above these constituents have relatively low solubilities and likely do not dissolve readily into groundwater.
- The Old Tacoma Tideflats Landfill was constructed on top of dredged sediment fill material and was further filled with waste material so the land could be utilized for industrial and commercial development. Tidal flats commonly have vegetated areas and tidal marshes contain abundant vegetation. Both also containing an abundance of other organisms. The dredged sediment, tide flat, and tidal marsh material likely contain an abundant amount of degraded/degrading vegetation and organic matter.
- Vegetation and other organic debris disposed in the Old Tacoma Tideflats Landfill likely contributes to polar biogenic material in the subsurface at the Site. Vegetation and degraded vegetation encountered during the 2002 investigation include lawn cuttings, tree trimings, other wood and organic material, and other disposed waste items.

2.5 WATER LEVEL MEASUREMENTS

Water levels were collected from each monitoring well upon arrival to the Site and prior to commencement of groundwater sampling. Monitoring personnel used an electronic water level indicator to measure the depth to water from the north side of the PVC well casing. Depth to water was recorded to the nearest 0.01 foot.

2.6 DECONTAMINATION

All non-disposable equipment was decontaminated prior to use at the Site, between borings and wells, and after the collection of each sample. Decontamination consisted of an Alconox® and deionized water scrub and rinse followed by a double rinse of deionized water. Disposable equipment was placed in a DII waste receptacle for disposal in a sanitary landfill. Decontamination water, well development water, and purged groundwater was placed in 55-gallon drums pending off-site disposal.

3.0 RESULTS

The following sections discuss the results of the 2003-2004 groundwater monitoring activities.

3.1 GROUNDWATER MONITORING RESULTS

Table 3 presents the groundwater analytical data and Figure 4 summarizes the results for constituents found in groundwater samples at the Site during 2003-2004. Appendix A, B, C, and D contain the groundwater laboratory analytical data packages for September 2003, December 2003, March 2004, and June 2004, respectively.

3.1.1 September 2003 Quarterly Results

3.1.1.1 Field Parameters:

The September quarterly monitoring event was performed on September 3, 2003. Temperature in groundwater ranged from 16.9 °C to 20.2 °C; pH ranged from 6.5 to 6.7 standard units; and specific conductance ranged from 1,184 μ S to 2,120 μ S.

3.1.1.2 NWTPH-Dx without Acid Silica Gel Cleanup:

Diesel range petroleum hydrocarbon results exceeded MTCA Method A Groundwater Cleanup Levels in MFG-1, MFG-2, MFG-3, and MFG-4 with concentrations ranging from 1,090 µg/L to 3,770 µg/L. Heavy oil range hydrocarbon results exceeded MTCA Method A Groundwater Cleanup Levels in two of the four wells. These include MFG-2 (1,110 µg/L) and MFG-4 (1,720 µg/L). Mineral oil range results exceeded MTCA Method A Groundwater Cleanup Levels in MFG-1, MFG-2, MFG-3, and MFG-4. Concentrations of mineral oil range hydrocarbons ranged from 976 µg/L to 3,260 µg/L. No other constituents were detected at concentrations at or above MTCA Method A Groundwater Cleanup Levels.

3.1.1.3 NWTPH-Dx with Acid Silica Gel Cleanup:

No results for diesel range petroleum hydrocarbons, heavy oil range hydrocarbons, or mineral oil range hydrocarbons were detected at or above the laboratory practical quantitation limit (PQL) using NWTPH-Dx with Acid/Silica Gel Cleanup method of analysis during this quarterly monitoring event.

3.1.1.4 Extractable Petroleum Hydrocarbons:

MFG-1 had one result for C_{10} - C_{12} Aromatics above the laboratory PQL at a concentration of 63.6 μ g/L. No other EPH constituent were detected at or above the laboratory PQL during this quarterly monitoring event.

3.1.1.5 Carcinogenic Polynuclear Aromatic Hydrocarbons and Naphthalenes:

No PAHs were detected at or above the laboratory PQL in samples collected during this monitoring event. Naphthalenes were detected in two wells (MFG-I and MFG-4) during this monitoring event. Total naphthalene concentrations were 3.53 µg/L in MFG-I and 4.63 µg/L in MFG-4. Neither result exceeded the I60 µg/L MTCA Method A Groundwater Cleanup Level.

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3.1.1.6 Benzene, Toluene, Ethylbenzene, Xylenes:

No BTEX components were detected at or above the laboratory PQL in samples collected during this monitoring event.

3.1.2 December 2003 Quarterly Results

3.1.2.1 Field Parameters:

The December quarterly monitoring event was performed on December 9, 2003. Temperature in groundwater ranged from 15.3 °C to 16.5 °C; pH ranged from 6.8 to 6.5 standard units; and specific conductance ranged from 1,284 μ S to 1,634 μ S.

3.1.2.2 NWTPH-Dx without Acid Silica Gel Cleanup:

Diesel range petroleum hydrocarbon results exceeded MTCA Method A Groundwater Cleanup Levels in MFG-1, MFG-2, MFG-3, and MFG-4. Concentrations of diesel range hydrocarbons ranged from 1,290 μ g/L to 2,220 μ g/L. Heavy oil range hydrocarbons results exceeded MTCA Method A Groundwater Cleanup Levels in three of the four wells. These include MFG-2 (897 μ g/L), MFG-3 (1,040 μ g/L), and MFG-4 (1,040 μ g/L). Mineral oil range results exceeded MTCA Method A Groundwater Cleanup Levels in MFG-1, MFG-2, MFG-3, and MFG-4 with concentrations ranging from 976 μ g/L to 1,680 μ g/L.

3.1.2.3 NWTPH-Dx with Acid Silica Gel Cleanup:

No diesel range petroleum hydrocarbons, heavy oil range hydrocarbons, or mineral oil range hydrocarbons were detected at or above the laboratory practical quantitation limit (PQL) using the NWTPH-Dx with Acid/Silica Gel Cleanup method of analysis during this quarterly monitoring event.

3.1.2.4 Extractable Petroleum Hydrocarbons:

No EPH constituents were detected at or above the laboratory PQL during this quarterly monitoring event.

3.1.2.5 Carcinogenic Polynuclear Aromatic Hydrocarbons and Naphthalenes:

No PAHs were detected at or above the laboratory PQL in samples collected during this monitoring event. Naphthalenes were detected in two wells (MFG-I and MFG-4) during this monitoring event. Total naphthalene concentrations were 0.343 μ g/L in MFG-I and I.37 μ g/L in MFG-4. Neither result exceeded the 160 μ g/L MTCA Method A Groundwater Cleanup Level.

3.1.2.6 Benzene, Toluene, Ethylbenzene, Xylenes:

No BTEX components were detected at or above the laboratory PQL in samples collected during this monitoring event.

3.1.3 March 2004 Quarterly Results

3.1.3.1 Field Parameters:

The March quarterly monitoring event was performed on March 4, 2004. Temperature in groundwater ranged from 12.7 °C to 14.2 °C; pH ranged from 6.6 to 6.9 standard units; and specific conductance ranged from 787 μ S to 1,679 μ S.

3.1.3.2 NWTPH-Dx without Acid Silica Gel Cleanup:

Diesel range petroleum hydrocarbon results exceeded MTCA Method A Groundwater Cleanup Levels in MFG-1, MFG-2, MFG-3, and MFG-4. Concentrations of diesel range hydrocarbons ranged from 1,150 μ g/L to 3,130 μ g/L. Heavy oil range hydrocarbon results exceeded MTCA Method A Groundwater Cleanup Levels all four wells with concentrations ranging from 562 μ g/L to 747 μ g/L. Mineral oil range results exceeded MTCA Method A Groundwater Cleanup Levels in MFG-1, MFG-2, MFG-3, and MFG-4. Concentrations of mineral oil range hydrocarbons ranged from 834 μ g/L to 2,100 μ g/L.

3.1.3.3 NWTPH-Dx with Acid Silica Gel Cleanup:

No diesel range petroleum hydrocarbons, heavy oil range hydrocarbons, and mineral oil range hydrocarbons were detected at or above the laboratory practical quantitation limit (PQL) using the NWTPH-Dx with Acid/Silica Gel Cleanup method of analyses during this quarterly monitoring event.

3.1.3.4 Extractable Petroleum Hydrocarbons:

No EPH constituents were detected at or above the laboratory PQL during this quarterly monitoring event.

3.1.3.5 Carcinogenic Polynuclear Aromatic Hydrocarbons (dissolved) and Naphthalenes:

No PAHs were detected at or above the laboratory PQL in samples collected during this monitoring event. Naphthalenes were detected in two wells (MFG-I and MFG-4) during this monitoring event. Total naphthalene concentrations were 0.904 μ g/L in MFG-I and I.36 μ g/L in MFG-4. Neither result exceeded the I60 μ g/L MTCA Method A Groundwater Cleanup Level.

3.1.3.6 Benzene, Toluene, Ethylbenzene, Xylenes:

No BTEX components were detected at or above the laboratory PQL in samples collected during this monitoring event.

3.1.4 June 2004 Quarterly Results

3.1.4.1 Field Parameters:

The June quarterly monitoring event was performed on June 8, 2004. Temperature in groundwater ranged from 18.1°C to 20.3°C; pH ranged from 7.4 to 7.5 standard units; and specific conductance ranged from 751 μ S to 2,060 μ S.

3.1.4.2 NWTPH-Dx without Acid Silica Gel Cleanup:

Diesel range petroleum hydrocarbon results exceeded MTCA Method A Groundwater Cleanup Levels in MFG-1, MFG-2, MFG-3, and MFG-4. Concentrations of diesel range hydrocarbons ranged from 837 μ g/L to 1,270 μ g/L. Heavy oil range hydrocarbon results were not detected at or above laboratory PQLs. Mineral oil range results exceeded MTCA Method A Groundwater Cleanup Levels in MFG-1, MFG-2, MFG-3, and MFG-4. Concentrations of mineral oil range hydrocarbons ranged from 615 μ g/L to 859 μ g/L.

3.1.4.3 NWTPH-Dx with Acid Silica Gel Cleanup:

No diesel range petroleum hydrocarbons, heavy oil range hydrocarbons, and mineral oil range hydrocarbons were detected at or above the laboratory practical quantitation limit (PQL) using the NWTPH-Dx with Acid/Silica Gel Cleanup method during this quarterly monitoring event.

3.1.4.4 Extractable Petroleum Hydrocarbons:

MFG-I had on result for C_{12} to C_{16} Aromatics was detected above the laboratory PQL with a concentration of 58.6 μ g/L. No other EPH fractions were detected at or above the laboratory PQL during this quarterly monitoring event.

3.1.4.5 Carcinogenic Polynuclear Aromatic Hydrocarbons (dissolved) and Naphthalenes:

No PAHs were detected at or above the laboratory PQL in samples collected during this monitoring event. Naphthalenes were detected in one well (MFG-4) during this monitoring event. Total naphthalene concentration in groundwater from MFG-4 was 0.254 μ g/L. The result was well below the 160 μ g/L MTCA Method A Groundwater Cleanup Level.

3.1.4.6 Benzene, Toluene, Ethylbenzene, Xylenes:

Total xylenes in were detected just above the PQL of 1.00 μ g/L with a concentration of 1.08 μ g/L in groundwater from MFG-1. No other BTEX components were detected at or above the laboratory PQL in samples collected during this monitoring event.

3.2 WATER TABLE MONITORING RESULTS

Water levels measured in the monitoring wells during each quarterly monitoring event. September 2003 water table elevations ranged from 7.99 feet NAVD88 to 8.01 feet NAVD88; December 2003 water table elevations ranged from 10.50 feet NAVD88 to 10.54 feet NAVD88, and March 2004 water table elevations ranged from 10.74 feet NAVD88 to 10.79 feet NAVD88. Total water table fluctuation at the Site during 2004 was 2.8 feet with the highest water table observed during March 2004 and the lowest water table in September 2003.

3.3 GROUNDWATER FLOW DIRECTION

Maxim created potentiometric surface maps from data collected during each water level monitoring event to evaluate groundwater flow direction and gradient at the Site (see Figure 6).

Potentiometric surface maps, created from the 2003-2004 water elevation data, indicate that the gradient at the Site is relatively flat and the groundwater flow direction varies during the year.

Groundwater flow direction in September 2003 was to the north, to the west in December 2003 and March 2004, and to the east in June 2004.

Determination of the groundwater flow direction and gradient is difficult due to water table elevation differences of a few hundredths of a foot across the study area and the relatively flat groundwater gradient present at the Site. The average groundwater gradient for the 2003-2004 monitoring year was 0.0009 feet/foot.

4.0 SITE-SPECIFIC RISK ASSESSMENT

Maxim completed a site-specific risk assessment for the Site to evaluate the potential impact of petroleum hydrocarbons present in subsurface soil and groundwater to human and ecological receptors and to evaluate the need for establishment of site-specific cleanup levels. MTCA regulations and guidelines were followed during completion of the risk assessment.

4.1 GROUNDWATER

COPCs in groundwater at the Site include BTEX, naphthalenes, TPH, and carcinogenic PAHs. Groundwater analytical results from the 2003-2004 quarterly monitoring indicated all COPCs were all below MTCA Method A Groundwater Cleanup Levels. Therefore, Maxim excluded these constituents and in groundwater from further risk evaluation.

4.2 SUBSURFACE SOIL

Maxim evaluated both human and ecological receptors during the site-specific risk assessement for subsurface soil at the Site. The COPCs identified for the subsurface soil at the Site include BTEX, naphthalenes, TPH, and carcinogenic PAHs.

Maxim used a tiered approach to evaluate risk of the COPCs. Evaluation first included comparison of COPCs to MTCA Method A Soil Cleanup Levels for both unrestricted land use and industrial properties. The review indicated BTEX and naphthalene concentrations were below MTCA Method A Soil Cleanup Levels for both unrestricted land use and industrial properties. Therefore, these BTEX and naphthalenes were excluded from further consideration during the risk assessment but detected concentrations were used in risk assessment calculations. TPH and PAHs concentrations were above MTCA Method A Soil Cleanup Levels for unrestricted land use and industrial properties. Therefore, these constituents were retained for further risk evaluation.

4.2.1 Human Health Risk Evaluation

The objective of the evaluation is to assess the potential affects of COPCs in environmental media to human receptors. The human health risk evaluation addresses the nature of constituents associated with a site and release of these constituents to environmental media, the human exposure pathways, and the level to which the releases may pose a potential for adverse health effects.

4.2.1.1 Conceptual Site Model

The Site is located in an area of heavy industry in the City of Tacoma. Zoning at the Site and surrounding area is M3, heavy industrial. Current and future land use at the Site will be industrial. The Site is in an area surrounded by industrial zoning and operating industrial facilities. Therefore, the Site fits the MTCA definition of "industrial properties" under WAC 173-340-200.

The Site formerly contained two USTs, one diesel UST and one Bunker-C fuel oil UST. The USTs, piping, and soil surrounding the USTS were removed in 1989. Petroleum hydrocarbons may have been released to subsurface soil at approximately eight feet bgs from the USTs as indicated by the 2002 soil analytical results. Therefore, shallow soils would not have been affected in the UST area. If petroleum hydrocarbons were released from the USTs, petroleum products could have migrated to shallow groundwater. From there, migration in groundwater would be possible in a hydrogeologically downgradient direction. The conceptual model indicates subsurface soil and groundwater are potentially affected media at the Site.

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There is also the potential for volatile constituents in soil to migrate through the soil column to the surface and possible indoor air; however, this pathway would only be relevant if volatile COPCs are identified in soil (MFG 2002c). TPH and PAHs present at the Site are within the heavier EPH carbon ranges and; therefore, have low volatility.

4.2.1.2 Possible Exposure Pathways

Groundwater Pathway and Protection

Groundwater at the Site is not currently used as a source of drinking water. It is unlikely that groundwater at the Site will be used as a source of drinking water in the future since the Site is constructed on a former landfill. According to the Washington Department of Health, there are no wells or wellhead protection areas within a one-mile radius of the Site. However, the contaminated groundwater zone (i.e., shallow groundwater zone) does not meet the rigorous criteria for exclusion as a potable water source for the future (WAC 173-340-720-(2)(b)).

There is no measurable free product in any of the wells on Site. EPHs and PAHs are in the heavier carbon ranges and have low solubilities. They absorb more readily to subsurface materials rather than dissolve readily in groundwater. In addition, there is also a high organic content in the subsurface materials (i.e., grass clippings and other degrading organics). Organic material has a high sorptive capacity. Analytical results indicate that COPCs are not dissolved in groundwater at the Site.

Subsurface soil at MFG-3 (boring MFG-B3) and MFG-4 (boring MFG-B4) contained petroleum hydrocarbons and PAHs above MTCA Method A Soil Cleanup Levels for unrestricted land use and industrial properties. However, groundwater collected from the zone of contamination, and within the smear zone in these wells, indicated no levels of petroleum hydrocarbons or PAHs at or above MTCA Method A Groundwater Cleanup Levels for at least four continuous quarters of groundwater monitoring.

Groundwater analytical results from the Site contained no COPCs at or above MTCA Method A Groundwater Cleanup Levels. Therefore, residual concentrations of COPCs in subsurface soil are not contributing a significant amount of COPCs to groundwater at the Site. Concentrations of COPCs in subsurface soil at the Site are protective of groundwater.

Soil Direct Contact Pathway

The Site is paved with asphalt and there is approximately eight feet of subsurface soil between the asphalt and level at which subsurface soil is affected with COPCs. Residual non-volatile constituents in subsurface soil would not be accessible without excavation activities. Worker activities at the Site do not include any activities where excavation of subsurface soil would be required. Affected subsurface soil at the Site is at approximately eight feet bgs, with the exception of one sample from the 3-3.5-foot depth interval that had a diesel range hydrocarbon concentration of 17 mg/kg. This value is well below MTCA Method A Soil Cleanup Levels. Most construction activities, including installation of foundations and utilities, occur within the upper six feet of soil. However, there is a possibility that a future construction worker could encounter subsurface soil.

Soil Vapor Pathway

The Site is paved with asphalt. The possible historical release of petroleum product was to subsurface soil approximately eight feet bgs. Potential soil vapor pathways include migration of vapors to the land surface and/or along building foundations and into buildings. EPHs and PAHs are COPCs in subsurface

soil for the Site. These constituents have very low volatility and the total concentration of petroleum hydrocarbons are much less than 10,000 mg/kg (WAC 173-340-745). Therefore, the exposure to vapors from these constituents is unlikely.

4.2.1.3 Risk Evaluation

Maxim used the CLARC spreadsheet program (Ecology 2001) to evaluate Method B Soil Cleanup Levels for unrestricted land use and Method C Soil Cleanup Levels for industrial properties following the risk assessment methods and guidelines in WAC 173-340-708.

The human health risk evaluation included calculating the Hazard Index (HI) and Risk by using the CLARC spreadsheets for the following scenarios.

- 1. Using the lowest EPH and PAHs concentrations.
- 2. Using the highest EPH and PAHs concentrations.
- 3. Using the average EPH and PAHs concentrations.

Appendix E contains the data and calculation spreadsheets for these evaluations. Table 5 presents a summary of the HIs and Risk factors generated during this evaluation.

Lowest EPH and PAHs Concentrations

Maxim evaluated the lowest EPH and PAHs concentrations in subsurface soil at the Site to assess the HI and Risk values. Maxim's professional opinion is that using the lowest concentrations found in subsurface soil is not representative of subsurface conditions for the investigation area. However, Maxim continued with this evaluation. The lowest concentrations were found between three samples, two from MFG-B3 (MFG-3) and one from MFG-B4 (MFG-4). The CLARC spreadsheet for MTCA Method C was used in the evaluation. This scenario had acceptable HI and Risk factor values. The HI for this scenario is 1.175x10-2 and the Risk factor is 2.121x10-6. The results indicate that the lowest EPH and PAHs concentrations pose acceptable risk under MTCA Method C for industrial properties. Again, the groundwater monitoring results indicate no significant affects to groundwater from contamination in subsurface soil at the monitoring locations. Maxim's professional opinion is that using the lowest concentrations found in subsurface soil is not representative of subsurface conditions for the investigation area.

Highest EPH and PAHs Concentrations

Maxim evaluated the highest EPH and PAHs concentrations in subsurface soil to assess the HI and Risk values. Maxim's professional opinion is that using the highest concentrations found in subsurface soil is not representative of subsurface conditions for the investigation area. However, Maxim continued with this evaluation. The highest concentrations were found in subsurface soil at approximately eight feet bgs in MFG-B3 (MFG-3). The CLARC spreadsheet for MTCA Method C was used in the evaluation. The HI for this scenario is 1.509x10-2 and the Risk factor is 1.540x10-5. The Site has an acceptable HI value (less than I). The results indicate that the Risk factor in this scenario just exceeds the acceptable MTCA risk factor of 1.5x10-5.

Groundwater samples collected from this well within the smear zone have consistently shown, for at least four consecutive quarters of monitoring, that there are no PAHs in groundwater at this

monitoring location. Therefore, while the highest concentrations measured in subsurface soil at the Site just exceed the risk factor, the concentrations remain protective of groundwater.

Average EPH and PAHs

Maxim's professional opinion is that using the average concentration of EPH and PAHs in subsurface soil is a representative scenario for the nature of subsurface soil at the Site. The CLARC spreadsheet for MTCA Method C was used in the evaluation. Therefore, Maxim evaluated the average EPH and PAHs concentrations in subsurface soil to assess the HI and Risk values for the Site. Maxim averaged the concentrations of the five soil samples collected at the Site. One-half of the PQL was used for samples with undetectable concentrations (no values at or above the PQL). This scenario had acceptable HI and Risk factor values. HI for this scenario is 5.462×10^{-3} and the Risk factor is 3.448×10^{-6} . Therefore, subsurface soil at the Site has an acceptable level of Risk and meet MTCA Method C Soil Cleanup Levels for industrial properties.

4.2.2 Ecological Assessment

According to MTCA regulations (WAC 173-340-7490), a terrestrial ecological risk evaluation is necessary for the Site. An ecological risk assessment was completed for the Site in 2002 using the same data sets (MFG 2002c). The goal of the risk evaluation is the protection of terrestrial ecological receptors from exposure to contaminated soil with the potential to cause significant adverse effects. According to the criteria in WAC 173-340-7491, the Site does not meet any of the exclusion criteria for completion of an ecological evaluation. Therefore, MFG completed a simplified terrestrial ecological risk evaluation according to WAC 173-340-7492 (MFG 2002c). The assessment evaluated potential exposure pathways. There are currently no exposure pathways for terrestrial ecological receptors at the facility. The Site is fenced and paved with asphalt. Exposure is prohibited by the depth of the COPCs in subsurface soil of greater than six feet bgs. The only COPC detected less than six feet bgs is diesel range organic hydrocarbons (DRO) with a concentration of 17 mg/kg. However, the detection is significantly less than the ecological industrial/commercial land use value of 12,000 mg/kg for DRO (MTCA Table 749-2).

The assessment also included contaminant analysis (WAC 173-340-7492 2(c)) which compared chemicals of potential ecological significance for compounds with detections less than 15 feet bgs with concentrations of chemicals in MTCA Table 749-2. Benzo(a)pyrene and DRO are the priority contaminants of ecological concern for Sites qualifying for the simplified terrestrial ecological evaluation procedure (Table 749-2). The maximum detected concentration of benzo(a)pyrene was 4.9 mg/kg in the soil sample collected from MFG-B3 at 7.5 to eight feet bgs. The maximum detected concentration of DRO at eight to 8.5 feet bgs in MFG-B4 was 650 mg/kg. Both values were significantly less than the MTCA industrial site value of 21,000 mg/kg.

Because no hazardous substances listed in MTCA Table 749-2 were detected at concentrations greater than their respective screening value at depths no less than 15 feet bgs, the simplified terrestrial ecological risk evaluation is complete (MFG 2002c). No further action is required to attenuate any potential risk at the Site for ecological receptors.

5.0 SUMMARY AND CONCLUSIONS

5.1 INTRODUCTION

The Site and greater surrounding area is located in a heavy industrial area (zoned M3) in Tacoma, Washington. The Site is located approximately 0.4 miles northeast of the Puyallup River. Commencement Bay of the Puget Sound lies over 1.5 miles north to northwest of the Site.

The majority of the Site is paved, including the area under investigation. Investigations at nearby sites within the Old Tacoma Tideflats landfill identified two groundwater zones. A silt layer, consisting of dredged material from the Tacoma tide flats, separates the two zones. MFG encountered this silt layer during their 2002 subsurface investigation at approximately 13 to 15 feet bgs (MFG, 2002b and MFG, 2002c). Above the silt layer is landfill debris. Landfill debris encountered up to 15 feet bgs during the MFG 2002 subsurface investigation included an abundance of wood, sticks, and other fine organic material. Also present were metal, glass, and wire.

The upper groundwater zone at the Site is located within this fill material and landfill debris. The upper groundwater zone is being monitored as part of this investigation. Groundwater monitoring results by MFG in 2002 indicated the subsurface is characterized by strongly reducing conditions with oxidation-reduction potential values ranging from -81 mV to -363 mV.

5.2 SUBSURFACE SOIL RESULTS

Subsurface landfill debris and fill material samples collected during the February 2002 site investigation drilling indicated heavy oil range TPH (3,000 mg/kg) exceeded MTCA Method A Soil Cleanup Levels for unrestricted and industrial properties in boring MFG-B3 (well MFG-3; MFG, 2002). Total carcinogenic PAHs (22.5 mg/kg and 2.3 mg/kg) also exceeded MTCA Method A Soil Cleanup Levels for unrestricted and industrial properties in boring MFG-B3 (well MFG-3) and MFG-B4 (MFG-4) in the subsurface landfill debris and fill material sample.

5.3 HYDROGEOLOGY

Groundwater elevations at the Site during 2003-2004 varied from a low of approximately 8.0 feet NAVD88 to a high of approximately 10.8 feet NAVD88. The potentiometric surface at the Site is relatively flat and the groundwater flow direction varies during the year. The groundwater gradient at the Site averaged 0.0009 feet/foot for the 2003-2004 monitoring year.

5.4 GROUNDWATER RESULTS

Groundwater analytical results from 2003-2004 indicate diesel range, heavy oil range, and mineral oil range TPH were detected at levels above MTCA Method A Groundwater Cleanup Levels. However, diesel range, heavy oil range, and mineral oil range TPH results, analytes using the acid silica gel cleanup method indicated no levels of hydrocarbons at or above the laboratory PQLs. In addition, of the four quarterly monitoring events, groundwater from two wells (MFG-I) had detectable levels of the EPH C₁₀-C₁₂ Aromatics and C₁₂-C₁₆ Aromatics with concentrations of 63.3 µg/L and 58.6 µg/L, respectively. No other wells had EPHs at or above the laboratory PQL during the monitoring period.

Maxim sampled for the dissolved fraction of PAHs in groundwater during 2003-2004. Results indicated no detectable levels of PAHs over the 2003-2004 monitoring period.

Wells MFG-I and MFG-4 had detectable levels of total naphthalenes, ranging from 0.254 μ g/L to 4.63 μ g/L, well below the MTCA Method A Groundwater Cleanup Level of 160 μ g/L. No other wells had levels of naphthalenes above the laboratory PQL. There are no free-phase petroleum hydrocarbons in groundwater at the Site.

Total xylenes were detected in MFG-I during the June 2004 monitoring event at a concentration of 1.08 μ g/L, just above the laboratory PQL, and well below the 1,000 μ g/L MTCA Method A Groundwater Cleanup Level. No other BTEX components were detected at or above the laboratory PQL in groundwater at the Site during the 2003-2004 monitoring period.

Finally, the results from the 2003-2004 monitoring year consisted of four consecutive quarters with no constituents in groundwater detected at or above MTCA Method A Groundwater Cleanup Levels.

5.5 NATURE AND EXTENT OF CONTAMINATION

Figure 3 presents a summary of analytical results above MTCA Method A Soil Cleanup Levels for unrestricted land use and industrial properties for subsurface soil at the Site. Figure 4 presents a summary analytical results for each well for the 2003-2004 monitoring year.

5.5.1 Petroleum Hydrocarbons

5.5.1.1 Soil

Petroleum hydrocarbons are a COPC in soil at the Site. Subsurface soil sample results from February 2002 by MFG (2002a) indicate heavy oil range petroleum hydrocarbons in soil at MFG-3 exceeded MTCA Method A Soil Cleanup Levels for both unrestricted and industrial properties.

While the acid/silica gel cleanup method was not used on the subsurface soil samples, some of the petroleum hydrocarbons detected in 2002 likely contain biogenic hydrocarbons and non-petroleum hydrocarbons that probably contributed to the TPH concentrations. This is supported with the concentrations of EPH in subsurface soil. EPH results for the same samples contain much lower concentrations of EPH constituents and total EPH in the samples than the concentrations for diesel range, mineral oil range, and heavy oil-range petroleum hydrocarbons. The EPHs detected are the heavier hydrocarbon fraction.

The heavier fractions have low solubilities and are relatively immobile in groundwater. In addition, the heavier fractions have low volatility, producing little or no vapors. The acid/silica gel cleanup results for petreoleum hydrocarbon and EPH results from 2003-2004 indicated that groundwater has not been significantly affected by residual petroleum hydrocarbons in subsurface soil and landfill material at the Site. In addition, the human health and ecological risk evaluation indicated petroleum hydrocarbons in subsurface soil do not affect groundwater at the Site and do not pose a threat to human health or ecological receptors.

5.5.1.2 Groundwater

Results from method NWTPH-Dx without Acid Silica Gel Cleanup suggest that diesel range TPH, heavy oil range TPH, and mineral oil range TPH exceeded MTCA Method A Groundwater Cleanup Levels. However, sample results analyzed by the same method but with acid silica gel cleanup indicate there are no petroleum hydrocarbons in groundwater at or above the laboratory PQL.

Because of the nature of subsurface materials at the Site and the possible contribution of additional biogenic hydrocarbons from plant operations, hydrocarbons in subsurface soil and groundwater are likely the result of polar biogenic and non-petroleum hydrocarbons, rather than petroleum hydrocarbons. This conclusion is also supported by the EPH and naphthalene results. EPH and naphthalene results indicate there may be limited concentrations of residual petroleum hydrocarbons sorbed to subsurface materials and/or trapped in pore spaces that may have originated from the former USTs. In addition, field personnel sampling the wells at the Site have observed no free product or sheen in any of the wells. The results indicate these residual petroleum hydrocarbons do not significantly affect groundwater at the Site.

The human health and ecological risk evaluation indicated petroleum hydrocarbons in subsurface soil do not significantly affect groundwater at the Site and do not pose a threat to human health or ecological receptors.

5.5.2 PAHs

5.5.2.1 Soil

PAHs in subsurface soil are a COPC for the Site. PAHs were detected in subsurface soil at MFG-3 (22.5 mg/kg) and MFG-4 (2.3 mg/kg) at concentrations above MTCA Method A Soil Cleanup Level for unrestricted use and industrial properties. PAHs have low volatility. PAHs have low solubilities and octanol-water partition coefficients. Therefore, they sorb more readily to subsurface materials (soil, mineral surfaces, and organic matter), than dissolve into groundwater.

The human health and ecological risk evaluation indicated PAHs in subsurface soil do not affect groundwater at the Site and do not pose a threat to human health or ecological receptors.

5.5.2.2 Groundwater

No PAHs were detected at or above the laboratory PQL in groundwater samples collected in quarterly events during the 2003-2004 monitoring year. PAHs have low solubilities and are relatively immobile in groundwater. Because of their low solubilities and octanol-water partition coefficients, the carcinogenic PAHs detected during the September 2002 monitoring event are believed to be a result of fine-grained landfill particles entrained in the samples, rather than carcinogenic PAHs in solution in groundwater. The 2003-2004 results indicate PAHs do not affect groundwater at the Site.

The human health and ecological risk evaluation indicated PAHs in subsurface soil do not affect groundwater at the Site and do not pose a threat to human health or ecological receptors.

5.5.3 Naphthalenes

Results from 2003-2004 indicate concentrations in MFG-1 and MFG-4 were well below MTCA Method A Groundwater Cleanup Level. There were no naphthalenes detected at or above the laboratory PQLs in samples collected from MFG-2 and MFG-3. Naphthalenes present in soil and groundwater at the Site are limited. They are likely present as a result of limited residual petroleum hydrocarbons remaining in pore spaces and/or sorbed to subsurface soil and organic matter.

The human health and ecological risk evaluation indicated naphthalenes in subsurface soil and groundwater soil do not significantly affect groundwater at the Site and do not pose a threat to human health or ecological receptors.

5.5.4 BTEX

Results from 2003-2004 indicated no concentrations of BTEX components at or above the laboratory PQLs. The human health and ecological risk evaluation indicated BTEX in groundwater does not affect groundwater at the Site and does not pose a threat to human health or ecological receptors.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Maxim recommends no further action and closure of this LUSTs Site by TPCHD and Ecology.

- 1. The area is zoned heavy industrial and will likely continue to be used for industrial purposes in the future. Because the Site and vicinity is located in a heavy industrial area and because it was constructed on top of a landfill, it is unlikely that water at the Site and in the vicinity of the Site will not be used as a source of potable water in the future.
- 2. The diesel and Bunker-C USTs and associated piping were removed in 1989 along with the bulk of soil/landfill materials surrounding the tanks, reducing risk to human health and the environment.
- 3. Results from the 2003-2004 monitoring year indicate four consecutive quarters of groundwater monitoring with no constituents detected at or above MTCA Method A Groundwater Cleanup Levels.
- 4. Petroleum hydrocarbons, naphthalenes, and PAHs present in subsurface materials and that may have originated from the former USTs are likely as residuals adsorbed to subsurface materials and/or trapped within pore spaces. Based on the 2003-2004 groundwater results, these constituents are not contributing measurable concentrations to groundwater at the Site. This is likely because these constituents are relatively immobile in groundwater and have limited volatility.
- 5. There has been no measurable free phase petroleum hydrocarbons observed at the Site.
- 6. The site-specific risk assessment showed that the average levels of residual petroleum hydrocarbons present in subsurface fill/landfill materials and groundwater do not pose a risk to human and ecological receptors.

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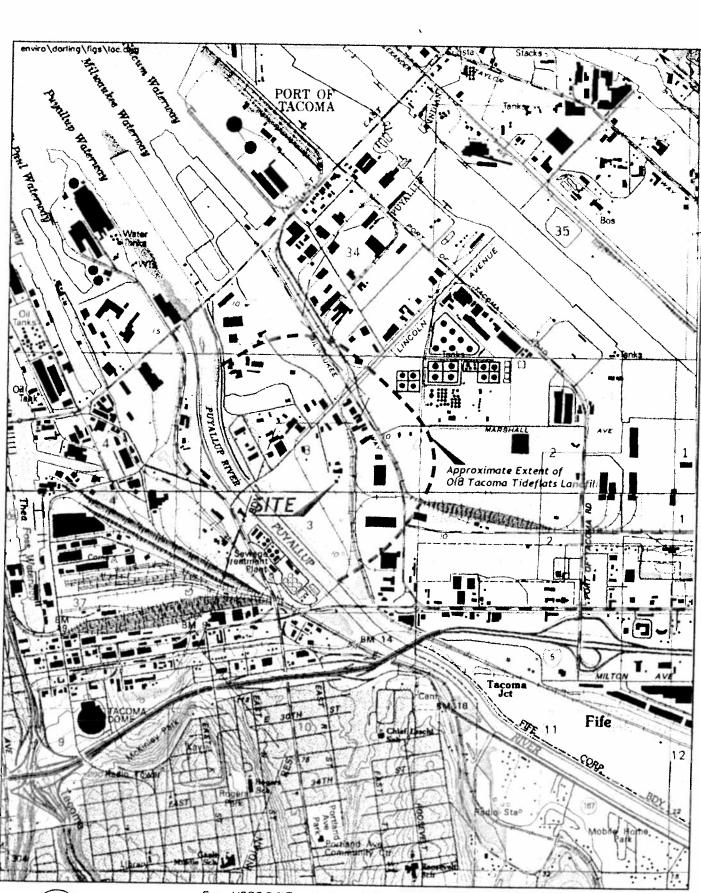
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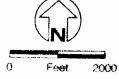
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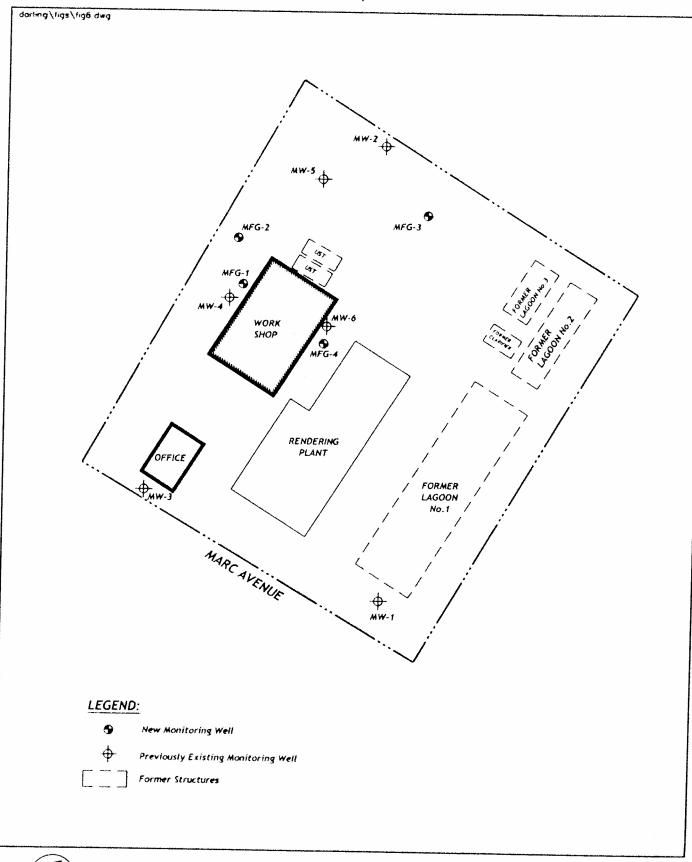




From USGS 7.5' Tacoma North & Tacoma South Quads

June 2004

Location Map Darling International, Inc. LUST Site 2041 Marc Avenue Tacoma, Washington FIGURE 1

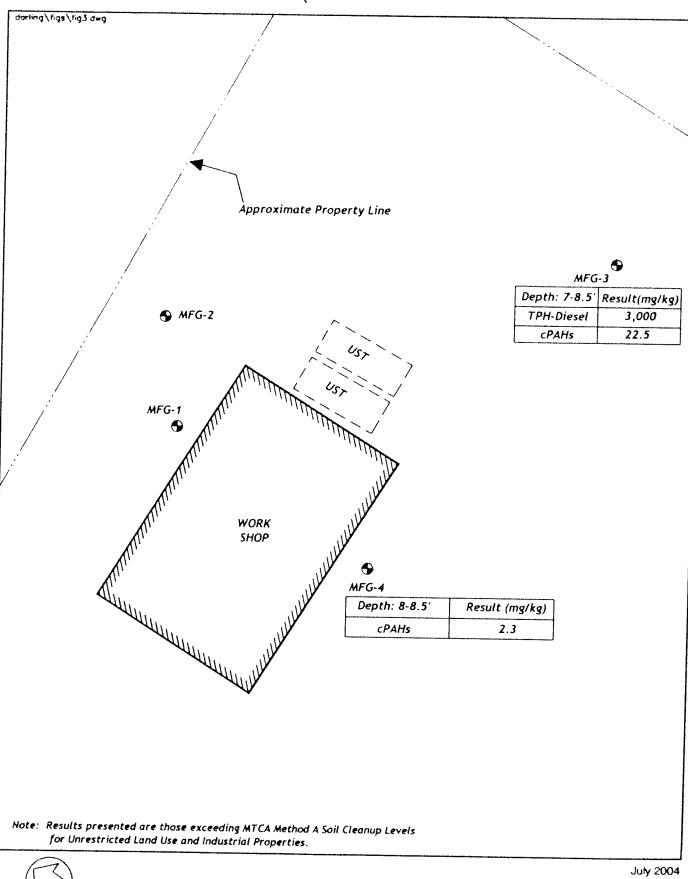


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July 2004

Site Map Darling International, Inc. LUST Site 2041 Marc Avenue Tacoma, Washington FIGURE 2





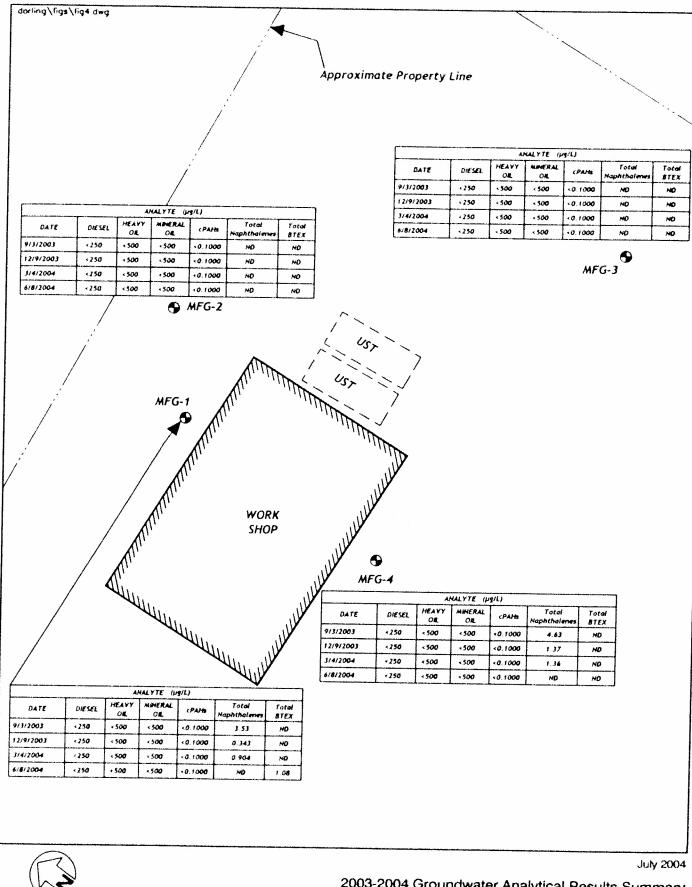


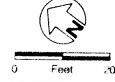
February 2002 Subsurface Soil Analytical Results

Darling International, Inc. LUST Site

2041 Marc Avenue Tacoma, Washington

FIGURE 3





Monitoring Well

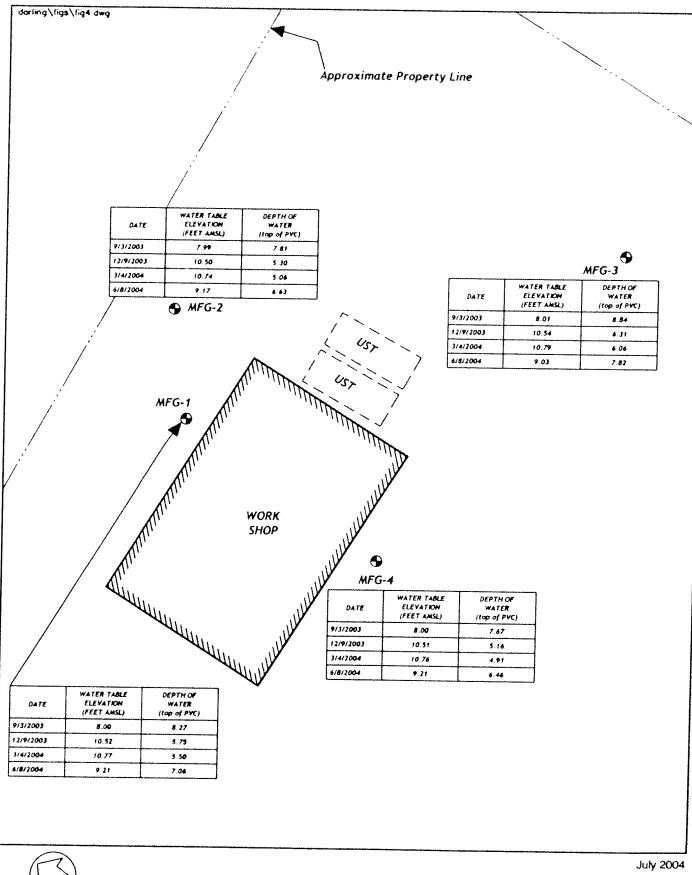
Former Structures

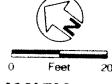
2003-2004 Groundwater Analytical Results Summary Darling International, Inc. LUST Site

2041 Marc Avenue

Tacoma, Washington FIGURE 4

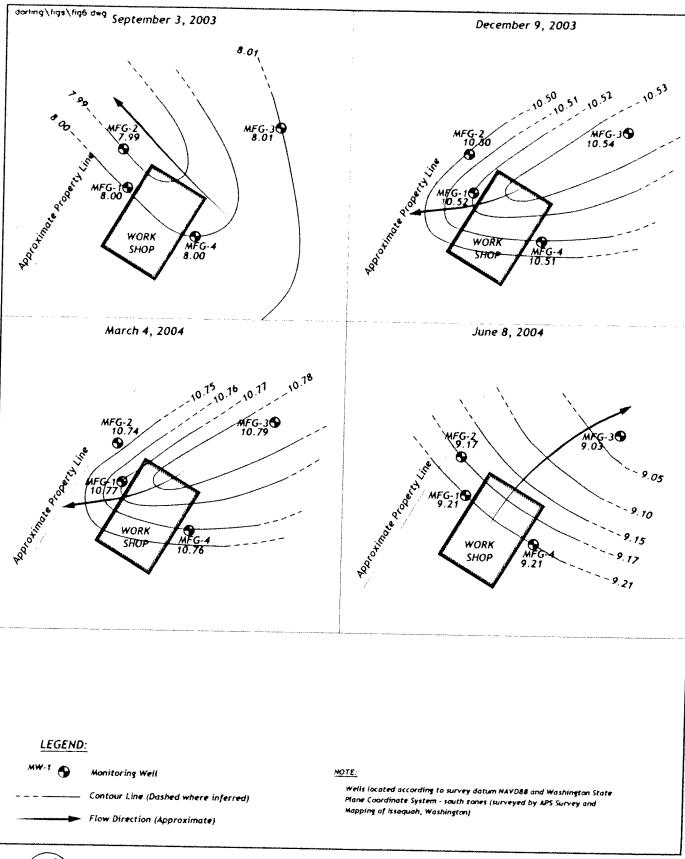
No individual constituents detected at or above laboratory PQL Constituent was not detected at or above laboratory PQL







2003-2004 Water Table Data
Darling International, Inc. LUST Site
2041 Marc Avenue
Tacoma, Washington
FIGURE 5





MAXIM 4570484

July 2004

2003-2004 Potentiometric Surface Maps Darling International, Inc. LUST Site 2041 Marc Avenue Tacoma, Washington FIGURE 6

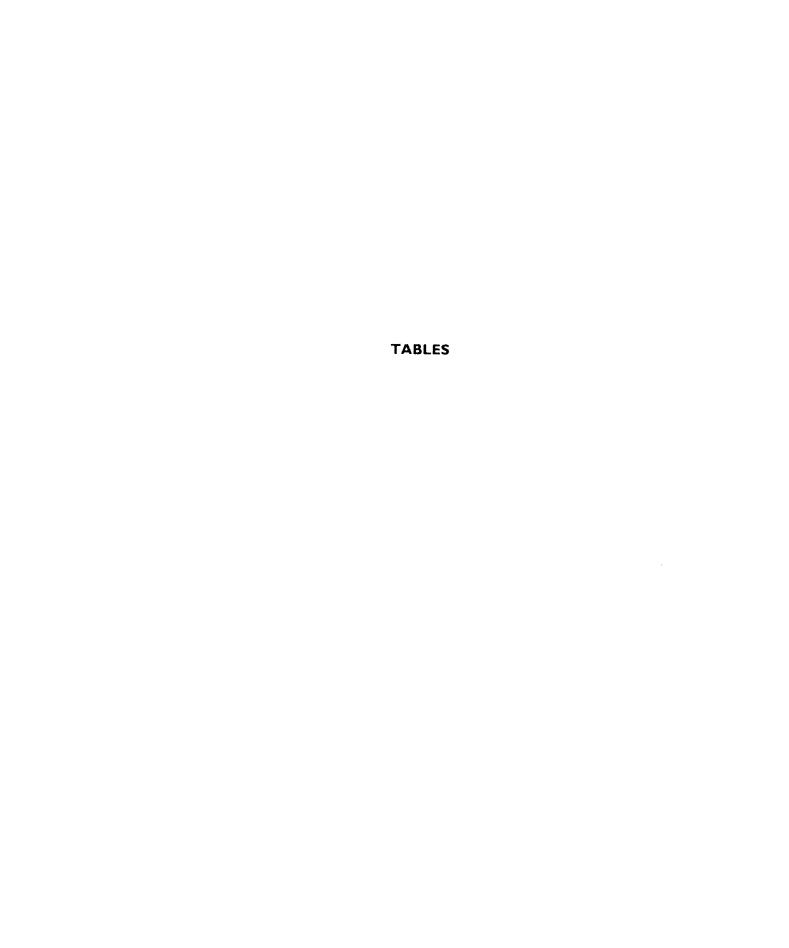


TABLE 1

Well Completion Information
Darling International, Inc.
2041 Marc Avenue, Tacoma, Washington

	West identification													
M.F.G.		WA State Soul Boring Unique Name	Date Well Completed	Well	Well Dia. (inch.)	PVC Screen Slot Size	Total Depth Total Depth of Borehole of Well (ft bgs) (ft bgs)	Total Depth of Well (ft bgs)	Screened interval (ft bgs)	12Measunng Point Elevation (ff AMSL)	³ Northing Coordinate	³ Easting Coordinate	² Lattude	Longitude
MFG1	AGP054	MEC D4	1											
		5	700767	Sch. 40 PVC	7	0000	1 2 2 4							
MFG-2	AGP055	MFG-B2	2/5/2000	0, 40,0	T		(0.0	15.2	5.1 - 14.4	16.27	704986 37	1467047 40	7000	
, 537		1.	_	SCH. 40 PVC	7	0.010	7	40.43		T	1000	110/04/.48	4/ 15UZ.8585	110/04/.48 4/ 15/02/8585 122/24/22.4035
3	ACH056	MFG-B3	2/5/2002	Sch 40 DVC	,			27.21	4.8/ - 9.3	15.80	705001.71	1167066 46	1167066 46 47°15'13 1144 1325'130	10000
¥FO.	AGP057	MC/DA	۰		7	0.010	16.5	15.26	5.89 - 14.43	10.04			4	122 44 22 1339
		200	2002/9/2	Sch. 40 PVC	^	0.00		†	2	0.60	704924.7	1167130.23	1167130.23 47°15'02 3697	422000 4000
					-	0.0.0	0.4.0	15.4	5.24 - 14.57	15.67	70,400,07			0701 . 1247 77
Sch * S	Sch. * Schedule									13.07	/04933.00	1167044.13	1167044.13 47 1502.4376 122 24 22.4336	122,24,22,4336
i	•													

Sch. * Schedule PVC * Polyvinyichloride

A Forest

bgs = below ground surface

AMSL = Above Mean Sea Level (NAVD88 survey datum)

Measuring Point = Top of PVC casing, north side

Survey datum = NAVD88

Washington State Plane Coordinate System - South Zone

TABLE 2 February 2002 Subsurface Boring Analytical Results

Darling International, Inc. 2041 Marc Avenue, Tacoma, Washington

Boring Location	MTCA Method A	MFG-B2		AFG-B3	N	IFG-84
Sample Depth Interval (ft bgs)	Soil Cleanup Levels	10.5-11'	3-3.5'	7-8.5	3-3.5'	8-8.5'
Date Sample Collected		2/5/2002	2/5/2002	2/5/2002	2/8/2002	2/6/200
Dry weight (%)		49.43	94.6	49.03	91.9	49.53
Total Petroleum Hydroca	rbons (mg/kg)					
Diesel Range	2,000	37	<10	<820	17	650
Heavy Oil Range	2,000	120	<20	3,0001	43	1,300
Mineral Oil Range	4,000	180	<25	3,200	59	2,200
Extractable Petroleum Hy	drocarbons (mg/kg)					
C8-C10 Aliphatics		<10.1	<5	<10.2	<5	<10.1
C10-C12 Aliphatics		<10.1	<5	<10.2	<5	23.2
C12-C16 Aliphatics		<10.1	<5	<10.2	<5	25.9
C16-C21 Aliphatics		<10.1	<5	22.9	<5	100
C21-C34 Aliphatics	***	40.3	<5	176	8.48	369
C10-C12 Aromatics	et-truip	<10.1	<5	<10.2	<5	
C12-C16 Aromatics		<10.1	<5	<10.2	<5	<10.1
C16-C21 Aromatics		<10.1	<5	71.6	<5	1
C21-C34 Aromatics		<10.1	<5	207	<5	39.6
Total EPH		40.3	<5	477	8.48	718
Carcinogenic Polynuclear	Aromatic Hydrocarb	ons (mg/kg)			0.40	/ / / /
Benzo(a)anthracene		<0.020	<0.010	4.2	<0.010	T 0.02
Benzo(a)pyrene	0.1 (2 ²)	<0.020	<0.010	4.9	<0.010	0.27
Benzo(b)fluoranthene		<0.020	<0.010	4.4	0.01	0.51
Benzo(k)fluoranthene	***	<0.020	<0.010	1.3	<0.010	0.64
Chrysene		<0.020	<0.010	4.4	<0.010	0.18
Dibenz(a,h)anthracene		<0.020	<0.010	0.58	<0.010	0.34
ideno(1,2,3-cd)pyrene		<0.020	<0.010	2.7	<0.010	<0.020
Total Carcinogenic PAHs	0.1 (22)	NA	NA	22.5	0.010	0.39 2.3 ⁷
Naphthalenes (mg/kg)					0.01	2.3
1-Methylnaphthalene		<0.020	<0.010	0.17	-0.040	
2-Methylnaphthalene	_	<0.020	<0.010		<0.010	0.084
Naphthalene		<0.020	<0.010	0.23	<0.010	0.08
Total Naphthalenes	5	NA	NA NA	0.30 0.70	<0.010	0.047
BTEX (mg/kg)				0.70	NA	0.21
Benzene	0.03	<0.0607	<0.0300	-0.0010 T		
oluene	7	<0.101		<0.0612	<0.0300	<0.0606
thylbenzene	8	<0.101	<0.0500	<0.102	<0.0500	<0.101
(ylenes (total)	9	<0.202	<0.0500	<0.102	<0.0500	<0.101
gs = below ground surface		V.202 L	\0.100	<0.204	<0.100	<0.202

NA = Not Applicable.

Bold = Result is above method detection limit but not above MTCA Method A Soil Cleanup Levels

Bold *=Result is above MTCA Method A Solf Cleanup Level for unrestricted land use and industrial properties.

⁴MTCA Method A Soil Cleanup Level for Industrial Properties

Low percent dry weight (high moisture content) may affect analytical results.

TABLE 3 GROUNDWATER ANALYTICAL RESULTS

2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method Groundwater					MFG-1			
Date Sample Collected	Cleanup Level	2/13/200	2 0/19/20	02 9/26/200	12 / 12/10			· · · · · · · · · · · · · · · · · · ·	
Water Yable Elevation (it amai)		10.97	9.18			02 9/3/20	03 12/9/20	03 3/4/200	4 6/8/20
Field Parameters	· · · · · · · · · · · · · · · · · · ·	10.00	3.10	7.94	8.81	8.00	10.52	10.77	9 2
Temperature (*C)		+	T						
pH (standard units)		12.8	18.7	19.4	16.4	16.9	15.3	14.2	17.7
Specific Conductivity (uS)		6,1	6.0	5.9	5.9	6.7	6.7	6.7	7.4
Oxidation-Reduction Potential (mV)		1,043	1,311	1,133	1,081	1,830	1,284	787	751
Total Petroleum Hydrocarbons (ug/L) with	out Acid/Silice Gel	- 022	-87	-87	-81	NM	NM	NM	NM
Clean-up									
Diesel Range	500	3,100	4,160	3,130	1,350	2,870	T		
Heavy Oil Range	500	730	763	612	514		1,350	3,120	1,270
Mineral Off Range	500	3,300	2,390	1,970	948	<500	<0.500		<500
Total Petroleum Hydrocarbons (ug/L) with Clean-up	Acid/Silics Gel					2,300	976	2,100	852
Diesel Range	500	 	Υ	т				*****	
Heavy Off Range	500	 	 -	 _	 -	<250	<250	<250	<250
Mineral Oil Range	500	 	 	 	 _	<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L		 -				<500	<500	<500	<500
C8-C10 Aliphatics		 							
C10-C12 Aliphatics	 	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Allphatics		<100	<100	<50	<50	<50	<50	<50	<50
C16-C21 Aliphatics		<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aliphatics	 	<100	<100	<50	<50	<50	<50	<50	
C10-C12 Aromatics	-	126	<100	<50	<50	<50	<50	<50	<50
		<100	<100	<50	<50	63.3	<50		<50
C12-C16 Aromatics		<100	<100	<50	82.1	<50	<50	<50	<50
C16-C21 Aromatics		<100	<100	<50	<50	<50		<50	58.6
C21-C34 Aromatics		<100	<100	<50	<50	<50	<50	<50	<50
Total EPH		126	NA	NA	82.1	63.3	<50	<50	<50
arcinogenic Polynuclear Aromatic Hydroca	rbons (ug/L)					63.3	NA NA	NA	58.6
Benzo(a)anthracene		<0.100	<0.100	<0.100	<0.100		T	Ţ	
Benzo(a)pyrene	0.1	<0.100	<0.100	<0.100		<0.100	<0.100	<0.100	<0.100
Benzo(b)fluoranthene		<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(k)fluoranthene		<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Chrysene		<0.100	<0.100		<0.100	<0.100	<0.100	<0.100	<0.100
Dibenz(a,h)anthracene	_	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
deno(1,2,3-cd)pyrene		<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Total Cardinogenic PAHs	0.1	NA NA	₹0.100 NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
phtheienes (ug/L)			147	NA	NA	NA	NA	NA	NA
-Methylnophthalene		10	- T						
-Methylnaphthalene		1.0	2.5	1.08	0.738	3.04	0.343	0.904	<0.100
aphthalene		<0.10	0.418	<0.10	<0.10	0.170	<0.100	<0.100	<0.100
otal Naphthalenes	160		0.277	<0.10	<0.10	0.321	<0.100	<0.100	<0.100
X (ug/L)		1.0	3.19	1.08	0.738	3.53	0.343	0.964	NA NA
enzene									
Okiene	5	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500	<0.500	-0.505
hylbenzene	1,000	<0.5	<0.5	<0.500	<2.00	<0.500	<0.500		<0.500
fenes (total)	700	<0.5	<0.5	<0.500	<1.00	<0.500	<0.500	<0.500	<0.500
s = below ground surface	1,000	<1.00	1.00	<1.00	<1.50		~U.5UU	<0.500	<0.500

Bold#At or Above MTCA Method A Groundwater Cleenup Level

NM = Not Measured

NA = Not Applicable.

- Not Analyzed

2003-2004 PAHe results are for dissolved PAHs

< =analyte was not detected at or above the method reporting limit

TABLE 3 GROUNDWATER ANALYTICAL RESULTS

2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method Groundwater	·				MFG-2			
Date Sample Collected	Cleanup Level	2/13/200	2 6/19/20	02 9/26/200	2 12/19/2	000 0===			
Water Table Elevation (ft amel)		10.98	9.17	7.94				003 3/4/200	4 6/8/20
Field Parameters				1.54	5.80	7 99	10.5	0 10.74	9.17
Temperature (°C)		13.5	T						
pH (standard units)			19.8	21.6	18.2	20.0	16.5	13.3	20.3
Specific Conductivity (uS)		6.2	6.1	5.9	6.0	6.5	6.6	6.7	7.5
Oxidation-Reduction Potential (mV)		992	1,181	982	1,111		1,43	815	1,200
Total Petroleum Hydrocarbons (ug/L) wit Clean-up	hout Acid/Silica Gal		1 33	.90	-96	NM	NM	NM	NM
Diesel Range					***************************************				
Heavy Oil Range	500	2,300	2,920	1,710	1,630	2,050	1,430	2,000	T
Mineral Oil Range	500	<500	982	634	620	1,110	897		837
Total Petroleum Hydrocarbons (ug/L) witi	500	2,500	1,750	1,120	1,160	1,790	1,130	1,390	<500
Clean-up	· Moraldinga Gee						.,,,,,	1,300	815
Diesel Range	500	T	Γ	T	т				
Heavy Oil Range	500	 	 	 -	+	<250	<250	<250	<250
Mineral Oil Range	500	 	 -	+-=-	 	<500	<500	<500	<500
xtractable Petroleum Hydrocarbons (ug/	U				<u> </u>	<500	<500	<500	<500
C8-C10 Aliphatics		4400							
C10-C12 Allphatics		<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aliphatics		<100	<100	<50	<50	<50	<50	<50	<50
C18-C21 Aliphatics		<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Allphatics		<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aromatics		<100	<100	<50	<50	<50	<50	<50	₹50
C12-C16 Aromatics		<100	<100	<50	<50	<50	<50	<50	<50
C16-C21 Aromatics		<100	<100	<50	79.9	<50	<50	<50	<50
C21-C34 Aromatics		<100	<100	<50	<50	<50	<50	<50	<50
Total EPH		<100	<100	<50	<50	<50	<50	<50	<50
rcinogenic Polynuclear Aromatic Hydroc		NA	NA	<50	79.9	NA	NA	NA.	NA NA
Benzo(a)anthracene							***************************************	<u> </u>	
Benzo(a)pyrene	+	<0.100	<0.100	0.100	<0.100	<0.100	<0.100	<0.100	10.100
lenzo(b)fluoranthene	0.1	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
enzo(k)fluoranthene	 	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
hrysene		<0.100	<0.100	<0.100	<0.100	<0.100	<0.100		<0.100
(benz(a,h)enthracene	 	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
eno(1,2,3-cd)pyrene	 	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
otal Carcinogenic PAHs	 	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
hthalenes (ug/L)	0.1	NA	NA	0.100	NA	NA	NA NA	<0.100	<0.100
Methylmaphthalene						<u> </u>	,,,,,	NA	NA
Methylnaphthalene		0.330	0.218	0.120	<0.10	<0.10	60 400		
phthalene		0.21	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
(al Naphthelenes		<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
(ug/L)	160	0.54	0.218	0.12	NA NA	NA NA	<0.100	<0.100	<0.100
nzane						1644	NA	NA	NA
uene	5	<0.5	<0.5	<0.5	<0.500	-0.55- T			
	1,000	<0.5	<0.5	<0.5	<2.00	<0.500	<0.500	<0.500	<0.500
ythenzene	700	1	<0.5	<0.5	-	<0.500	<0.500	<0.500	<0.500
Bries (total)	1,000	100 <		0.0	<1.00	< 0.500	<0.500	<0.500	<0 500

< =analyte was not detected at or above the method reporting firr

NM = Not Messured

NA = Not Applicable.

⁻ Not Analyzed

²⁰⁰³⁻²⁰⁰⁴ PAHs results are for dissolved PAHs

TABLE 3 **GROUNDWATER ANALYTICAL RESULTS**

2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method A Groundwater				M	FG-3			
Date Sample Collected	Cleanup Lavels	2/13/2002	6/19/2002	9/26/2002	12/19/200	2 9/3/2003	12/9/2003	2/4 5000	T
Water Table Elevation (ft arms)		10.96	9.19	7.96	8.81	8.01			6/8/20
Field Parameters						3.01	10.54	10.79	9.03
Temperature (*C)	_	13.7	23.5	20.8	7	1	· · · · · · · · · · · · · · · · · · ·		
pH (standard units)	_	6.6	6.4	5.1	15.3	20.2	16.0	12.7	19.1
Specific Conductivity (uS)		689	879		6.2	6.7	6.8	6.9	7.5
Oxidation-Reduction Potential (mV)		-363	-159	-122	789	1,184 NM	1,312	1,036	1,26
Total Petroleum Hydrocarbons (ug/L) with Clean-up	out Acid/Silics Gel					I NW	NM	NM	NM
Diesei Range		}	1						
Heavy Oil Range	500	6,100	1,760	1,270	1,670	1,090	1,290	1,150	1,094
Mineral Oil Range	500	1,100	761	636	936	<500	1,040	562	<500
Total Petroleum Hydrocarbons (ug/L) with	A circle (State Co.)	7,300	1,150	904	1,280	976	1,080	834	859
Clean-up	ACIO/SINCE GOI								000
Diesel Range	500			Τ	T				
Heavy Oil Range	500			 -	 	<250	<250	<250	<250
Mineral Oil Range	500					<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L				<u> </u>	<u> </u>	<500	<500	<500	<500
C8-C10 Aliphatics	1	-40-			T	·	·		
C10-C12 Aliphatics		<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Allphatics	-	<100	<100	<50	<50	<50	<50	<50	<50
C16-C21 Allphatics	 	<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aliphatics		<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aromatics	+	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aromatics		<100	<100	<50	<50	<50	<50	<50	<50
C16-C21 Aromatics		<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Arometics		<100	<100	<50	<50	<50	<50	<50	<50
Total EPH		<100	<100	<50	<50	<50	<50	<50	- \50
		NA NA	NA	NA	NA	NA	NA	NA NA	NA
arcinogenic Polynuclear Aromatic Hydroci	erbons (ug/L)						<u> </u>		
Benzo(a)enthracene	 	<0.200	<0.100	0.182	<0.100	<0.100	<0.100	<0.100	
Benzo(a)pyrene	0.1	<0.200	<0.100	0.182	<0.100	<0.100	<0.100		<0.100
Benzo(b)fluoranthene		<0.200	<0.100	0.121	<0.100	<0.100		<0.100	<0.100
Benzo(k)fluoranthene		<0.200	<0.100	0.162	<0.100	<0.100	<0.100	<0.100	<0.100
Chrysene		<0.200	<0.100	0.162	<0.100	<0.100	<0.100	<0.100	<0.100
Dibenz(s,h)anthracene		<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
deno(1,2,3-cd)pyrene	<u> </u>	<0.200	<0.100	0.101	<0.100		<0.100	<0.100	<0.100
Total Carcinogenic PAHa	0.1	NA	NA	0.910	NA NA	<0.100 NA	<0.100	<0.100	<0.100
phthalenes (ug/L)						- MA	NA	NA	NA
1-Methylnaphthalane	_	0.39	0.24	<0.10	-0 to T			· · · · · · · · · · · · · · · · · · ·	
-Methylnaphthalene		<0.20	0.12		<0.10	<0.10	<0.100	<0.100	<0.100
faphthalene		<0.20	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
Total Naphthalanes	180	0.39	0.36	0.303	<0.10	<0.10	<0.100	<0.100	<0.100
EX (ug/L)				0.303	NA	NA	NA	NA	NA
enzene	5	n.			γ				
okuene	1,000	<0.5	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500	<0.500
thythenzene		0.613	<0.5	<0.5	<2.00	<0.500	<0.500	<0.500	<0.500
ylenes (total)	700	<0.5	<0.5	<0.5	<1.00	<0.500	<0.500		<0.500
ps = below ground surface	1,000	1.08	<1.00	<1.00	<1.50	<1.00	<1.00	<1.00	<1.00

Bold=At or Above MTCA Method A Groundwater Cleanup Level

NM = Not Measured

NA = Not Applicable.

-- Not Analyzed

2003-2004 PAHs results are for dissolved PAHs

< =analyte was not detected at or above the method reporting litr

TABLE 3 **GROUNDWATER ANALYTICAL RESULTS**

2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method A Groundwater				м	FG-4			
Date Sample Collected	Cleanup Levels	2/13/2002	6/19/2002	9/26/2002	12/19/200:	2 9/3/2003	12/9/2003	1 24 222	T
Water Table Elevation (ft arnsi)		10.97	9.18	7.96	8.61	5.00			6/8/20
Field Parameters						0.00	10.51	10.76	9.21
Temperature (*C)		15.5	23.9	T	T			T	·
pH (standard units)				21.2	16.8	19.7	15.5	13.1	18.1
Specific Conductivity (uS)		6.2	6.1	5.9	6.0	6.7	8.5	6.6	7.6
Oxidation-Reduction Potential (mV)		1,028	1,362	1,235	1,182	2,120	1,635	1,679	2,06
Total Petroleum Hydrocarbons (ug/L) with	out Acid/Silica Gel			1 20	-94	NM	NM.	NM	NM
Clean-up			T	_					
Diesel Range	500	4,700	4,770	4,480	3,460	3,770	2,220	3,130	1,17
Heavy Oil Range	500	1,000	1,590	1,420	1,190	1,720	1,040	747	T
Mineral Oil Range	500	5,100	2,580	2,970	2,450	3,260	1,680	2,100	<500 789
fotal Petroleum Hydrocarbons (ug/L) with Clean-up	Acid/Silica Gel						1,000	1 2,100	/ / 69
Diesel Range	500			T	T	T	T	1	
Heavy Olf Range	500			 	 -	<250	<250	<250	<250
Mineral Oil Range	500				 	<500	<500	<500	<500
xtractable Petroleum Hydrocarbons (ug/L)			<u> </u>		<500	<500	<500	<500
C8-C10 Allphatics		-100 T	-400	T	T	T			
C10-C12 Aliphatics		<100	<100	<50	<50	<50	<50	<50	<59.5
C12-C16 Aliphatics		<100	<100	<50	<50	<50	<50	<50	<59.5
C16-C21 Aliphates		<100	<100	<50	<50	<50	<50	<50	<59.5
C21-C34 Allphatics	 	<100	<100	<50	<50	<50	<50	<50	<59.5
C10-C12 Aromatics	+	148	<100	95.9	91.4	<50	<50	<50	<59.5
C12-C16 Arometics	+	<100	<100	<50	50.6	<50	<50	<50	<59.5
C18-C21 Aromatics	 	<100	<100	<50	<50	<50	<50	<50	<59.5
C21-C34 Aromatics		<100	<100	<50	<50	<50	<50	<50	<59.5
Total EPH	 	<100	<100	<50	<50	<50	<50	<50	<59.5
		148	NA	NA	142	NA	NA	NA	NA.
arcinogenic Polynuciear Aromatic Hydroc	erbons (ug/L)						<u> </u>		
Benzo(a)anthracene		<0.100	<0.100	0.139	<0.100	<0.100	<0.100	<0.100	-0.400
Benzo(a)pyrene	0.1	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100		<0.100
Benzo(b)fluoranthene		<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(k)fluoranthene		<0.100	<0.100	0.119	<0.100	<0.100		<0.100	<0.100
Chrysene		<0.100	<0.100	<0.100	<0.100		<0.100	<0.100	<0.100
Dibenz(a,h)anthracene		<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
deno(1,2,3-cd)pyrene		<0.100	<0.100	<0.100		<0.100	<0.100	<0.100	<0.100
Total Carcinogenic PAHs	0.1	NA	NA	0.258	<0.100	<0.100	<0.100	<0.100	<0.100
phthalenes (ug/L)				0.2.00	NA .	NA	NA .	NA	NA
-Methylnephthalene		2.5	3.77	T					
-Methylnaphthalene		0.45	3.27	0.97	1.47	4.23	0.712	1.96	<0.100
aphthalene			0.554	0.158	0.121	0.212	0.481	<0.100	0.254
otal Naphthalenea	150	0.41	0.535	<0.10	0.222	0.192	0.173	<0.100	⊴0.100
EX (ug/L)	,	1.6	4.36	1.13	1.81	4.63	1.37	1.36	0.254
erzene									
duene	5	1.7	2.24	0.596	0.830	<0.500	<0.500	<0.500	<0.500
		0.848	0.504	<0.5	<2.00	<0.500	<0.500	<0.500	<0.500
hybenzene	700	<0.5	<0.5	<0.5	<1.00	<0.500	<0.500	<0.500	
/enes (total)	1,000	1.38	<1:00	<1.00	<1.50	<1.00	<1.00	-0.000	<0.500

Bold#At or Above MTCA Method A Groundwater Cleanup Level

< #analyte was not detected at or above the method reporting litr

NM = Not Measured

NA = Not Applicable.

⁻ Not Analyzed

²⁰⁰³⁻²⁰⁰⁴ PAHs requite are for dissolved PAHe

TABLE 4 Water Table Elevation Data

Darling International, Inc. 2041 Marc Avenue, Tacoma, Washington

Well Date Measuring Point Elevation (ft AMSL) Depth to Water (top of PVC) (ft AMSL) Potentiometric Surface Elevation (ft AMSL) MFG-1 2/8/2002 2/13/2002 2/22/6/2002 5.30 10.97 5.30 10.97 11.21 2/28/2002 6/19/2002 6/19/2002 9/26/2002 12/19/2003 3/4/2004 6/8/2004 8.33 7.94 7.09 9.18 MFG-2 12/19/2003 3/4/2004 5.55 10.52 5.50 10.77 10.52 MFG-2 2/8/2002 15.8 4.59 11.21 11.21 2/13/2002 2/26/2002 6/19/2002 12/19/2002 9/3/2003 3/4/2004 6.63 9.17 7.86 7.94 MFG-3 2/8/2002 16.85 5.60 10.74 MFG-3 2/8/2002 16.85 5.69 11.16 MFG-4 2/8/2002 16.85 5.69 11.16 MFG-4 2/8/2002 15.67 4.51 11.18 MFG-4 2/8/2002 15.67 4.51 11.16	r====				
Well Date Point Elevation (ft AMSL) Water (top of PVC) (ft AMSL) Surface Elevation (ft AMSL) MFG-1 2/8/2002 2/2/6/2002 2/2/6/2002 5.30 10.97 5.06 11.21 11.21 6/19/2002 9/26/2002 12/19/2003 12/19/2003 3/4/2004 6/8/2004 6/8/2004 6/8/2004 6/8/2004 7.66 8.81 7.09 9.18 9.18 MFG-2 2/8/2002 15.8 4.59 11.21 8.00 5.75 10.52 5.50 10.77 MFG-2 2/8/2002 2/28/2002 2/28/2002 4.72 11.08 4.82 10.98 10.98 12.12 9/3/2003 3/4/2004 6/8/2004 6/8/2004 6/8/2004 6/8/2004 6/8/2004 7.86 7.94 7.86 7.94 7.99 9.37 MFG-3 2/8/2002 16.85 5.06 10.74 6.63 9.17 9.00 8.80 9.17 9.00 8.80 9.17 9.00 8.80 9.17 MFG-3 2/8/2002 16.85 5.69 11.16 6.63 9.17 9.17 9.90 9.17 9.00 8.80 9.17 9.00 8.80 9.17 MFG-4 2/8/2002 16.85 5.69 11.16 6.63 9.19 9.17 8.84 8.01 10.54 6.06 10.79 9.10 9.7 9.00 8.81 10.99 9.18 9.10 9.6 6.06 10.79 9.10 9.7 MFG-4 2/8/2002 15.67 4.51 11.16 10.54 6.06 10.79 9.18 9.26 9.00 9.18 9.18 9.26 9.00 9.18 9.18 9.10 9.06 6.06 10.79 9.18 9.18 9.10 9.06 6.06 10.79 9.18 9.18 9.18 9.26 9.00 9.18 9.18 9.26 9.00 9.18 9.18 9.26 9.00 9.18 9.18 9.26 9.00 9.18 9.18 9.26 9.00 9.18 9.18 9.26 9.00 9.18 9.18 9.26 9.00 9.18 9.26 9.00 9.18 9.18 9.26 9.00 9.18 9.18 9.18 9.10 9.00 9.18 9.				Do-4.	Potentiometric
Elevation (top of PVC) Elevation (ft AMSL)	Well	Date	Point		
MFG-1 2/8/2002 16.27 5.06 11.21 2/13/2002 5.30 10.97 5.20 11.07 5.20 11.07 7.09 9.18 8.33 7.94 7.46 8.81 9/3/2003 6.27 8.00 5.76 10.52 5.50 10.77 7.06 9.21 7.06 9.21 7.06 9.21 7.06 9.21 7.09 9.26/2002 7.46 8.81 9/3/2003 6.827 8.00 7.06 9.21 7.06 9.21 7.06 9.21 7.06 9.21 7.06 9.21 7.06 9.21 7.06 9.21 7.09 9.18 7.00 9.10 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 9.21 7.00 8.80 7.94 7.94 7.94 7.99 7.94 7.94 7.99 7.94 7.99 7.94 7.99 7.94 7.99 7.90 7.81 7.98 7.90 7.81 7.98 7.90 7.82 9.03 7.82 9.03 7.82 9.03 7.82 9.03 7.82 9.03 7.82 9.03 7.82 9.03 7.82 9.03 7.83 7.84 7.98 7.82 9.03 7.83 7.84 7.99 7.90 7.82 9.03 7.83 7.84 7.98 7.82 9.03 7.83 7.84 7.98 7.85 7.98 7.85 7.98 7.98 7.98 7.99 7.90 7		Julio	Elevation		Elevention.
MFG-1	<u></u>		(ft AMSL)	(top of PVC	3 1
2/13/2002 5.30 10.97 2/26/2002 5.20 11.07 6/19/2002 7.09 9.18 9/26/2002 8.33 7.94 12/19/2003 8.27 8.00 12/9/2003 5.75 10.52 3/4/2004 5.50 10.77 6/6/2002 15.8 4.59 11.21 2/13/2002 4.72 11.08 6/19/2002 6.63 9.17 9/26/2002 7.86 7.94 12/19/2003 5.30 10.50 3/4/2004 6.63 9.17 MFG-3 2/8/2002 16.85 5.69 11.16 6/8/2004 6.63 9.17 MFG-3 2/8/2002 16.85 5.69 11.16 2/13/2002 5.89 10.96 2/26/2002 16.85 5.69 11.16 5.89 10.96 5.77 11.08 6/8/2004 6.63 9.17 MFG-3 2/8/2002 16.85 5.69 11.16 5.89 10.96 5.77 11.08 6/8/2004 6.63 9.17 MFG-3 12/9/2002 16.85 5.69 11.16 5.89 10.96 5.77 11.08 6/8/2004 6.63 9.19 9/26/2002 7.66 9.19 9/26/2002 12/19/2003 6.31 10.554 6.81 0.79 6/19/2002 7.66 9.19 9/26/2002 15.67 4.51 11.16 6/8/2004 6.69 0.99 9/26/2002 15.67 4.51 11.16 10.79 6/19/2002 9/26/2002 15.67 4.51 11.16 2/13/2002 15.67 4.51 11.16 2/13/2002 15.67 4.51 11.16 2/13/2002 15.67 4.51 11.16 10.79 9/26/2002 15.67 4.51 11.16 10.51 10.79	MFG-1		16.27	5.06	
2/26/2002 5.20 11.07					
B/19/2002 7.09 9.18 9/26/2002 7.46 8.81 9/3/2003 8.27 8.00 12/19/2003 5.75 10.52 3/4/2004 6/8/2004 7.06 9.21 MFG-2 2/8/2002 15.8 4.59 11.21 2/13/2002 4.82 10.98 2/26/2002 4.72 11.08 6.63 9.17 9/3/2003 7.81 7.99 12/9/2003 3.41/2004 6.63 9.17 MFG-3 2/8/2002 16.85 5.69 11.16 12/9/2003 3/4/2004 6.63 9.17 MFG-3 2/8/2002 16.85 5.69 11.16 2/13/2002 2/26/2002 6.19/2002 7.66 9.19 9/26/2002 12/19/2003 8.87 7.98 12/9/2003 3.41/2004 6.06 10.79 6/8/2004 6.82 9.31 10.54 6/8/2004 6.86 8.81 MFG-4 2/8/2002 15.67 4.51 11.16 2/13/2002 2/26/2002 4.58 11.09 6/19/2002 9/26/2002 4.58 11.09 6/19/2002 9/26/2002 4.58 11.09 6/19/2002 9/26/2002 4.58 11.09 6/19/2002 9/26/2002 4.58 11.09 6/19/2002 9/26/2002 4.58 11.09 6/19/2003 3.41/2004 6.86 8.81 9/26/2004 7.67 8.00 5/16 10.51 3.41/2004 6/8/2004 6.86 8.81 7.07 7.96 6.86 8.81 7.07 7.96 6.86 8.81 7.07 7.07 7.96 6.86 6.86 8.81 7.07 7.07 7.07 7.08 7.00 7.00 7.00 7.00 7.00 7.00 8.80		2/26/2002]		
12/19/2002 12/19/2003 3/4/2004 6/8/2004 MFG-2 2/8/2002 2/13/2002 6/19/2002 12/19/2003 3/4/2004 6/8/2004 MFG-3 MFG-3 12/9/2002 15.8 2/8/2002 16.85 2/13/2002 2/26/2002 16.85 2/13/2002 2/26/2002 16.85 2/13/2002 2/26/2002 16.85 2/13/2002 2/26/2002 16.85 3/4/204 6/8/2004 MFG-4 MFG-4 2/8/2002 15.8 3/4/2004 6/8/2004 15.8 8.33 7.94 8.81 8.27 8.00 9.21 10.52 4.82 10.98 2.		6/19/2002]		
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9/3/2003 12/9/2003 5.75 10.52 5.50 10.77 7.06 9.21 1.21 2/13/2002 2/26/2002 4.72 11.08 6/8/2004 6/8/2004 6/8/2004 6.63 9.17 7.99 12/19/2003 3/4/2004 6.63 9.17 7.99 10.50 3/4/2004 6.63 9.17 7.99 10.50 3/4/2004 6.63 9.17 7.99 10.50 3/4/2002 16.85 5.69 11.16 6.63 9.17 7.98 10.96 6.63 9.17 7.98 10.96 6.63 9.17 7.99 10.96 6.63 9.17 7.99 10.96 10.74 6.63 9.17 7.98 10.96					
12/9/2003 5.75 10.52 10.77 10.68/2004 15.8 4.59 11.21 1.21 10.98 12/9/2002 15.8 4.59 11.21 1.08 11.21 1.08 11.21 1.08 11.21 1.08 11.21 1.08 11.21 1.08 11.21 1.08 11.21 1.08 11.21 1.08 1.098]		
3/4/2004 5.50 10.77]		
MFG-2 2/8/2002 15.8 4.59 11.21 2/13/2002 4.82 10.98 4.72 11.08 6.63 9.17 9/26/2002 7.86 7.94 7.99 12/19/2003 5.30 10.50 10.50 10.74 6.63 9.17 11.08 6/8/2004 6.663 9.17 11.08 6/19/2002 5.89 10.96 9/26/2002 5.77 11.08 6/19/2002 5.89 10.96 10.74 6.63 9.17 11.08 6.63 9.17 11.08 6.63 9.17 11.08 6.63 9.17 11.08 6.63 9.17 11.08 6.63 9.17 11.08 6.63 9.17 11.08 6.63 9.19 9/26/2002 5.89 10.96 9/26/2002 8.87 7.98 8.87 7.98 12/19/2002 9/3/2003 8.84 8.01 8.81 9/3/2003 8.84 8.01 6.06 10.79 6/8/2004 6.06 10.79 7.82 9.03 12/19/2002 9/26/2002 15.67 4.51 11.16 6.06 10.79 7.82 9.03 12/13/2002 2/26/2002 4.58 11.09 6/8/2004 7.82 9.03 12/13/2002 9/26/2002 15.67 4.51 11.16 11.16 9/26/2002 9/26/2002 15.67 4.51 11.16 11.16 9/26/2002 9/26/2002 15.67 4.51 11.16 1.09 6/8/2004 9.18 7.71 7.96 6.86 8.81 7.67 8.00 12/19/2003 3/4/2004 6.86 8.81 7.67 8.00 5.16 10.51 3/4/2004 6/8/2004 6.86 9.24 1.09 6/8/2004 6.86 9.24 1.09 6/8/2004 6.86 9.24 1.09 6/8/2004 6.86 9.24 1.09 6/8/2004 6/8/2004 6.86 9.24 1.09 6.46 9.24 1.076 6.86 9.24 1.09 6/8/2004 6.86 9.24 1.09 6.46 9.24 1.076 6.46 9.24 1.00 6.]		
MFG-2 2/8/2002 15.8 4.59 11.21 2/13/2002 2/26/2002 6/19/2002 6/19/2002 9/26/2002 12/19/2003 3/4/2004 6/8/2004 MFG-3 2/8/2002 12/19/2002 2/26/2002 12/19/2002 12/19/2003 3/4/2004 6/8/2004 MFG-3 2/8/2002 16.85 5.69 11.16 5.89 10.96 9/26/2002 5.77 11.08 6/19/2002 9/26/2002 12/19/2002 9/3/2003 12/9/2003 3/4/2004 6/8/2004 MFG-4 2/8/2002 15.67 4.51 11.16 10.54 6/8/2004 MFG-4 15.8 10.98 4.72 11.08 7.86 7.94 7.99 5.30 10.50 5.06 10.74 6.63 9.17 11.08 6.63 9.17 11.08 6.63 9.17 11.08 6.63 9.17 11.16 10.96 11.16 10.96 10.97				The state of the s	
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12/19/2003 7.00 8.80 9/3/2003 7.81 7.99 12/9/2003 5.30 10.50 3/4/2004 6.63 9.17 MFG-3 2/8/2002 16.85 5.69 11.16 2/13/2002 2/26/2002 5.77 11.08 6/19/2002 9/3/2003 8.87 7.98 12/19/2003 8.84 8.01 12/9/2003 3/4/2004 6.06 10.79 6/8/2002 4.51 11.16 2/13/2002 2/26/2002 4.58 11.09 6/19/2002 6.49 9.18 9/3/2003 7.67 8.00 12/19/2003 3/4/2004 6.86 8.81 9/3/2003 7.67 8.00 12/19/2003 3/4/2004 4.91 10.76 6/8/2004 6/8/2004 6.46 9.21 9/21 9/22003 3/4/2004 4.91 10.76 6/8/2004 6/8/2004 6.46 9.21				The state of the s	1
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MFG-3 2/8/2002 2/8/2002 2/13/2002 2/26/2002 6/19/2002 12/19/2002 9/26/2002 12/19/2003 3/4/2004 MFG-4 2/8/2002 15.67 10.74 6.63 9.17 11.16 5.89 10.96 5.77 11.08 7.66 9.19 8.87 7.98 8.04 8.81 9/3/2003 8.84 8.01 10.54 6.06 10.79 7.82 9.03 MFG-4 2/8/2002 2/13/2002 2/26/2002 4.51 11.16 4.70 10.97 4.58 11.09 6.49 9.18 9/26/2002 12/19/2002 9/26/2002 12/19/2003 3/4/2004 6.86 8.81 9/3/2003 12/9/2003 5.16 10.51 3/4/2004 6.86 8.81 9/3/2004 4.91 10.76 6.86 6.82			[5.30	
MFG-3 2/8/2002 2/13/2002 2/26/2002 6/19/2002 9/26/2002 12/19/2003 3/4/2004 6/8/2002 MFG-4 2/8/2002 12/19/2002 9/3/2003 12/9/2002 15.67 4.51 11.16 2/13/2002 4.70 10.97 2/26/2002 4.58 11.09 6/89 9/3/2003 12/19/2002 9/3/2003 6.49 9/3/2003 12/19/2002 9/3/2003 12/19/2002 9/3/2003 12/19/2002 9/3/2003 12/19/2002 9/3/2003 12/19/2003 3/4/2004 6.86 8.81 9.17 1.16 9.19 6.86 8.81 9.17 1.16 9.18 9.18 9.18 9.18 9.18 9.18 9.18 9.18			[5.06	
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MFG-4 2/8/2002 15.67 4.51 11.16 2/13/2002 4.58 11.09 6.49 9.18 9/26/2002 6.86 8.81 9/3/2003 7.67 8.00 5.16 10.51 3/4/2004 6.8/2004 6.86 9.24			L_		
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TABLE 5 Human Health Risk Assessment

Darling International, Inc. 2041 Marc Avenue, Tacoma, Washington

APPENDICES

APPENDIX A SEPTEMBER 2003 LABORATORY ANALYTICAL RESULTS



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26 September 2003

Natalie Morrow MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

RE: Darling-Tacoma UST

Enclosed are the results of analyses for samples received by the laboratory on 09/04/03 13:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott A. Woerman For Kortland Orr

PM



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CASE NARRATIVE for B310093

Client: MCS Environmental Project Manager: Natalie Morrow Project Name: Darling-Tacoma UST

Project Number: 11093.001

1.0 DESCRIPTION OF CASE

Four water samples and one trip blank were submitted for analysis of Semivolatile Petroleum Products by NWTPH-Dx with and without acid/silica gel clean up, Extractable Petroleum Hydrocarbons by modified WDOE TPH Policy Method, Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring, and BTEX by EPA Method 8021B.

2.0 COMMENTS ON SAMPLE RECEIPT

Samples were received September 4, 2003 and logged in September 5, 2003. The temperature of the samples at time of receipt was 5.8 degrees Celsius.

3.0 PREPARATION AND ANALYSIS

Semivolatile Petroleum Products by NWTPH-Dx (without Acid/Silica Gel Clean-up)

No additional anomalies or discrepancies were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of this report.

Extractable Petroleum Hydrocarbons by modified WDOE TPH Policy Method

The recovery of the surrogate o-Terphenyl for laboratory sample B3I0093-03 was below established control limits. The sample was re-extracted out of method recommended holding time, and the recovery of the surrogate 1-Chlorooctadecane was below control limits. Both sets of results are reported for comparison purposes.

No additional anomalies or discrepancies were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of this report.

Polynuclear Aromatic Compounds with Selected Ion Monitoring

The reported results are identified as RE1. These results represent re-extracted samples. All samples were re-extracted due to numerous batch QC failures in the first extraction batch. No results from the first batch are reported due to the extent of the QC failures.

No additional anomalies or discrepancies were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of this report.



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BTEX by EPA Method 8021B/8260B

No additional anomalies or discrepancies were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of this report.

Kortland Orr

Project Manager

North Creek Analytical



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MFG-1	B310093-01	Water	09/03/03 15:25	09/04/03 13:25
MFG-2	B310093-02	Water	09/03/03 13:32	09/04/03 13:25
MFG-3	B310093-03	Water	09/03/03 17:17	09/04/03 13:25
MFG-4	B310093-04	Water	09/03/03 18:44	09/04/03 13:25
MFG-1 Diss	B310093-05	Water	09/03/03 15:25	09/04/03 13:25
MFG-2 Diss	B310093-06	Water	09/03/03 13:32	09/04/03 13:25
MFG-3 Diss	B310093-07	Water	09/03/03 17:17	09/04/03 13:25
MFG-4 Diss	B310093-08	Water	09/03/03 18:44	09/04/03 13:25
Trip Blank	B310093-09	Water	09/03/03 12:00	09/04/03 13:25

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North Creek Analytical, Inc. Environmental Laboratory Network Page 1 of 24



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MCS Environmental 5562 Alloy Street

Project: Darling-Tacoma UST

Project Number: 11093.001

Reported:

Missoula, MT/USA 59808

Project Manager: Natalie Morrow

09/26/03 17:01

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-1 (B310093-01) Water Sample	ed: 09/03/03 1	5:25 Receive	d: 09/04/0	3 13:25					
Diesel Range Hydrocarbons	2.87	0.250	mg/l	1	3108010	09/08/03	09/09/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	0.500	н	2				*	
Mineral Oil Range Hydrocarbons	2.30	0.500	*	п	n	11		N	
Surrogate: 2-FBP	96.1%	50-121			м	n	n	*	
Surrogate: Octacosane	84.4 %	56-123			#	*	*	#	
MFG-2 (B310093-02) Water Sample	d: 09/03/03 13	3:32 Receive	d: 09/04/03	3 13:25					
Diesel Range Hydrocarbons	2.05	0.250	mg/l	1	3108010	09/08/03	09/09/03	NWTPH-Dx	· · · · · · · · · · · · · · · · · · ·
Heavy Oil Range Hydrocarbons	1.11	0.500	#	te .	#		н	n	D-06
Mineral Oil Range Hydrocarbons	1.79	0.500	н	•	H	#	w	н	2 0.
Surrogate: 2-FBP	89.4 %	50-121			#	ж	п	*	
Surrogate: Octacosane	89.7 %	56-123			*	*	н	*	
MFG-3 (B310093-03) Water Sample	d: 09/03/03 17	:17 Received	1: 09/04/03	13:25					
Diesel Range Hydrocarbons	1.09	0.250	mg/l	1	3108010	09/08/03	09/09/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	0.500	н	"	н	*	н	н	
Mineral Oil Range Hydrocarbons	0.976	0.500	H	*	**	н	*	#	
Surrogate: 2-FBP	84.1 %	50-121			п	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		н	
Surrogate: Octacosane	82.5 %	56-123			н	•	w	Ħ	
MFG-4 (B310093-04) Water Sampled	1: 09/03/03 18	:44 Received	l: 09/04/03	13:25					
Diesel Range Hydrocarbons	3.77	0.250	mg/l		3108010	09/08/03	09/09/03	NWTPH-Dx	
Heavy Oll Range Hydrocarbons	1.72	0.500	"	н	•	*	n	*	D-06
Mineral Oil Range Hydrocarbons	3.26	0.500	er	*	*	*	**	w	D-00
Surrogate: 2-FBP	95.1%	50-121	***************************************		*	*	*	*	
Surrogate: Octacosane	93.5 %	56-123			_				

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

North Creek Analytical, Inc. Environmental Laboratory Network Page 2 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-4 Diss (B310093-08) Water	Sampled: 09/03/0)3 18:44 Re	ceived: 09/	04/03 13:25					
Diesel Range Hydrocarbons	3.52	0.250	mg/l	i	3108010	09/08/03	09/09/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	0.666	0.500	#	*	*	*	*	*	D-06
Mineral Oil Range Hydrocarbons	2.83	0.500	•	#	×	•		W	
Surrogate: 2-FBP	96.1 %	50-121			n	*	н	p	
Surrogate: Octacosane	85.7 %	56-123			"	#	#	N	

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Environmental Laboratory Network Page 3 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow Reported: 09/26/03 17:01

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up North Creek Analytical - Bothell

	Reporting							
Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
Sampled: 09/03/03 15	25 Receive	ed: 09/04/0	3 13:25					
ND	0.500	mg/l	i	3109033	09/08/03	09/11/03	NWTPH-Dx	
ND	0.250	Ħ			Ħ	н	н	
ND	0.500	н	н	*	"	H	н	
90.3 %	50-150		The second secon	, , , , , , , , , , , , , , , , , , ,	*	n	*	
90.3 %	50-150			H	*	n	77	
Sampled: 09/03/03 13:	32 Receive	d: 09/04/03	3 13:25					
ND	0.500	mg/l	1	3109033	09/08/03	09/11/03	NWTPH-Dx	
ND	0.250	н	*	m	n	н	н	
ND	0.500	#	н	#	п	н	n	
84.6 %	50-150			*	<i>n</i>	n	n	
92.9 %	50-150			n	*	#	"	
Sampled: 09/03/03 17:	17 Receive	d: 09/04/03	13:25					
ND	0.500	mg/l	1	3109033	09/08/03	09/11/03	NWTPH-Dx	
ND	0.250	14	м	н	ff	n	n	
ND	0.500	i•	н	н	н	16	н	
89.0 %	50-150			N	,,	n	Ħ	
90.3 %	50-150			"	#	n	*	
Sampled: 09/03/03 18:4	44 Received	d: 09/04/03	13:25					
ND	0.500	mg/l	1	3109033	09/08/03	09/11/03	NWTPH-Dx	
ND	0.250	- H	м	*	•	11	н	
ND								
ND ND	0.500	ft	*	n	*	#	н	
ND	0.500 50-150	#	H	R	n	н	н	
	ND ND ND 90.3 % 90.3 % Sampled: 09/03/03 13: ND ND ND 84.6 % 92.9 % Sampled: 09/03/03 17: ND	Result Limit	Result Limit Units Sampled: 09/03/03 15:25 Received: 09/04/03 ND 0.500 mg/l ND 0.250 " ND 0.500 " 90.3 % 50-150 50-150 Sampled: 09/03/03 13:32 Received: 09/04/03 ND 0.500 mg/l ND 0.500 " 84.6 % 50-150 50-150 Sampled: 09/03/03 17:17 Received: 09/04/03 ND 0.500 mg/l ND 0.500 " 89.0 % 50-150 50-150 Sampled: 09/03/03 18:44 Received: 09/04/03 ND 0.500 mg/l	Result Limit Units Dilution Sampled: 09/03/03 15:25 Received: 09/04/03 13:25 ND 0.500 mg/l i ND 0.250 " " ND 0.500 " " 90.3 % 50-150 50-150 Sampled: 09/03/03 13:32 Received: 09/04/03 13:25 ND 0.500 mg/l ! ND 0.500 " " 84.6 % 50-150 50-150 Sampled: 09/03/03 17:17 Received: 09/04/03 13:25 ND 0.500 mg/l ! ND 0.500 " " 89.0 % 50-150 " " Sampled: 09/03/03 18:44 Received: 09/04/03 13:25 ND ND 0.500 mg/l !	Result Limit Units Dilution Batch Sampled: 09/03/03 15:25 Received: 09/04/03 13:25 3109033 ND 0.500 mg/l i 3109033 ND 0.500 " " " 90.3 % 50-150 " " " Sampled: 09/03/03 13:32 Received: 09/04/03 13:25 " " ND 0.500 mg/l l 3109033 ND 0.500 " " " 84.6 % 50-150 " " " Sampled: 09/03/03 17:17 Received: 09/04/03 13:25 " " ND 0.500 mg/l l 3109033 ND 0.500 " " " 89.0 % 50-150 " " " 89.0 % 50-150 " " " 89.0 % 50-150 " " " 89.0 % 50-150 " " "	Result Limit Units Dilution Batch Prepared Sampled: 09/03/03 15:25 Received: 09/04/03 13:25 3109033 09/08/03 ND 0.500 mg/l i 3109033 09/08/03 ND 0.500 " " " " 90.3 % 50-150 90.3 % 50-150 90.3 % 50-150 " " " " Sampled: 09/03/03 13:32 Received: 09/04/03 13:25 " " " ND 0.500 mg/l 1 3109033 09/08/03 09/08/03 ND 0.500 " " " " 84.6 % 50-150 50 " " " " " Sampled: 09/03/03 17:17 Received: 09/04/03 13:25 " " " ND 0.500 mg/l 1 3109033 09/08/03 ND 0.500 " " " " 89.0 % 50-150 " " " " ND 0.500 " " " " 89.0 % 50-150 " " " " 89.0 % 50-150 " " "	Result Limit Units Dilution Batch Prepared Analyzed Sampled: 09/03/03 15:25 Received: 09/04/03 13:25 ND 0.500 mg/l i 3109033 09/08/03 09/11/03 ND 0.500 " " " " " 90.3 % 50-150 " " " " " " Sampled: 09/03/03 13:32 Received: 09/04/03 13:25 ND 0.500 mg/l 1 3109033 09/08/03 09/11/03 ND 0.500 mg/l 1 3109033 09/08/03 09/11/03 Sampled: 09/03/03 17:17 Received: 09/04/03 13:25 ND 0.500 mg/l 1 3109033 09/08/03 09/11/03 ND 0.500 mg/l 1 3109033 09/08/03 09/11/03 ND 0.500 mg/l 1 3109033 09/08/03	ND

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North Creek Analytical, Inc.
Environmental Laboratory Network Page 4 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up North Creek Analytical - Bothell

		Reporting					· ···		
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-4 Diss (B310093-08) Water	Sampled: 09/03/	03 18:44 Re	ceived: 09/	04/03 13:25					
Mineral Oil Range (SGCU)	ND	0.500	mg/l	1	3109033	09/08/03	09/11/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	•	*		н	н	н	
Lube Oil Range (SGCU)	ND	0.500	n	*	n	H	*		
Surrogate: 2-FBP (SGCU)	92.9 %	50-150			<i>n</i>	н	*	*	
Surrogate: Octacosane (SGCU)	90.9 %	50-150			11	*	"	*	

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Environmental Laboratory Network Page 5 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method North Creek Analytical - Bothell

		Reporting					***************************************		
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B310093-01) Water	Sampled: 09/03/03 15:	25 Receive	d: 09/04/0.	3 13:25					***************************************
C8-C10 Aliphatics	ND	50.0	ug/l	1	3106008	09/06/03	09/18/03	WA MTCA-EPH	<u></u>
C10-C12 Aliphatics	ND	50.0	*		*	н	H	"	
C12-C16 Aliphatics	ND	50.0	#		**	-	*	H	
C16-C21 Aliphatics	ND	50.0	H	**	o	**	**	**	
C21-C34 Aliphatics	ND	50.0	"	9	н	#		· w	
C10-C12 Aromatics	63.3	50.0	**	*		**	W	**	
C12-C16 Aromatics	ND	50.0	n	n	н	*	4.	*	
C16-C21 Aromatics	ND	50.0	п	н	9	#	н	te	
C21-C34 Aromatics	ND	50.0	*	*	*		*	Ħ	
Extractable Petroleum Hydrocarb	ons 63.3	50.0	*	н		Ħ	ú	н	
Surrogate: o-Terphenyl	72.1 %	60-140			···	#	H	<i>H</i>	
Surrogate: 1-Chlorooctadecane	63.4 %	60-140			"	"	,,	H	
MFG-2 (B310093-02) Water	Sampled: 09/03/03 13:3	2 Received	1: 09/04/03	13:25					
C8-C10 Aliphatics	ND	50.0	ug/l]	3106008	09/06/03	09/21/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	#	H	n	#	"	#	
C12-C16 Aliphatics	ND	50.0	n		н	n	N	19	
C16-C21 Aliphatics	ND	50.0	n	**	**	н	**	12	
C21-C34 Aliphatics	ND	50.0	Ħ	16	н	re	H	N	
C10-C12 Aromatics	ND	50.0	n	н	**	e	**	Ħ	
C12-C16 Aromatics	ND	50.0	Ħ	н	ਜ	H	ĸ		
C16-C21 Aromatics	ND	50.0	tr	•	*	"			
C21-C34 Aromatics	ND	50.0	•	*	*	#	•	- H	
Extractable Petroleum Hydrocarbons	ND	50.0	•	n	**	#	**	*	
Surrogate: o-Terphenyl	71.9 % 6	0-140	WALLES OF LANDING RICH PROPERTY AND REAL PROPERTY.	TO THE OWNER OF THE PARTY OF TH	n	**	n	***	*******************************
Surrogate: 1-Chlorooctadecane	78.0 % 6	0-140			#	"	,,	N	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

North Creek Analytical, Inc. Environmental Laboratory Network Page 6 of 24



Seattle: 11727 North Circle (Play N. Sude 100 Bother) AA 35011 8214 475 470 9700 for 475 470 9710

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MCS Environmental

5562 Alloy Street

Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001

Project Manager: Natalie Morrow

Reported:

09/26/03 17:01

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method North Creek Analytical - Bothell

Analyte		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B310093-03) Water Sa	impled: 09/03/03 17:1	Receive	ed: 09/04/03	3 13:25					
C8-C10 Aliphatics	ND	50.0	ug/l	1	3106008	09/06/03	09/21/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	*		н	Ħ	•		
C12-C16 Aliphatics	ND	50.0	-	•	#	*	#	₩ [‡]	
C16-C21 Aliphatics	ND	50.0	-	Ä	н	н	H	Ĥ	
C21-C34 Aliphatics	ND	50.0	+	*	#	*	w	н	
C10-C12 Aromatics	ND	50.0	*	н	*	•	09/18/03	н	
C12-C16 Aromatics	ND	50.0	"	н	H	4	н	N	
C16-C21 Aromatics	ND	50.0	**	u.			н	**	
C21-C34 Aromatics	ND	50.0	н		*	#	#	**	
Extractable Petroleum Hydrocarbons	ND	50.0			₩ 1	**	#	н	
Surrogate: o-Terphenyl	59.9 % 60	0-140			*	7	т	P	X
Surrogate: 1-Chlorooctadecane	61.8 % 66	0-140			"	"	09/21/03	n	-1
MFG-3 (B310093-03RE1) Water	Sampled: 09/03/03 1	7:17 Rec	:eived: 09/0	4/03 13:25					0-29
C8-C10 Aliphatics	ND	50.0	ug/l	ı	3123003	09/23/03	09/26/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	*	π	Ħ	*	**	11	
C12-C16 Aliphatics	ND	50.0	n	н	н	*	#	n	
C16-C21 Aliphatics	ND	50.0	н	H	#1	#	н	n	
C21-C34 Aliphatics	ND	50.0	-	н	п		n	**	
C10-C12 Aromatics	ND	50.0	**	*	•	*	n		
C12-C16 Aromatics	ND	50.0	++	н	•	п	#	н	
C16-C21 Aromatics	ND	50.0	54	*	**	**	-	#	
C21-C34 Aromatics	ND	50.0	#	ħ	*	я	н	н	
Extractable Petroleum Hydrocarbons	ND	50.0	н	*	н		#	*	
Surrogate: o-Terphenyl	61.3 % 60	-140			72	#	#	rt	Photos of a substantial and all a
Surrogate: 1-Chlorooctadecane	59.7 % 60	-140			*	*	#	,,	S-04

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Environmental Laboratory Network Page 7 of 24



Seattle 11720 North Creek Flavy V. Suite 500 Survey AA (8011 8015 420 420 9200 fax 425 420 9210

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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method North Creek Analytical - Bothell

	R	eporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-4 (B310093-04) Water	Sampled: 09/03/03 18:44	Receive	d: 09/04/03	3 13:25					
C8-C10 Aliphatics	ND	50.0	ug/l	1	3106008	09/06/03	09/21/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	н	**		*	H	н	
C12-C16 Aliphatics	ND	50.0	ā	н	*	*	N	IT	
C16-C21 Aliphatics	ND	50.0	π		*	*	*	**	
C21-C34 Aliphatics	ND	50.0	н	•	•	H	н	н	
C10-C12 Aromatics	ND	50.0	*	*	n	et	н	н	
C12-C16 Aromatics	ND	50.0	H		n	,,	м.		
C16-C21 Aromatics	ND	50.0	14	R :	Ħ.	п	N .	N	
C21-C34 Aromatics	ND	50.0		Ħ	н	**	**	*	
Extractable Petroleum Hydrocarbon	s ND	50.0	н	'n	ч		#	п	
Surrogate: o-Terphenyl	61.9% 60-	140		·	<i>n</i>	н	<i>n</i>	n	
Surrogate: 1-Chlorooctadecane	67.5 % 60-	140			**	"	•	η	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

North Creek Analytical, Inc. Environmental Laboratory Network Page 8 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 Diss (B310093-05RE1) Water	Sampled: 0	9/03/03 15:25	Received	1: 09/04/03	13:25				Q-29
1-Methylnaphthalene	3.04	0.100	ug/l	1	3118011	09/18/03	09/22/03	8270-SIM	
2-Methylnaphthalene	0.170	0.100			н	п	*	#	
Benzo (a) anthracene	ND	0.100	Ħ	*	#		#	w	
Benzo (a) pyrene	ND	0.100	+	*	*	#			
Benzo (b) fluoranthene	ND	0.100	14			н	я	++	
Benzo (k) fluoranthene	ND	0.100	*	n	**	н	**	п	
Chrysene	ND	0.100		Ħ	н	IT	n		
Dibenz (a,h) anthracene	ND	0.100	*	*	**	н	#	n	
Indeno (1,2,3-cd) pyrene	ND	0.100	н	+	#	**	74	n	
Naphthalene	0.321	0.100	**	н	н	it	Ħ	**	
Surrogate: p-Terphenyl-d14	41.9 %	30-150		·	н	,,	*	ħ	A STATE OF THE STA
MFG-2 Diss (B310093-06RE1) Water	Sampled: 09	//03/03 13:32	Received	: 09/04/03 1	3:25				0-29
l-Methylnaphthalene	ND	0.100	ug/l	1	3118011	09/18/03	09/22/03	8270-SIM	
2-Methylnaphthalene	ND	0.100	**	п	*	#	"	"	
Benzo (a) anthracene	ND	0.100	ŧŧ	#	"	•	"	н	
Benzo (a) pyrene	ND	0.100	n	n	н	*	**	н	
Benzo (b) fluoranthene	ND	0.100	н	н	+1	н	15	•	
Benzo (k) fluoranthene	ND	0.100	н	#	*	**	n	•	
Chrysene	ND	0.100	**	п	**	**	n	14	
Dibenz (a,h) anthracene	ND	0.100	*	н			н	*	
Indeno (1,2,3-cd) pyrene	ND	0.100	17	te	n	H	н	**	
Naphthalene	ND	0.100	**	*	*	н	"	n	
Surrogate: p-Terphenyl-d14	38.7 %	30-150	in the section of the		*	*	fr	n	

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Environmental Laboratory Network Page 9 of 24



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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

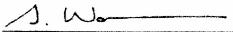
Reported: 09/26/03 17:01

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 Diss (B310093-07RE1) Water	Sampled: 0	9/03/03 17:17	Received	l: 09/04/03 1	13:25		,		Q-2 ⁰
l-Methylnaphthalene	ND	0.100	ug/l	1	3118011	09/18/03	09/22/03	8270-SIM	
2-Methylnaphthalene	ND	0.100	n	*	R	Ħ	н	N	
Benzo (a) anthracene	ND	0.100		n	•	N	Ħ	н	
Benzo (a) pyrene	ND	0.100	я	Ħ	**	16	н	"	
Benzo (b) fluoranthene	ND	0.100	· m	n	**	11	н	н	
Benzo (k) fluoranthene	ND	0.100	*	H	**	#	#	*	
Chrysene	ND	0.100		n	н	n	*	n	
Dibenz (a,h) anthracene	ND	0.100	15	•	**	11	•	n	
Indeno (1,2,3-cd) pyrene	ND	0.100	н	**	H	#	π	n	
Naphthalene	ND	0.100	•	*	**	#	Ħ	Ħ	
Surrogate: p-Terphenyl-d14	44.9 %	30-150	***************************************	The state of the s	H	н	*	n	
MFG-4 Diss (B310093-08RE1) Water	Sampled: 09	0/03/03 18:44	Received	: 09/04/03 1	3:25				0-29
1-Methylnaphthalene	4.23	0.100	ug/l	1	3118011	09/18/03	09/22/03	8270-SIM	
2-Methylnaphthalene	0.212	0.100	*	N	**	**	11	м	
Benzo (a) anthracene	ND	0.100	*	N	14	**	H	f 1	
Benzo (a) pyrene	ND	0.100	#	#	н	n	n	н	
Benzo (b) fluoranthene	ND	0.100	н	**	**	w I	н	ti -	
Benzo (k) fluoranthene	ND	0.100	**	н	•		*	#	
Chrysene	ND	0.100	н	H	*		n	*	
Dibenz (a,h) anthracene	ND	0.100	н	*	•	•	n	Pt .	
índeno (1,2,3-cd) pyrene	ND	0.100	н	**	***	*	t s	*	
Naphthalen e	0.192	0.100	N		•	п	ы	n	
Surrogate: p-Terphenyl-d14	43.7%	30-150	e dade Mr. an in a make non account and the second and in a		p	н	н	и	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety



North Creek Analytical, Inc. Environmental Laboratory NetworkPage 10 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

BTEX by EPA Method 8021B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-1 (B310093-01) Water	Sampled: 09/03/03 15:2	5 Receive	d: 09/04/0	3 13:25					
Benzene	ND	0.500	ug/l	1	3110023	09/10/03	09/11/03	EPA 8021B	
Toluene	ND	0.500		и	#	+	n	*	
Ethylbenzene	ND	0.500	*	n	**	н	н	*	
Xylenes (total)	ND	1.00	н	*	•	н	*	re	
Surrogate: 4-BFB (PID)	92.9 %	72-127			H	"	r	H	
MFG-1 (B310093-01RE1) Wa	ter Sampled: 09/03/03	15:25 Rec	ceived: 09/	04/03 13:25					A-01
Benzene	ND	0.500	ug/l	1	3114005	09/10/03	09/14/03	EPA 8021B	
Toluene	ND	0.500		*	н	**	*		
Ethylbenzene	ND	0.500	н	•	n	11	#	"	
Xylenes (total)	ND	1.00	н	*	**	N	Ħ	#	
Surrogate: 4-BFB (PID)	98.1 %	2-127			π	*	"	H	
MFG-2 (B310093-02) Water	Sampled: 09/03/03 13:32	Receive	d: 09/04/03	3 13:25					
Benzene	ND	0.500	ug/l	1	3110023	09/10/03	09/11/03	EPA 8021B	· · · · · · · · · · · · · · · · · · ·
Toluene	ND	0.500	,	н	**	н	н	н	
Ethylbenzene	ND	0.500	н		Ħ	**	Ħ	tt	
Xylenes (total)	ND	1.00		14	н	78	н	н	
Surrogate: 4-BFB (PID)	91.5 % 7	2-127	***************************************		н	n	n	*	
MFG-2 (B310093-02RE1) Wat	ter Sampled: 09/03/03	3:32 Rec	eived: 09/0	04/03 13:25					
Benzene	ND	0.500	ug/l	1	3114005	09/10/03	09/14/03	EPA 8021B	
Гоіцепе	ND	0.500	,	4		н	*	#	
Ethylbenzene	ND	0.500	Ħ	*		•		•	
Xylenes (total)	ND	1.00	н	н	Ħ	π	ĸ		
Surrogate: 4-BFB (PID)	97.1% 7.	2-127			n	rt	*		

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety



North Creek Analytical, Inc. Environmental Laboratory Network Page 11 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808 Project Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

BTEX by EPA Method 8021B North Creek Analytical - Bothell

		Reporting					····		
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B310093-03) Water	Sampled: 09/03/03 17	17 Receive	d: 09/04/0	3 13:25					
Benzene	ND	0.500	ug/l	1	3110023	09/10/03	09/11/03	EPA 8021B	
Toluene	ND	0.500	н	н	54	**	*	n	
Ethylbenzene	ND	0.500	*	•	п	**	*	n	
Xylenes (total)	ND	1.00	#	Ħ	n	n	н	N	
Surrogate: 4-BFB (PID)	89.6 %	72-127			1)	*	н	N	
MFG-3 (B310093-03RE1) Wat	er Sampled: 09/03/0	3 17:17 Rec	eived: 09/	04/03 13:25					A-01
Benzene	ND	0.500	ug/l	1	3114005	09/10/03	09/14/03	EPA 8021B	
Toluene	ND	0.500	*	n	*	#	**	**	
Ethylbenzene	ND	0.500	н	*	*	н	**	**	
Xylenes (total)	ND	1.00	n	н	Ħ	n	н	H	
Surrogate: 4-BFB (PID)	97.9 %	72-127			"	н	п	н	
MFG-4 (B310093-04) Water	Sampled: 09/03/03 18:	44 Received	1: 09/04/03	13:25					
Benzene	ND	0.500	ug/l	1	3110023	09/10/03	09/11/03	EPA 8021B	
Toluene	ND	0.500	п	*	m m	n	Ħ	"	
Ethylbenzene	ND	0.500	н	"	*	Ħ	Ħ	**	
Xylenes (total)	ND	1.00	*	14	*	Pt .	Ħ	**	
Surrogate: 4-BFB (PID)	94.4 %	72-127			"	n	Ħ	н	
MFG-4 (B310093-04RE1) Wate	er Sampled: 09/03/03	18:44 Rec	elved: 09/0	4/03 13:25					
Benzene	ND	0.500	ug/l	1	3114005	09/10/03	09/14/03	EPA 8021B	
Toluene	ND	0.500	*	Ħ	м	"	4	н	
Ethylbenzene	ND	0.500	Ħ	*	*	**	n	rt	
Xylenes (total)	ND	1.00	~	•	•	n		n	
Surrogate: 4-BFB (PID)	99.6 %	72-127	Market and the second		н	*	71	н	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

North Creek Analytical, Inc. Environmental Laboratory NetworkPage 12 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808 Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow Reported:

09/26/03 17:01

BTEX by EPA Method 8021B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (B310093-09) Water Sa	mpled: 09/03/0	3 12:00 Red	:eived: 09/0	4/03 13:25					
Benzene	ND	0.500	ug/l	1	3110023	09/10/03	09/11/03	EPA 8021B	
Toluene	ND	0.500	**	•	н	n	*	Ħ	
Ethylbenzene	ND	0.500	*	*	14	+	*	H	
Xylenes (total)	ND	1.00	*	•	н	н	Ħ	н	
Surrogate: 4-BFB (PID)	94.2 %	72-127			77	и	N	pt.	
Trip Blank (B310093-09RE1) Water	Sampled: 09/	03/03 12:00	Received:	09/04/03 13	:25		*		
Benzene	ND	0.500	ug/l	1	3114005	09/10/03	09/14/03	EPA 8021B	
Toluene	ND	0.500	H	*	*	Ħ	н	•	
Ethylbenzene	ND	0.500	н	n	11	Ħ	Ħ	n	
Xylenes (total)	ND	1.00	*	н	**	Ħ	#	fs	
Surrogate: 4-BFB (PID)	96.2 %	72-127			#	"	"	11	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

North Creek Analytical, Inc. Environmental Laboratory NetworkPage 13 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC		RPD	· · · · · · · · · · · · · · · · · · ·
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3108010: Prepared 09/08/03	3 Using EP	A 3520C								
Blank (3108010-BLK1)										
Diesel Range Hydrocarbons	ND	0.250	mg/l							
Heavy Oil Range Hydrocarbons	ND	0.500								
Mineral Oil Range Hydrocarbons	ND	0.500	н							
Surrogate: 2-FBP	0.271		#	0.320		84.7	50-121			***************************************
Surrogate: Octacosane	0.155		H	0.160		96.9	56-123			
LCS (3108010-BS1)										
Diesel Range Hydrocarbons	1.61	0.250	mg/l	2.00		80.5	62-122			
Surrogate: 2-FBP	0.289		*	0.320		90.3	50-121			
LCS Dup (3108010-BSD1)										
Diesel Range Hydrocarbons	1.65	0.250	mg/l	2.00		82.5	62-122	2.45	40	
Surrogate: 2-FBP	0.286		"	0.320		89.4	50-121			
Matrix Spike (3108010-MS1)					Source: B	310093-0	1			
Diesel Range Hydrocarbons	4.81	0.250	mg/l	1.92	2.87	101	42-126		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Surrogate: 2-FBP	0.353		*	0.308		115	50-121	· · · · · · · · · · · · · · · · · · ·		177 Humania,
Matrix Spike Dup (3108010-MSD1)	27 - 1220				Source: B	310093-01	l			
Diesel Range Hydrocarbons	4.54	0.250	mg/l	1.92	2.87	87.0	42-126	5.78	40	
Surrogate: 2-FBP	0.302		*	0.308	***************************************	98.1	50-121			

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

North Creek Analytical, Inc. Environmental Laboratory Network Page 14 of 24



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MCS Environmental

5562 Alloy Street

Missoula, MT/USA 59808

Project Darling-Tacoma UST

Project Number: 11093.001

Project Manager: Natalie Morrow

Reported:

09/26/03 17:01

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Quality Control North Creek Analytical - Bothell

	· · · · · · · · · · · · · · · · · · ·	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3109033: Prepared 09/08/03	Using EP	PA 3520C								
Blank (3109033-BLK1)										
Mineral Oil Range (SGCU)	ND	0.500	mg/l							
Diesel Range (SGCU)	ND	0.250	*							
Lube Oil Range (SGCU)	ND	0.500	**							
Surrogate: 2-FBP (SGCU)	0.272		*	0.320		85.0	50-150			
Surrogate: Octacosane (SGCU)	0.167		*	0.160		104	50-150			
LCS (3109033-BS1)										
Diesel Range (SGCU)	1.64	0.250	mg/l	2.00		82.0	45-105			
Surrogate: 2-FBP (SGCU)	0.273		N	0.320		85.3	50-150			
LCS Dup (3109033-BSD1)										
Diesel Range (SGCU)	1.70	0.250	mg/l	2.00		85.0	45-105	3.59	50	
Surrogate: 2-FBP (SGCU)	0.282		"	0.320		88.1	50-150			
Matrix Spike (3109033-MS1)					Source: B	310093-0	1			
Diesel Range (SGCU)	1.63	0.250	mg/l	1.92	0.0859	80.4	50-105	***	H-1-H-reteriora anno de Harris and anno anno anno anno anno anno anno	and the second second second second second
Surrogate: 2-FBP (SGCU)	0.294		H	0.308		95.5	50-150			
Matrix Spike Dup (3109033-MSD1)					Source: B	310093-0				
Diesel Range (SGCU)	1.63	0.250	mg/l	1.92	0.0859	80.4	50-105	0.00	40	
Surrogate: 2-FBP (SGCU)	0.285		Ħ	0.308		92.5	50-150			

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Environmental Laboratory NetworkPage 15 of 24



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MCS Environmental

5562 Alloy Street

Project: Darling-Tacoma UST

Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

RPD

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

Spike

Source

Reporting

			vehoring		Space	Source		FOREC		RPD	
Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3106008:	Prepared 09/06/03	Using El	PA 3520C								
Blank (3106008-BL)	(1)									-	
C8-C10 Aliphatics		ND	50.0	ug/l							
C10-C12 Aliphatics		ND	50.0	•							
C12-C16 Aliphatics		ND	50.0	н							
C16-C21 Aliphatics		ND	50.0	11							
C21-C34 Aliphatics		ND	50.0	н							
C10-C12 Aromatics		ND	50.0	я							
C12-C16 Aromatics		ND	50.0	*							
C16-C21 Aromatics		ND	50.0	n							
C21-C34 Aromatics		ND	50.0	н							
Extractable Petroleum H	ydrocarbons	ND	50.0	н							
Surrogate: o-Terphenyl		323	Control of A. T. Andr or Abstract Control of	~	400		80.8	60-140			
Surrogate: 1-Chloroocto	adecane	293		*	400		73.2	60-140			
LCS (3106008-BS1)											
C8-C10 Aliphatics		80.6	50.0	ug/l	100	272	80.6	70-130			4)-4,
C10-C12 Aliphatics		80.9	50.0	н	100		80.9	70-130			
C12-C16 Aliphatics		173	50.0	"	200		86.5	70-130			
C16-C21 Aliphatics		196	50.0	#	200		98.0	70-130			
C21-C34 Aliphatics		626	50.0	n	700		89.4	70-130			
C10-C12 Aromatics		80.3	50.0	Ħ	100		80.3	70-130			
C12-C16 Aromatics		257	50.0	**	300		85.7	70-130			
C16-C21 Aromatics		498	50.0	н	500		99.6	70-130			
C21-C34 Aromatics		796	50.0	н	800		99.5	70-130			
extractable Petroleum Hy	vdrocarbons	2860	50.0	*	3100		92.3	70-130			
urrogate: o-Terphenyl	Maria Maria de primer por la contra de la contra del la contra del la contra del la contra del la contra de la contra de la contra del la contra d	355	and a second manager of the second manager and an arranger of the second manager of the	**************************************	400	BARANTAN IN JOSE OF JAMES OF STREET	88.8	60-140		******************	Marri salah di ba di di di
Surrogate: 1-Chloroocta	decane	328		**	400		82.0	60-140			
.CS Dup (3106008-B	SD1)										
78-C10 Aliphatics		86.2	50.0	ug/l	100		86.2	70-130	6.71	25	May (MANA 8.00 Mana) May 18
C10-C12 Aliphatics		90.7	50.0	~	100		90.7	70-130	11.4	25	
C12-C16 Aliphatics		177	50.0		200		88.5	70-130	2.29	25	
16-C21 Aliphatics		205	50.0	•	200		102	70-130	4.49	25	
21-C34 Aliphatics		648	50.0	*	700		92.6	70-130	3.45	25	
10-C12 Aromatics		81.1	50.0		100		81.1	70-130	0.991	25	

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Environmental Laboratory NetworkPage 16 of 24



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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

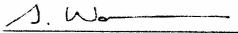
Reported: 09/26/03 17:01

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

	Reporting			Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3I06008: Prepared 09/06/03	Using EP	A 3520C								
LCS Dup (3106008-BSD1)										
C12-C16 Aromatics	256	50.0	ug/l	300		85.3	70-130	0.390	25	
C16-C21 Aromatics	506	50.0	•	500		101	70-130	1.59	25	
C21-C34 Aromatics	819	50.0	н	800		102	70-130	2.85	25	
Extractable Petroleum Hydrocarbons	2950	50.0	*	3100		95.2	70-130	3.10	25	
Surrogate: o-Terphenyl	356		н	400		89.0	60-140		· · · · · · · · · · · · · · · · · · ·	**************************************
Surrogate: 1-Chlorooctadecane	320		*	400		80.0	60~140			
Matrix Spike (3106008-MS1)					Source: B	310093-0	1			
C8-C10 Aliphatics	95.8	50.0	ug/l	94.3	37.7	61.6	70-130			Q-01
C10-C12 Aliphatics	102	50.0	н	94.3	19.8	87.2	70-130			
C12-C16 Aliphatics	167	50.0	*	189	ND	88.4	70-130			
C16-C21 Aliphatics	184	50.0	14	189	11.8	91.1	70-130			
C21-C34 Aliphatics	589	50.0	H	660	ND	89.2	70-130			
C10-C12 Aromatics	109	50.0		94.3	63.3	48.5	70-130			Q-01
C12-C16 Aromatics	230	50.0	*	283	23.8	72.9	70-130			
C16-C21 Aromatics	416	50.0	*	472	12.1	85.6	70-130			
C21-C34 Aromatics	603	50.0	"	755	ND	79.9	70-130			
Extractable Petroleum Hydrocarbons	2560	50.0	**	2920	63.3	85.5	70-130			
Surrogate: o-Terphenyl	263	THE PERSON NAMED AND ADDRESS OF THE PERSON NAMED AND ADDRESS O	π	377		69.8	60-140			
Surrogate: 1-Chlorooctadecane	272		77	377		72.1	60-140			
Matrix Spike Dup (3106008-MSD1)					Source: B	310093-0	l .			
C8-C10 Aliphatics	87.8	50.0	ug/l	94.3	37.7	53.1	70-130	8.71	25	Q-01
C10-C12 Aliphatics	110	50.0	#	94.3	19.8	95.7	70-130	7.55	25	
C12-C16 Aliphatics	155	50.0	n	189	ND	82.0	70-130	7.45	25	
C16-C21 Aliphatics	177	50.0	•	189	11.8	87.4	70-130	3.88	25	
C21-C34 Aliphatics	570	50.0	*	660	ND	86.4	70-130	3.28	25	
C10-C12 Aromatics	99.6	50.0	n	94.3	63.3	38.5	70-130	9.01	25	Q-01
C12-C16 Aromatics	234	50.0	•	283	23.8	74.3	70-130	1.72	25	
C16-C21 Aromatics	417	50.0	H	472	12.1	85.8	70-130	0.240	25	
C21-C34 Aromatics	597	50.0	•	755	ND	79.1	70-130	1.00	25	
Extractable Petroleum Hydrocarbons	2510	50.0	н	2920	63.3	83.8	70-130	1.97	25	
Surrogate: o-Terphenyl	258		N	377	Mad of Mandard and advisors on a second	68.4	60-140			Harrison Marie - Broken and American
Surrogate: 1-Chlorooctadecane	257		•	377		68.2	60-140			

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Environmental Laboratory Network Page 17 of 24



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MCS Environmental

Project Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager. Natalie Morrow

Reported: 09/26/03 17:01

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3I23003: Prepared 09/23/03	Using E	PA 3520C				·				
Blank (3123003-BLK1)										
C8-C10 Aliphatics	ND	50.0	ug/1		The second second	manamentale de la conferio en encere (la sel apartir en el				
C10-C12 Aliphatics	ND	50.0	н							
C12-C16 Aliphatics	ND	50.0	H							
C16-C21 Aliphatics	ND	50.0	Ħ							
C21-C34 Aliphatics	ND	50.0	#							
C10-C12 Aromatics	ND	50.0	#							
C12-C16 Aromatics	ND	50.0	11							
C16-C21 Aromatics	ND	50.0	•							
C21-C34 Aromatics	ND	50.0	*							
Extractable Petroleum Hydrocarbons	ND	50.0	H							
Surrogate: o-Terphenyl	313		н	400		78.2	60-140	to the state of th		***************************************
Surrogate: 1-Chlorooctadecane	330		"	400		82.5	60-140			
LCS (3123003-BS1)										
C8-C10 Aliphatics	81.4	50.0	ug/1	100		81.4	70-130			***************************************
C10-C12 Aliphatics	81.1	50.0	,	100		81.1	70-130			
C12-C16 Aliphatics	176	50.0	#	200		88.0	70-130			
C16-C21 Aliphatics	191	50.0	41	200		95.5	70-130			
C21-C34 Aliphatics	693	50.0	н	700		99.0	70-130			
C10-C12 Aromatics	83.9	50.0	н	100		83.9	70-130			
C12-C16 Aromatics	245	50.0	*	300		81.7	70-130			
C16-C21 Aromatics	427	50.0	14	500		85.4	70-130			
C21-C34 Aromatics	661	50.0	п	800		82.6	70-130			
Extractable Petroleum Hydrocarbons	2740	50.0	it	3100		88.4	70-130			
Surrogate: o-Terphenyl	329	one year or year of a common which we do not be commonwhelen. The second com-	N	400		82.2	60-140	ann an Airm an an an Airm an an Airm a	and the second second second second second second second	and the second second and the second
Surrogate: 1-Chlorooctadecane	353		Ħ	400		88.2	60-140			
LCS Dup (3123003-BSD1)										
C8-C10 Aliphatics	82.7	50.0	ug/l	100		82.7	70-130	1.58	25	// / // · · · · · · · · · · · · ·
C10-C12 Aliphatics	84.2	50.0	н	100		84.2	70-130	3.75	25	
C12-C16 Aliphatics	178	50.0	Ħ	200		89.0	70-130	1.13	25	
C16-C21 Aliphatics	193	50.0	*	200		96.5	70-130	1.04	25	
C21-C34 Aliphatics	695	50.0	•	700		99.3	70-130	0.288	25	
C10-C12 Aromatics	87.5	50.0	•	100		87.5	70-130	4.20	25	

North Creek Analytical - Bothell

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Seattle: 11/20 North Clear Pear to Suite Mr. Summer Av. (2011-2014

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

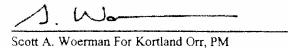
Reported: 09/26/03 17:01

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3123003: Prepared 09/23/03	Using EP.	A 3520C								
LCS Dup (3123003-BSD1)										
C12-C16 Aromatics	227	50.0	ug/l	300		75.7	70-130	7.63	25	
C16-C21 Aromatics	413	50.0	*	500		82.6	70-130	3.33	25	
C21-C34 Aromatics	630	50.0	*	800		78.8	70-130	4.80	25	
Extractable Petroleum Hydrocarbons	2680	50.0	н	3100		86.5	70-130	2.21	25	
Surrogate: o-Terphenyl	324	, etter ja eliteratustetti yhdenkaltenkuudikooki	n.	400		81.0	60-140			
Surrogate: 1-Chlorooctadecane	350		*	400		87.5	60-140			

North Creek Analytical - Bothell

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MCS Environmental

Project Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow Reported:

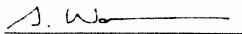
09/26/03 17:01

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3118011: Prepared 09/18/03	Using E	PA 3520C								
Blank (3118011-BLK1)										
1-Methylnaphthalene	ND	0.100	ug/l							
2-Methylnaphthalene	ND	0.100	n							
Benzo (a) anthracene	ND	0.100	**							
Benzo (a) pyrene	ND	0.100	ħ							
Benzo (b) fluoranthene	ND	0.100	*							
Benzo (k) fluoranthene	ND	0.100	*							
Chrysene	ND	0.100								
Dibenz (a,h) anthracene	ND	0.100	*							
Indeno (1,2,3-cd) pyrene	ND	0.100	•							
Naphthalene	ND	0.100	*							
Surrogate: p-Terphenyl-d14	46.4		н	50.0		92.8	30-150			
LCS (3118011-BS1)		P.11 - A - 200 - 20 (A - 100 -								
Benzo (a) anthracene	8.60	0.100	ug/l	10.0		86.0	50-150			
Benzo (a) pyrene	8.44	0.100	•	10.0		84.4	50-150			
Benzo (b) fluoranthene	8.24	0.100	**	10.0		82.4	50-150			
Benzo (k) fluoranthene	7.28	0.100	*	10.0		72.8	50-150			
Chrysene	7.42	0.100	-	10.0		74.2	50-150			
Dibenz (a,h) anthracene	6.38	0.100	*	10.0		63.8	50-150			
indeno (1,2,3-cd) pyrene	7.18	0.100	H	10.0		71.8	50-150			
Naphthalene	8.10	0.100	Ħ	10.0		81.0	50-150			
Surrogate: p-Terphenyl-d14	43.1		n	50.0	***************************************	86.2	30-150			
LCS Dup (3118011-BSD1)										
Benzo (a) anthracene	8.32	0.100	ug/l	10.0		83.2	50-150	3.31	25	
Benzo (a) pyrene	8.54	0.100	*	10.0		85.4	50-150	1.18	25	
3enzo (b) fluoranthene	8.10	0.100	ii	10.0		81.0	50-150	1.71	25	
Benzo (k) fluoranthene	7.50	0.100	*	10.0		75.0	50-150	2.98	25	
Chrysene	7.30	0.100	=	10.0		73.0	50-150	1.63	25	
Dibenz (a,h) anthracene	6.56	0.100	Æ	10.0		65.6	50-150	2.78	25	
ndeno (1,2,3-cd) pyrene	7.34	0.100	*	10.0		73.4	50-150	2.20	25	
Naphthalene	7.90	0.100	*	10.0		79.0	50-150	2.50	25	
Surrogate: p-Terphenyl-d14	43.1	Annual and a second	n .	50.0		86.2	30-150			

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Seattle 11 7.0 North Creek Pray 12 Specific School AA 98011 8,244 4,5 4,30 9,760 res 4,35 4,20 9,10 Spokane Filst 11115 Montpointer Side Filst Spokane AA 19,76 4,115

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager. Natalie Morrow

Reported: 09/26/03 17:01

BTEX by EPA Method 8021B - Quality Control North Creek Analytical - Bothell

		Reporting			Spike	Source		%REC		RPD	
Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3110023:	Prepared 09/10/03	Using EP	A 5030B (P/T)							
Blank (3110023-Bl	.K1)										
Benzene		ND	0.500	ug/l	-						
l'oluene		ND	0.500	**							
Ethylbenzene		ND	0.500								
Xylenes (total)		ND	1.00	и.							
Surrogate: 4-BFB (Pl	D)	44.0		н	48.0		91.7	72-127			
LCS (3110023-BS1)					****					
Benzene		7.01	0.500	ug/l	7.38		95.0	80-120			
Toluene		35.9	0.500	Ħ	34.9		103	80-120			
Ethylbenzene		8.91	0.500	n	8.19		109	80-120			
Xylenes (total)	I To A Desire	43.3	1.00	н	39.7		109	80-120			
Surrogate: 4-BFB (Pl	D)	43.3		"	48.0		90.2	72-127			
LCS Dup (3110023	-BSD1)	AND THE RESIDENCE OF A RESIDENCE OF SAME AND SAM	ما ووستخدمتان و همان سخده مجود در مسخد		****************		nandki plankarikanskih paskka i Maskarikina i da				4.00000 () A (10000000 10000 1000 1000 1000 1000 100
Benzene		7.12	0.500	ug/l	7.38		96.5	80-120	1.56	40	
Toluene		36.5	0.500	H	34.9		105	80-120	1.66	40	
Ethylbenzene		9.03	0.500	н	8.19		110	80-120	1.34	40	
Xylenes (total)		43.9	1.00	11	39.7		111	80-120	1.38	40	
Surrogate: 4-BFB (PI	D)	44.1		*	48.0		91.9	72-127			
Matrix Spike (3110	023-MS1)					Source: B	3H0780-0)5			
Benzene		5.98	0.500	ug/l	7.38	ND	81.0	70-129			
Toluene		33.4	0.500	*	34.9	0.447	94.4	73-114			
Ethylbenzene		8.02	0.500	*	8.19	0.186	95.7	82-120			
Xylenes (total)		38.8	1.00	4	39.7	0.419	96.7	74-118			
Surrogate: 4-BFB (Pl	D)	43.6		п	48.0		90.8	72-127	an effective and an artist of the section of the se		
Matrix Spike (3110	023-MS2)	** ***		222224 N. PRONON B		Source: B	310093-0	2			
Benzene		6.66	0.500	ug/I	7.38	0.163	88.0	70-129			
Toluene		35.7	0.500	•	34.9	0.101	102	73-114			
Ethylbenzene		8.73	0.500	r#	8.19	ND	107	82-120			
Xylenes (total)		42.7	1.00	u	39.7	ND	108	74-118			
Surrogate: 4-BFB (PII	0)	43.8	The state of the s	*	48.0		91.2	72-127			

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

Scott A. Woerman For Kortland Orr, PM

North Creek Analytical, Inc. Environmental Laboratory NetworkPage 21 of 24



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MCS Environmental

Project: Darling-Tacoma UST

Calles

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 09/26/03 17:01

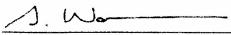
BTEX by EPA Method 8021B - Quality Control

North Creek Analytical - Bothell

		Reporting			Spike	Source		%REC		RPD	
Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3110023:	Prepared 09/10/03	Using EP	A 5030B (Р/Т)						والمراجع والمساول	
Matrix Spike Dup	(3110023-MSD1)					Source: B	3H0780-	05			
Benzene		6.04	0.500	ug/l	7.38	ND	81.8	70-129	0.998	40	
Toluene		32.9	0.500	н	34.9	0.447	93.0	73-114	1.51	40	
Ethylbenzene		7.97	0.500	Ħ	8.19	0.186	95.0	82-120	0.625	40	
Xylenes (total)		38.8	1.00	н	39.7	0.419	96.7	74-118	0.00	40	
Surrogate: 4-BFB (Pl	D)	44.0		"	48.0	2000 - 100 -	91.7	72-127			
Matrix Spike Dup	(3110023-MSD2)					Source: B	310093-0	2			
Benzene		6.71	0.500	ug/l	7.38	0.163	88.7	70-129	0.748	40	
Toluene		36.1	0.500	"	34.9	0.101	103	73-114	1.11	40	
Ethylbenzene		8.82	0.500	•	8.19	ND	108	82-120	1.03	40	
Xylenes (total)		43.2	1.00	**	39.7	ND	109	74-118	1.16	40	
Surrogate: 4-BFB (PII	D)	44.6		н	48.0		92.9	72-127			***************************************
Batch 3I14005:	Prepared 09/14/03	Using EP	A 5030B (1	P/T)							
Blank (3114005-BL	.K1)	We had a district to district advantage of the									
Benzene		ND	0.500	ug/I							W.
Toluene		ND	0.500	Ħ							
Ethylbenzene		ND	0.500	н							
Xylenes (total)		ND	1.00	**							
Surrogate: 4-BFB (PIL	D)	46.6		"	48.0		97.1	72-127			am (a jiray sutumahnahyuns, yaahu
LCS (3114005-BS1)	M. of N. Sankhanda Sanka and a sanka A. Sankhandan and a sankanga and a sankangan a spagnan	THE PROPERTY AND THE PROPERTY AND ADMINISTRAL PARTY.									
*******************************	Mark and the second of the sec	6.72	0.500	ug/l	7.38		91.1	80-120		مديد هم دروي و پروسيدو جهاد منظور د	
LCS (3114005-BS1) Benzene Toluene		6.72 35.0	0.500 0.500	ug/l "	7.38 34.9		91.1	80-120 80-120		شدند هم دروس و درسوسیر امهاستان	
Benzene Toluene				ug/l "							
Benzene		35.0	0.500	11	34.9		100	80-120			
Benzene Toluene Ethylbenzene		35.0 8.65	0.500 0.500	H	34.9 8.19		100 106	80-120 80-120			

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety



North Creek Analytical, Inc. Environmental Laboratory NetworkPage 22 of 24



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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

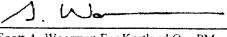
Reported: 09/26/03 17:01

BTEX by EPA Method 8021B - Quality Control North Creek Analytical - Bothell

			Reporting		Spike	Source		%REC		RPD	
Analyte	·	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3I14005: Prepared 0	9/14/03 L	sing EP	A 5030B (Р/Т)							
LCS Dup (3114005-BSD1)											
Benzene		6.75	0.500	ug/l	7.38		91.5	80-120	0.445	40	
Toluene		35.6	0.500	н	34.9		102	80-120	1.70	40	
Ethylbenzene		8.65	0.500	и	8.19		106	80-120	0.00	40	
Xylenes (total)		42.7	1.00	*	39.7		108	80-120	1.42	40	
Surrogate: 4-BFB (PID)		46.7	And Annual to Anti-are in Juntamental Security S	н	48.0		97.3	72-127			
Matrix Spike (3114005-MS1)						Source: B	310079-0	3			
Benzene		7.41	0.500	ug/l	7.38	ND	100	70-129			
Toluene		36.3	0.500	н	34.9	0.123	104	73-114			
Ethylbenzene		8.92	0.500	#	8.19	ND	109	82-120			
Xylenes (total)		43.4	1.00	н	39.7	ND	109	74-118			
Surrogate: 4-BFB (PID)		43.9		#	48.0		91.5	72-127			
Matrix Spike Dup (3114005-MSI)1)				:	Source: B	310079-03	3			
Benzene		7.18	0.500	ug/l	7.38	ND	97.3	70-129	3.15	40	
Foluene		35.4	0.500	н	34.9	0.123	101	73-114	2.51	40	
Ethylbenzene		8.63	0.500	Ħ	8.19	ND	105	82-120	3.30	40	
Xylenes (total)		42.7	1.00	•	39.7	ND	108	74-118	1.63	40	
Surrogate: 4-BFB (PID)		43.5		N	48.0		90.6	72-127			

North Creek Analytical - Bothell

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Sample results reported on a dry weight basis

Relative Percent Difference

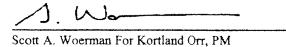
dry RPD Scattle: Millio North Clange on Avik (content original content original Application 2010) for any application application of the Policy Spokane. Plant Millio North Application of the Policy Spokane of the Million Spokane of the Policy Spokane

MCS Environmental Project: Darling-Tacoma UST

Reported: 5562 Alloy Street Project Number: 11093.001 Missoula, MT/USA 59808 Project Manager: Natalie Morrow 09/26/03 17:01

Notes and Definitions

A-01	Sample has headspace due to lab use.
D-06	The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
Q-01	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
Q-29	This sample was prepared outside of the method established holding time.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
x	See case narrative.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported





11115 E Montgomery Suite B, Spokane, WA 99206-4776 11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-9508

9405 SW Nimbus Ave, Beaverton, OR 97008-7132 20332 Empire Ave Suite F-1, Bend, OR 99701-5711 3209 Denali St, Anchorage, AK 99503-4030

FAX 906-9210 FAX 382-7588 FAX 334-9210 FAX 420-9210 FAX 924-9290 503-906-9200 541-383-9310 907-334-9200 425-420-9200 509-924-9200

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	465	ö	ADDRESS: S662	Missoula	PHONE 40- 728 7735 FAX.	PROJECT NAME: DE	PROJECT NUMBER:		SAMPLED BY: R G	CLIENT SAMPLE IDENTIFICATION	H FG-1	M FG-2	MFG-3	MFG-4		9				01	RELEASED BY.	REI EASED HV	PRINT NAME OF TO REASONS	COCRET OF EPH FUN

, run wlaced select go NWTPH-Dx filtered results. 2 extra liters for before and atter MFG-4 report

9

APPENDIX B DECEMBER 2003 LABORATORY ANALYTICAL RESULTS



Scattle 19720 North Corex Phay N. Suite 403 (Joinet, AA 980 tt R214 425 430 93 90 4ax 425 420 9240 Spokane East 11115 Vertgemen Sciel B. Spokane AA 95,06,4116

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23 December 2003

Natalie Morrow MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

RE: Darling-Tacoma UST

Enclosed are the results of analyses for samples received by the laboratory on 12/10/03 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr

PM



Scattle 111.0 North Clerk Fray N. Pope did School MA (FCM S) 14 129 4 12

MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093,001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MFG-1	B3L0406-01	Water	12/09/03 13:10	12/10/03 17:00
MFG-2	B3L0406-02	Water	12/09/03 12:02	12/10/03 17:00
MFG-3	B3L0406-03	Water	12/09/03 14:40	12/10/03 17:00
MFG-4	B3L0406-04	Water	12/09/03 15:40	12/10/03 17:00

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

North Creek Analytical, Inc. Environmental Laboratory Network Page 1 of 16



Seattle: 11 20 from Crock Palar N. Suite (C). Borrer: An 20011 (244)

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) North Creek Analytical - Bothell

		Repo	rting							
Analyte	Result	1	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-1 (B3L0406-01) Water	Sampled: 12/09/03 1	3:10 1	Received	12/10/03	17:00			***************************************	<u> </u>	
Diesel Range Hydrocarbons	1.35	(0.250	mg/l	1	3L12010	12/12/03	12/15/03	NWTPH-Dx	D-0
Heavy Oil Range Hydrocarbons	ND	(.500	**	٠	*	*		н	
Mineral Oil Range Hydrocarbons	0.976	C	0.500	n	*	n		н	"	D-0
Surrogate: 2-FBP	88.4 %	50-12	1			н		"		
Surrogate: Octacosane	100 %	56-12	3			#	#	•	*	
MFG-2 (B3L0406-02) Water	Sampled: 12/09/03 12	2:02 F	Received:	12/10/03	17:00					
Diesel Range Hydrocarbons	1.43	0	.250	mg/l	1	3L12010	12/12/03	12/15/03	NWTPH-Dx	D-06
Heavy Oil Range Hydrocarbons	0.897	0	.500	н	н	#	•	N	н	D-06
Mineral Oil Range Hydrocarbons	1.13	0	.500	~	*	н	•	*	н	D-06
Surrogate: 2-FBP	75.1%	50-12	I			m		*	"	500
Surrogate: Octacosane	114%	56-12.	3			н	*	77	,,	
MFG-3 (B3L0406-03) Water	Sampled: 12/09/03 14	l:40 R	leceived:	12/10/03	17:00					
Diesel Range Hydrocarbons	1.29	0	.250	mg/l	ı	3L12010	12/12/03	12/15/03	NWTPH-Dx	D-06
Heavy Oil Range Hydrocarbons	1.04	0.	.500	· (*	n	14		H	"	D-06
Mineral Oil Range Hydrocarbons	1.08	0.	500	н	н	н	н	n	и	D-06
Surrogate: 2-FBP	74.5 %	50-121				,,	н		7	
Surrogate: Octacosane	107 %	56-123	·			te	H	"	"	
MFG-4 (B3L0406-04) Water	Sampled: 12/09/03 15	:40 R	eceived:	12/10/03 1	17:00					
Diesel Range Hydrocarbons	2.22	0.	250	mg/l	l	3L12010	12/12/03	12/15/03	NWTPH-Dx	D-06
leavy Oil Range Hydrocarbons	1.04	0.	500	#	#	*	#	#	# # #	D-06
Mineral Oil Range Hydrocarbons	1.68	0.	500	н	*	•	•	rr	10	D-06
Surrogate: 2-FBP	75.7 %	50-121				n	ч	,	,	
Surrogate: Octacosane	103 %	56-123				•	,,	н	#	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Seattle 11 30 North Creek Flavy N. Suite 100 Bornes: AA 58011 4044

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-1 (B3L0406-01) Water	Sampled: 12/09/03 1	3:10 Recei	ved: 12/10/0	3 17:00					
Mineral Oil Range Hydrocarbons	ND	0.500	mg/l	l	3L12010	12/12/03	12/17/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250		*	44	н	4	44	
Lube Oil Range (SGCU)	ND	0.500	H	ė.		•	-	. # .	
Surrogate: 2-FBP (SGCU)	63.6 %	50-150			**	"		*	
Surrogate: Octacosane (SGCU)	90.7 %	50-150			*	"	*.	n .	
MFG-2 (B3L0406-02) Water	Sampled: 12/09/03 1	2:02 Receiv	ved: 12/10/0	3 17:00					
Mineral Oil Range Hydrocarbons	ND	0.500	mg/l	ı	3L12010	12/12/03	12/17/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	н	*	ř.	#	**	#	
Lube Oil Range (SGCU)	ND	0.500	re	#	п		•	н	
Surrogate: 2-FBP (SGCU)	64.9 %	50-150			,,	,,	*	,	
Surrogate: Octacosane (SGCU)	96.1 %	50-150			"	п	*	"	
MFG-3 (B3L0406-03) Water	Sampled: 12/09/03 1-	4:40 Receiv	ed: 12/10/0	3 17:00					
Mineral Oil Range Hydrocarbons	ND	0.500	mg/l	1	3L12010	12/12/03	12/17/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	**	**	n	rr ·	N	10	
Lube Oil Range (SGCU)	ND	0.500	11	"	н	*	н	"	
Surrogate: 2-FBP (SGCU)	63.2 %	50-150			"	"		"	
Surrogate: Octacosane (SGCU)	89.4 %	50-150			"	"	n	н	
MFG-4 (B3L0406-04) Water	Sampled: 12/09/03 15	5:40 Receiv	ed: 12/10/0	3 17:00					
Mineral Oil Range Hydrocarbons	ND	0.500	mg/l	<u> </u>	3L12010	12/12/03	12/17/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	н	Ħ	н	"	, , , , , ,	#	
Lube Oil Range (SGCU)	ND	0.500	н	**	•	*	#	н	
Surrogate: 2-FBP (SGCU)	63.6 %	50-150			,	u	n	"	
Surrogate: Octacosane (SGCU)	86.2 %	50-150			*	,,	n	a	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method North Creek Analytical - Bothell

	Re	porting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B3L0406-01) Water	Sampled: 12/09/03 13:10	Receiv	ed: 12/10/0	3 17:00		***************	·····		**************************************
C8-C10 Aliphatics	ND	50.0	ug/l	l	3L16007	12/16/03	12/21/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0			н	н	*	*	
C12-C16 Aliphatics	ND	50.0	н			**	н	•	
C16-C21 Aliphatics	ND	50.0	*	#	**	н	-	,	
C21-C34 Aliphatics	ND	50.0	**	"	n	n		ĸ	
C10-C12 Aromatics	ND	50.0	н	н	н	H	n		
C12-C16 Aromatics	ND	50.0	н	**	**	**	**	*	
C16-C21 Aromatics	ND	50.0	н	н	*	N	н	**	
C21-C34 Aromatics	ND	50.0	*	m	*	10	**	**	
Extractable Petroleum Hydrocarbons	s ND	50.0	**	+	н	4	**	m	
Surrogate: o-Terphenyl	82.7% 60-	140			*	,,		,	
Surrogate: 1-Chlorooctadecane	88.5 % 60-	140			"	""	#	"	
MFG-2 (B3L0406-02) Water	Sampled: 12/09/03 12:02	Receive	ed: 12/10/03	3 17:00					
C8-C10 Aliphatics	ND	50.0	ug/l	1	3L16007	12/16/03	12/21/03	WA MTCA-EPH	1
C10-C12 Aliphatics	ND	50.0	"	н		*	н	n n	
C12-C16 Aliphatics	ND	50.0	**	H	+			н	
C16-C21 Aliphatics	ND	50.0	45	#	**	14	te .	#	
C21-C34 Aliphatics	ND	50.0		11	н	*	**	*	
C10-C12 Aromatics	ND	50.0	п	•	"	H	11	а	
C12-C16 Aromatics	ND	50.0	•	n	4	•	**	te	
C16-C21 Aromatics	ND	50.0	*	*	#	11			
C21-C34 Aromatics	ND	50.0	M	п		n	н	п	
Extractable Petroleum Hydrocarbons	ND	50.0		*		•	•	**	
Surrogate: o-Terphenyl	72.2 % 60-1	40				#			
Surrogate: 1-Chlorooctadecane	80.1 % 60-1	40			**	,,	•	**	

North Creek Analytical - Bothell

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North Creek Analytical, Inc. **Environmental Laboratory Network**

Page 4 of 16



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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

		eporting							·
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note:
MFG-3 (B3L0406-03) Water	Sampled: 12/09/03 14:40) Receiv	ed: 12/10/0	3 17:00					······································
C8-C10 Aliphatics	ND	50.0	ug/l	1	3L16007	12/16/03	12/21/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	u	•	*	*	н	*	
C12-C16 Aliphatics	ND	50.0	н	•		п	*	н	
C16-C21 Aliphatics	ND	50.0	n	4	a	*	•	n	
C21-C34 Aliphatics	ND	50.0	14.	н	п			N	
C10-C12 Aromatics	ND	50.0	*	•	-	ŧť	rx		
C12-C16 Aromatics	ND	50.0	Ħ		н	H	•	tv	
C16-C21 Aromatics	ND	50.0	н	19	*	n		11	
C21-C34 Aromatics	ND	50.0	n	. #			n	•	
Extractable Petroleum Hydrocarbons	s ND	50.0	14	(4	H	m	et	**	
Surrogate: o-Terphenyl	80.1 % 60	-140				"	,,		
Surrogate: 1-Chlorooctadecane	89.8 % 60	-140			*	n	"	"	
MFG-4 (B3L0406-04) Water	Sampled: 12/09/03 15:40	Receive	ed: 12/10/03	3 17:00					
C8-C10 Aliphatics	ND	50.0	ug/l	1	3L16007	12/16/03	12/21/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	4	14		*	#	14	
C12-C16 Aliphatics	ND	50.0	st	**	#	*	۳.	*	
C16-C21 Aliphatics	ND	50.0	**	11		"	n	•	
C21-C34 Aliphatics	ND	50.0	Ħ	**	"	н	*	**	
C10-C12 Aromatics	ND	50.0	*	**	#	- #	n	H	
C12-C16 Aromatics	ND	50.0		,	-	**	4		
C16-C21 Aromatics	ND	50.0	н	,			н	**	
C21-C34 Aromatics	ND	50.0	#	10	*	н	#	16	
Extractable Petroleum Hydrocarbons	ND	50.0	*	,	н	н	ri	os.	
Surrogate: o-Terphenyl	79.0 % 60-	140			"	"	~	"	
Surrogate: 1-Chlorooctadecane	89.1% 60-	140			n	,,	,,	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Page 5 of 16



Seattle 17 20 North Clear Flowy North Burn Brothe II AA 23811 8/24

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM North Creek Analytical - Bothell

Analyte MFG-1 (B3L0406-01) Water S I-Methylnaphthalene 2-Methylnaphthalene Benzo (a) anthracene Benzo (b) fluoranthene Benzo (k) fluoranthene Chrysene Dibenz (a,h) anthracene Indeno (1,2,3-cd) pyrene Naphthalene Surrogate: p-Terphenyl-d14	Result Sampled: 12/09/03 13:10 0.343 ND ND ND ND ND ND ND ND	Receive 0.100 0.100 0.100 0.100 0.100	Units ed: 12/10/0 ug/l " "	Dilution 3 17:00	3L16007	Prepared 12/16/03	Analyzed 12/19/03	Method	Notes
1-Methylnaphthalene 2-Methylnaphthalene Benzo (a) anthracene Benzo (b) fluoranthene Benzo (k) fluoranthene Chrysene Dibenz (a,h) anthracene Indeno (1,2,3-cd) pyrene Naphthalene	0.343 ND ND ND ND	0.100 0.100 0.100 0.100	ug/l *	1		12/16/03	12/19/03	227.011	
2-Methylnaphthalene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene Benzo (k) fluoranthene Chrysene Dibenz (a,h) anthracene Indeno (1,2,3-cd) pyrene Naphthalene	ND ND ND ND	0.100 0.100 0.100	# H	*		12/16/03	12/19/03	NAME OF A PART	
Benzo (a) anthracene Benzo (b) fluoranthene Benzo (k) fluoranthene Chrysene Dibenz (a,h) anthracene Indeno (1,2,3-cd) pyrene Naphthalene	ND ND ND	0.100 0.100			*			8270-SIM	
Benzo (a) pyrene Benzo (b) fluoranthene Benzo (k) fluoranthene Chrysene Dibenz (a,h) anthracene Indeno (1,2,3-cd) pyrene Naphthalene	ND ND	0.100		н		,,	*	44	
Benzo (b) fluoranthene Benzo (k) fluoranthene Chrysene Dibenz (a,h) anthracene Indeno (1,2,3-cd) pyrene Naphthalene	ND		19		*	Ħ	**	M	
Benzo (k) fluoranthene Chrysene Dibenz (a,h) anthracene Indeno (1,2,3-cd) pyrene Naphthalene		0.100		**	*	(1	**	N	
Chrysene Dibenz (a,h) anthracene Indeno (1,2,3-cd) pyrene Naphthalene	ND	0.100	17	*	*	н	4+	14	
Dibenz (a,h) anthracene Indeno (1,2,3-cd) pyrene Naphthalene		0.100		н	n	н	н	"	
Indeno (1,2,3-cd) pyrene Naphthalene	ND	0.100	N		*		10	н	
Naphthalene	ND	0.100	*	19	*	н	'n	н	
	ND	0.100	n	н	4	17	#	59	
Surrogate: p-Terphenyl-d14	ND	0.100	*	н		#	*	•	
3 7 7	88.2 % 20-1	127			•	,	,	,,	
MFG-2 (B3L0406-02) Water S	Sampled: 12/09/03 12:02	Receive	:d: 12/10/03	3 17:00					
1-Methylnaphthalene	ND	0.100	ug/l	1	3L16007	12/16/03	12/19/03	8270-SIM	
2-Methylnaphthalene	ND	0.100	,	#	н	11		н	
Benzo (a) anthracene	ND	0.100	"	"	**	m	п	н	
Benzo (a) pyrene	ND	0.100	н	*	н	**		#	
Benzo (b) fluoranthene	ND	0.100	*	**	•	n	Ħ	п	
Benzo (k) fluoranthene	ND	0.100	H	n	н	Ħ.	*	**	
Chrysene	ND	0.100	н		H	*	•	**	
Dibenz (a,h) anthracene	ND	0.100	"		н	и			
Indeno (1,2,3-cd) pyrene	ND	0.100	,		#	**	•	H	
Naphthalene	ND	0.100	n	**	m :	W	₩. 1	"	
Surrogate: p-Terphenyl-d14		27				n			

North Creek Analytical - Bothell

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Page 6 of 16



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MCS Environmental

5562 Alloy Street Missoula, MT/USA 59808 Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM North Creek Analytical - Bothell

	Re	porting						**************************************	
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-3 (B3L0406-03) Water	Sampled: 12/09/03 14:40	Receiv	ed: 12/10/03	17:00					
1-Methylnaphthalene	ND	0.100	ug/l	ì	3L16007	12/16/03	12/19/03	8270-SIM	·
2-Methylnaphthalene	ND	0.100	n	*	*	н	H	14	
Benzo (a) anthracene	ND	0.100	*	'n	н	н	N	in .	
Benzo (a) pyrene	ND	0.100	H	**	н	н	n	п	
Benzo (b) fluoranthene	ND	0.100	Ħ	n	ės –	*	*	п	
Benzo (k) fluoranthene	ND	0.100	Ħ		•		*	и	
Chrysene	ND	0.100	TH	11	ď	"		n	
Dibenz (a,h) anthracene	ND	0.100	н	н	н	#	n		
Indeno (1,2,3-cd) pyrene	ND	0.100	if	н	п	н	н	**	
Naphthalene	ND	0.100	п	•	r•		н	n	
Surrogate: p-Terphenyl-d14	68.0 % 20-	127			"	"	n		
MFG-4 (B3L0406-04) Water	Sampled: 12/09/03 15:40	Receive	ed: 12/10/03	17:00					
1-Methylnaphthalene	0.712	0.100	ug/l	ı	3L16007	12/16/03	12/19/03	8270-SIM	
2-Methylnaphthalene	0.481	0.100	"	**	"	3 4	н	**	
Benzo (a) anthracene	ND	0.100	π	н	**	н	**	н	
Вепzo (а) рутепе	ND	0.100	**	61	*	"	*		
Benzo (b) fluoranthene	ND	0.100	7	**	н	π	**	н	
Benzo (k) fluoranthene	ND	0.100	н	**	н	•	**	"	
Chrysene	ND	0.100	#	10	14	*	19	H	
Dibenz (a,h) anthracene	ND	0.100	н	*		n	H	- 19	
Indeno (1,2,3-cd) pyrene	ND	0.100	#	*	*	н		16	
Naphthalene	0.173	0.100	e l	•	**	*	**	n	
Surrogate: p-Terphenyl-d14	85.8 % 20-1	127			~	"	, , , , , , , , , , , , , , , , , , ,	n	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

BTEX by EPA Method 8021B North Creek Analytical - Bothell

	Re	eporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-1 (B3L0406-01) Water	Sampled: 12/09/03 13:10	Receiv	ed: 12/10/	03 17:00					Q-3
Benzene	ND	0.500	ug/l	1	3L14001	12/14/03	12/14/03	EPA 8021B	
Toluene	ND	0.500	N		**		**	н	
Ethylbenzene	ND	0.500	**	*	Ħ	"	Ħ	*	
Xylenes (total)	ND	1.00	74	н	*		N	e	
Surrogate: 4-BFB (PID)	97.3 % 72.	127			n	n	*	*	
MFG-2 (B3L0406-02) Water	Sampled: 12/09/03 12:02	Receiv	ed: 12/10/0	03 17:00					0-34
Benzene	ND	0.500	ug/l	1	3L14001	12/14/03	12/14/03	EPA 8021B	
To luene	ND	0.500	н	n	**	n		H	
Ethylbenzene	ND	0.500	tr	*		**	•		
Xylenes (total)	ND	1.00	*	Ħ	n		*	н	
Surrogate: 4-BFB (PID)	96.7% 72-	127			~	"	,,	,	
MFG-3 (B3L0406-03) Water	Sampled: 12/09/03 14:40	Receive	ed: 12/10/0	3 17:00					
Benzene	ND	0.500	ug/l	ı	3L14001	12/14/03	12/14/03	EPA 8021B	
Toluene	ND	0.500	N		F4	н.	в	"	
Ethylbenzene	ND	0.500	n	r t	**	17	#	H	
(ylenes (total)	ND	1.00	**	н	**	11	H	M	
Surrogate: 4-BFB (PID)	95.4% 72-	127			"	#	"	"	
MFG-4 (B3L0406-04) Water	Sampled: 12/09/03 15:40	Receive	d: 12/10/0	3 17:00					Q-34
Benzene	ND	0.500	ug/l		3L14001	12/14/03	12/14/03	EPA 8021B	<u> </u>
oluene	ND	0.500	н		•	•	H	# # DOZIE	
thylbenzene	ND	0.500	*	•	n	H	H	н	
(ylenes (total)	ND	1 00	#	Ħ	н	*	**	H ·	
urrogate: 4 BFB (PID)	96.7% 72-	127			,,	W			

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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North Creek Analytical, Inc. Environmental Laboratory Network Page 8 of 16



Seattle: 11720 from Chek Pays N. Cure 400 Romer AA (801) 4744

425 420 9205 tax 425 420 9230 Spokane Factorist Minisporary Ture Binspokane AA 44206 41 A 924 924 9255 fax 5.4 924 2290

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source	·····	%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3L12010: Prepared 12/12/03	Using E	PA 3520C				***************************************				
Blank (3L12010-BLK1)								· - · · · · · · · · · · · · · · · · · ·		
Diesel Range Hydrocarbons	ND	0.250	mg/l			•			•	
Heavy Oil Range Hydrocarbons	ND	0.500	H							
Mineral Oil Range Hydrocarbons	ND	0.500	*							
Surrogate: 2-FBP	0.270		~	0.320		84.4	50-121			
Surrogate: Octacosane	0.143		"	0.160		89.4	56-123			
LCS (3L12010-BS1)										
Diesel Range Hydrocarbons	1.43	0.250	mg/l	2.00		71.5	62-122			
Surrogate: 2-FBP	0.226		"	0.320		70.6	50-121			
LCS Dup (3L12010-BSD1)										
Diesel Range Hydrocarbons	1.47	0.250	mg/l	2.00		73.5	62-122	2.76	40	
Surrogate: 2-FBP	0.224		,	0.320		70.0	50-121	-		
Matrix Spike (3L12010-MS1)				:	Source: E	3L0406-0)1			
Diesel Range Hydrocarbons	2.93	0.250	mg/l	1.92	1.35	82.3	42-126			-
Surrogate: 2-FBP	0.274			0.308		89.0	50-121			
Matrix Spike Dup (3L12010-MSD1)				9	Source: B	3L0406-(11			
Diesel Range Hydrocarbons	3.16	0.250	mg/l	1.89	1.35	95.8	42-126	7.55	40	
urrogate: 2-FBP	0.286			0.302		94.7	50-121			

North Creek Analytical - Bothell

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3L12010: Prepared 12/12/0	3 Using E	PA 3520C								
Blank (3L12010-BLK1)						* *				
Mineral Oil Range Hydrocarbons	ND	0.500	mg/l				-			-
Diesel Range (SGCU)	ND	0.250	*							
Lube Oil Range (SGCU)	ND	0.500	4							
Surrogate: 2-FBP (SGCU)	0.216			0.320		67.5	50-150			-
Surrogate: Octacosane (SGCU)	0.151		*	0.160		94.4	50-150			
LCS (3L12010-BS1)										
Diesel Range (SGCU)	1.41	$0.25\widetilde{0}$	mg/l	2.00	÷	70.5	45-105	•	-	
Surrogate: 2-FBP (SGCU)	0.262			0.320		81.9	50-150			
LCS Dup (3L12010-BSD1)										
Diesel Range (SGCU)	1.37	0.250	mg/l	2.00		68.5	45-105	2.88	50	
Surrogate: 2-FBP (SGCU)	0.279		. "	0.320		87.2	50-150			
Matrix Spike (3L12010-MS1)					Source: B	3L0406-0	01			
Diesel Range (SGCU)	1.29	0.250	mg/l	1.92	0.0947	62.3	0-200		-	
Surrogate: 2-FBP (SGCU)	0.255		*	0.308		82.8	50-150			
Matrix Spike Dup (3L12010-MSD1)					Source: B	3L0406-0)1			
Diesel Range (SGCU)	1.38	0.250	mg/l	1.89	0.0947	68.0	0-200	6.74	200	
Surrogate: 2-FBP (SGCU)	0.270		#	0.302		89.4	50-150			

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

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Seattle: 117.0 North Cross Phay N. Suite 400. Rome: WA (2011-8244)

\$25 \$20 \$200 the \$25 \$20 9210 Spokane Field 1115 Montgomers, Suite & Spokane, IVA 99,05 4175

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

RPD

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

Reporting

Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3L16007: Prepared 12	/16/03 Using E	PA 3520C								
Blank (3L16007-BLK1)										
C8-C10 Aliphatics	ND	50.0	ug/l		*					
C10-C12 Aliphatics	ND	50.0	*							
C12-C16 Aliphatics	ND	50.0	н							
C16-C21 Aliphatics	ND	50.0	н							
C21-C34 Aliphatics	ND	50.0	н							
C10-C12 Aromatics	ND	50.0	н							
C12-C16 Aromatics	ND	50.0	74							
C16-C21 Aromatics	ND	50.0	+							
C21-C34 Aromatics	ND	50.0	H							
Extractable Petroleum Hydrocarbons	ND	50.0	Ħ							
Surrogate: o-Terphenyl	347		n	400		86.8	60-140			
Surrogate: 1-Chlorooctadecane	386		"	400		96.5	60-140			
LCS (3L16007-BS1)										
C8-C10 Aliphatics	64.7	50.0	ug/l	100		64.7	70-130			Q-0
C10-C12 Aliphatics	87.1	50.0	н	100		87.1	70-130			•
C12-C16 Aliphatics	180	50.0	н	200		90.0	70-130			
C16-C21 Aliphatics	209	50.0	н	200		104	70-130			
C21-C34 Aliphatics	618	50.0	н	700		88.3	70-130			
C10-C12 Aromatics	78.7	50.0	*	100		78.7	70-130			
C12-C16 Aromatics	263	50.0	•	300		87.7	70-130			
C16-C21 Aromatics	453	50.0		500		90.6	70-130			
C21-C34 Aromatics	598	50.0	*	800		74.8	70-130			
Extractable Petroleum Hydrocarbons	2620	50.0	er .	3100		84.5	70-130			
Surrogate: o-Terphenyl	397		•	400		99.2	60-140			
Surrogate: 1-Chlorooctadecane	390		*	400		97.5	60-140			
LCS Dup (3L16007-BSD1)										
C8-C10 Aliphatics	72.1	50.0	ug/I	100		72.1	70-130	10.8	25	
C10-C12 Aliphatics	86.7	50.0	-	100		86.7	70-130	0.460	25	
C12-C16 Aliphatics	188	50.0	•	200		94.0	70-130	4.35	25	
C16-C21 Aliphatics	215	50.0		200		108	70-130	2.83	25	
C21-C34 Aliphatics	642	50.0		700		91.7	70-130	3.81	25	
C10-C12 Aromatics	92.4	50.0		100		92.4	70-130	16.0	25	

North Creek Analytical - Bothell

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North Creek Analytical, Inc. **Environmental Laboratory Network**

Page 11 of 16



Seattle: 11720 North Criesk Pawy N. Soute 400 Prome U.A.A. 98011-8244

425 430 92 NO fax 425 429 9210

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

			Reporting		Spike	Source		%REC		RPD	
Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3L16007:	Prepared 12/16/03	Using F	EPA 3520C						··· - · · · · · · · · · · · · · · · · ·		
LCS Dup (3L16007-	-BSD1)										
C12-C16 Aromatics		276	50.0	ug/l	300		92.0	70-130	4.82	25	
C16-C21 Aromatics		464	50.0		500		92.8	70-130	2.40	25	
C21-C34 Aromatics		611	50.0	н	800		76.4	70-130	2.15	25	
Extractable Petroleum I	lydrocarbons	2740	50.0	*	3100		88.4	70-130	4.48	25	
Surrogate: o-Terphenyl		407		*	400		102	60-140			
Surrogate: 1-Chlorooct	adecane	410		н	400		102	60-140			
Matrix Spike (3L16	007-MS1)					Source: B	3L0406-	01			
C8-C10 Aliphatics		78.4	50.0	ug/l	95.2	11.9	69.9	70-130			Q-0
C10-C12 Aliphatics		109	50.0	н	95.2	10.4	104	70-130			ν.
C12-C16 Aliphatics		169	50.0	H	190	ND	88.9	70-130			
C16-C21 Aliphatics		184	50.0	н	190	ND	96.8	70-130			
C21-C34 Aliphatics		609	50.0	44	667	ND	91.3	70-130			
C10-C12 Aromatics		75.6	50.0	17	95.2	11.8	67.0	70-130			Q-0
C12-C16 Aromatics		235	50.0	н	286	ND	82.2	70-130			
C16-C21 Aromatics		391	50.0	n	476	11.2	79.8	70-130			
C21-C34 Aromatics		476	50.0	H	762	ND	62.5	70-130			O-0
Extractable Petroleum H	lydrocarbons	2400	50.0	n	2950	0.00	81.4	70-130			
Surrogate: o-Terphenyl		321		"	381		84.3	60-140			
Surrogate: 1-Chloroocto	adecane	361		ii .	381		94.8	60-140			
Matrix Spike Dup (3	L16007-MSD1)				5	Source: B.	3L0406-0	1			
8-C10 Aliphatics		74.5	50.0	ug/l	96.2	11.9	65.1	70-130	5.10	25	Q-0
C10-C12 Aliphatics		119	50.0	#	96.2	10.4	113	70-130	8.77	25	•
C12-C16 Aliphatics		184	50.0	*	192	ND	95.8	70-130	8.50	25	
16-C21 Aliphatics		198	50.0	**	192	ND	103	70-130	7.33	25	
21-C34 Aliphatics		595	50.0	et	673	ND	88.4	70-130	2.33	25	
10-C12 Aromatics		69.9	50.0	**	96.2	11.8	60.4	70-130	7.84	25	Q-01
12-C16 Aromatics		262	50.0	7	288	ND	91.0	70-130	10.9	25	
16-C21 Aromatics		438	50.0	*	481	11.2	88.7	70-130	11.3	25	
21-C34 Aromatics		546	50.0	*	769	ND	71.0	70-130	13.7	25	
xtractable Petroleum H	ydrocarbons	2560	50.0		2980	0.00	85.9	70-130	6.45	25	
urrogate: o-Terphenyl		358		#	385		93.0	60-140			
urrogate: 1-Chloroocta	documo	369			385		95.8	60-140			

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North Creek Analytical, Inc. **Environmental Laboratory Network** Page 12 of 16



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MCS Environmental

5562 Alloy Street

Missoula, MT/USA 59808

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control North Creek Analytical - Bothell

Analyse Result Limit Units Level Result %REC Limits RPD Limit Note				Reporting		Spike	Source		%REC		RPD	
Blank (3L16007-BLK1) -Methylnaphthalene	Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Methylnaphthalene	Batch 3L16007:	Prepared 12/16/03	Using F	EPA 3520C					····			
2-Methylnaphthalene	Blank (3L16007-BL	K1)										
Benzo (a) anthracene Benzo (b) fluoranthene ND 0 100 " Chrysene	1-Methylnaphthalene		ND	0.100	ug/l							
Benzo (a) pyrene ND 0.100 " Benzo (b) fluoranthene ND 0.100 " Benzo (k) fluoranthene ND 0.100 " ND 0.	2-Methylnaphthalene		ND	0.100	н							
Benzo (b) fluoranthene Benzo (b) fluoranthene ND 0.100 " ND 0.100 N	Benzo (a) anthracene		ND	0.100	#							
Benzo (k) fluoranthene	Benzo (a) pyrene		ND	0.100	•							
Chrysene ND 0.100 " Dibenz (a,h) anthracene ND 0.100 " ND 0.100 " NSaphthalene ND 0.100 " NSaphthalene ND 0.100 " ND 0.100 " NSurrogate: p-Terphenyl-d14	Benzo (b) fluoranthene		ND	0.100	# 1							
Dibenz (a,h) anthracene ND 0.100 " ND 0.100 ND ND	Benzo (k) fluoranthene		ND	0.100	**							
Indeno (1,2,3-ed) pyrene ND 0,100 "	Chrysene		ND	0.100	n							
Naphthalene ND 0.100 " Surrogate: p-Terphenyl-d14 5.72 " 8.00 71.5 20-127 LCS (3L16007-BS2) Benzo (a) anthracene 7.06 0.100 ug/l 10.0 70.6 41-121 Benzo (a) pyrene 8.36 0.100 " 10.0 106 35-133 Benzo (b) fluoranthene 10.6 0.100 " 10.0 106 35-133 Benzo (k) fluoranthene 6.14 0.100 " 10.0 61.4 28-127 Chrysene 8.06 0.100 " 10.0 80.6 41-120 Dibenz (a,h) anthracene 7.74 0.100 " 10.0 77.4 24-120 indeno (1,2,3-ed) pyrene 7.94 0.100 " 10.0 77.4 24-120 surrogate: p-Terphenyl-d14 5.64 " 8.00 70.5 20-127 LCS Dup (3L16007-BSD2) Benzo (a) pyrene 8.40 0.100 " 10.0 79.8 41-121 12.2 25 Benzo (a) anthracene 7.98 0.100 ug/l 10.0 79.8 41-121 12.2 25 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 Benzo (b) fluoranthene 9.22 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 8.46 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 8.46 0.100 " 10.0 84.0 4.0 33-125 0.477 25 Benzo (b) fluoranthene 8.46 0.100 " 10.0 84.0 4.1 20 4.84 25 Chrysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Chrysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Chrysene 8.46 0.100 " 10.0 84.6 41-120 5.28 25 Chapthalene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 84.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 84.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 84.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 84.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 84.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 84.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 84.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 86.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 86.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 86.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 86.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 86.2 26-122 3.47 25 Benzo (b) pyrene 8.22 0.100 " 10.0 86.2 26-122 3.47 25	Dibenz (a,h) anthracene		ND	0.100								
Surrogate: p-Terphenyl-d14 5.72 " 8.00 71.5 20-127 LCS (3L16007-BS2) Benzo (a) anthracene 7.06 0.100 ug/l 10.0 83.6 33-125 Benzo (a) pyrene 8.36 0.100 " 10.0 106 35-133 Benzo (b) fluoranthene 10.6 0.100 " 10.0 61.4 28-127 Chrysene 8.06 0.100 " 10.0 80.6 41-120 Dibenz (a,h) anthracene 7.74 0.100 " 10.0 77.4 24-120 Indeno (1,2,3-ed) pyrene 7.94 0.100 " 10.0 79.0 38-120 Surrogate: p-Terphenyl-d14 5.64 " 8.00 70.5 20-127 LCS Dup (3L16007-BSD2) Benzo (a) pyrene 8.40 0.100 " 10.0 79.8 41-121 12.2 25 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 9.22 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 7.62 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 8.40 0.100 " 10.0 84.0 41-121 1.2 25 Benzo (b) fluoranthene 8.40 0.100 " 10.0 84.0 41-120 4.84 25 Benzo (a) pyrene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 84.6 41-120 4.84 25 Dibenz (a,h) anthracene 8.16 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (a) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (a) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 7.54 0.100 " 10.0 82.2 26-122 3.47 25	Indeno (1,2,3-cd) pyren	e	ND	0.100	н							
Commerce	Naphthalene		ND	0.100	**							
Benzo (a) anthracene 7.06 0.100 ug/l 10.0 70.6 41-121 Benzo (a) pyrene 8.36 0.100 " 10.0 83.6 33-125 Benzo (b) fluoranthene 10.6 0.100 " 10.0 106 35-133 Benzo (b) fluoranthene 10.6 0.100 " 10.0 61.4 28-127 Benzo (b) fluoranthene 8.06 0.100 " 10.0 80.6 41-120 Benzo (b) fluoranthene 7.74 0.100 " 10.0 77.4 24-120 Benzo (b) pyrene 7.94 0.100 " 10.0 77.4 24-120 Benzo (b) pyrene 7.94 0.100 " 10.0 79.4 26-122 Benzo (b) pyrene 7.99 0.100 " 10.0 79.0 38-120 Benzo (b) fluoranthene 7.08 0.100 " 8.00 70.5 20-127 Benzo (a) anthracene 7.08 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 9.22 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 9.22 0.100 " 10.0 76.2 28-127 21.5 25 Benzo (b) fluoranthene 8.40 0.100 " 10.0 84.6 41-120 4.84 25 Benzo (b) fluoranthene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 81.6 24-120 5.28 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.16 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Benzo (b) fluoranthe	Surrogate: p-Terphenyl	d14	5.72		*	8.00		71.5	20-127			
Senzo (a) pyrene 8.36 0.100 " 10.0 83.6 33-125 33-125 35-133 31-25 35-133 35-13	LCS (3L16007-BS2)											
Senzo (a) pyrene 8.36 0.100 " 10.0 83.6 33-125 33-	Benzo (a) anthracene		7.06	0.100	ug/l	10.0		70.6	41-121			
Benzo (b) fluoranthene	Benzo (a) pyrene		8.36	0.100	н	10.0						
Benzo (k) fluoranthene 6.14 0.100 " 10.0 61.4 28-127 Chrysene 8.06 0.100 " 10.0 80.6 41-120 Cherysene 7.74 0.100 " 10.0 77.4 24-120 Cherysene 7.94 0.100 " 10.0 79.4 26-122 Chapthalene 7.90 0.100 " 10.0 79.0 38-120 Chrysene 7.98 0.100 " 8.00 70.5 20-127 CCS Dup (3L16007-BSD2) Cherysene 8.40 0.100 " 10.0 79.8 41-121 12.2 25 Cherysene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Cherysene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Cherysene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Cherysene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Cherysene 8.40 0.100 " 10.0 84.0 34-121 12.2 25 Cherysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Cherysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Cherysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Cherysene 8.46 0.100 " 10.0 84.6 41-120 5.28 25 Cherysene 8.22 0.100 " 10.0 81.6 24-120 5.28 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25 Cherysene 7.54 0.100 " 10.0 82.2 26-122 3.47 25	Benzo (b) fluoranthene		10.6	0.100	w	10.0						
Chrysene 8.06 0.100 " 10.0 80.6 41-120 Dibenz (a.h) anthracene 7.74 0.100 " 10.0 77.4 24-120 Indeno (1,2,3-ed) pyrene 7.94 0.100 " 10.0 79.4 26-122 Naphthalene 7.90 0.100 " 10.0 79.0 38-120 Surrogate: p-Terphenyl-d14 5.64 " 8.00 70.5 20-127 CCS Dup (3L16007-BSD2) Benzo (a) anthracene 7.98 0.100 ug/l 10.0 79.8 41-121 12.2 25 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 9.22 0.100 " 10.0 92.2 35-133 13.9 25 Benzo (k) fluoranthene 7.62 0.100 " 10.0 76.2 28-127 21.5 25 Benzo (k) fluoranthene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Dibenz (a,h) anthracene 8.16 0.100 " 10.0 81.6 24-120 5.28 25 Dibenz (a,h) anthracene 8.22 0.100 " 10.0 81.6 24-120 5.28 25 Dibenz (a,h) anthracene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Dibenz (a,h) anthracene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Dibenz (a,h) anthracene 7.54 0.100 " 10.0 75.4 38-120 4.66 25	Benzo (k) fluoranthene		6.14	0.100	**	10.0						
Dibenz (a,h) anthracene 7.74 0.100 " 10.0 77.4 24-120 ndeno (1,2,3-cd) pyrene 7.94 0.100 " 10.0 79.4 26-122 Naphthalene 7.90 0.100 " 10.0 79.0 38-120 ndeno (1,2,3-cd) pyrene 7.90 0.100 " 10.0 79.0 38-120 ndeno (1,2,3-cd) pyrene 7.98 0.100 ug/l 10.0 70.5 20-127 ndeno (1,2,3-cd) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 ndeno (1,2,3-cd) pyrene 8.46 0.100 " 10.0 92.2 35-133 13.9 25 ndeno (1,2,3-cd) pyrene 8.46 0.100 " 10.0 76.2 28-127 21.5 25 ndeno (1,2,3-cd) pyrene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 ndeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 81.6 24-120 5.28 25 ndeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 ndeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 ndeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 ndeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 75.4 38-120 4.66 25	Chrysene		8.06	0.100		10.0		80.6				
Name	Dibenz (a,h) anthracene		7.74	0.100		10.0		77.4				
Surrogate: p-Terphenyl-d14 5.64 " 8.00 70.5 20-127 LCS Dup (3L16007-BSD2) Benzo (a) anthracene 7.98 0.100 ug/l 10.0 79.8 41-121 12.2 25 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 9.22 0.100 " 10.0 92.2 35-133 13.9 25 Benzo (k) fluoranthene 7.62 0.100 " 10.0 76.2 28-127 21.5 25 Chrysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Chrysene 8.46 0.100 " 10.0 81.6 24-120 5.28 25 Indeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Sapply (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Sapply (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Sapply (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Sapply (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Sapply (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Sapply (1,2,3-cd) pyrene 7.54 0.100 " 10.0 75.4 38-120 4.66 25	ndeno (1,2,3-cd) pyrene	:	7.94	0.100	н	10.0		79.4				
CCS Dup (3L16007-BSD2) Benzo (a) anthracene 7.98 0.100 ug/l 10.0 79.8 41-121 12.2 25 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 9.22 0.100 " 10.0 92.2 35-133 13.9 25 Benzo (k) fluoranthene 7.62 0.100 " 10.0 76.2 28-127 21.5 25 Chrysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Dibenz (a,h) anthracene 8.16 0.100 " 10.0 81.6 24-120 5.28 25 Indeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Kaphthalene 7.54 0.100 " 10.0 75.4 38-120 4.66 25	Vaphthalene		7.90	0.100	*	10.0		79.0				
Benzo (a) anthracene 7.98 0.100 ug/l 10.0 79.8 41-121 12.2 25 Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 Benzo (b) fluoranthene 9.22 0.100 " 10.0 92.2 35-133 13.9 25 Benzo (k) fluoranthene 7.62 0.100 " 10.0 76.2 28-127 21.5 25 Thrysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Dibenz (a,h) anthracene 8.16 0.100 " 10.0 81.6 24-120 5.28 25 Indeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Eaphthalene 7.54 0.100 " 10.0 75.4 38-120 4.66 25	Surrogate: p-Terphenyl-	d14	5.64		"	8.00		70.5	20-127			
Benzo (a) pyrene 8.40 0.100 " 10.0 84.0 33-125 0.477 25 denzo (b) fluoranthene 9.22 0.100 " 10.0 92.2 35-133 13.9 25 denzo (k) fluoranthene 7.62 0.100 " 10.0 76.2 28-127 21.5 25 denzo (k) fluoranthene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 denzo (a,b) anthracene 8.16 0.100 " 10.0 81.6 24-120 5.28 25 denzo (1.2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 denzo (1.2,3-cd) pyrene 8.25 0.100 " 10.0 75.4 38-120 4.66 25	CS Dup (3L16007-	BSD2)										
Benzo (b) fluoranthene 9 22 0.100 " 10.0 92.2 35-133 13.9 25 36-120 (k) fluoranthene 7 62 0.100 " 10.0 76.2 28-127 21.5 25 35 36 36 36 36 36 36 36 36 36 36 36 36 36	lenzo (a) anthracene		7.98	0.100	ug/1	10.0		79.8	41-121	12.2	25	
Benzo (k) fluoranthene 7 62 0.100 " 10.0 76.2 28-127 21.5 25 Thrysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Dibenz (a,h) anthracene 8.16 0.100 " 10.0 81.6 24-120 5.28 25 Indeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 (aphthalene 7.54 0.100 " 10.0 75.4 38-120 4.66 25	Benzo (a) pyrene		8.40	0.100	q	10.0		84.0	33-125	0.477	25	
Benzo (k) fluoranthene 7 62 0.100 " 10.0 76.2 28-127 21.5 25 Thrysene 8.46 0.100 " 10.0 84.6 41-120 4.84 25 Dibenz (a,h) anthracene 8.16 0.100 " 10.0 81.6 24-120 5.28 25 Indeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 Eaphthalene 7.54 0.100 " 10.0 75.4 38-120 4.66 25	Benzo (b) fluoranthene		9.22	0.100	rt	10.0		92.2	35-133			
Thrysene 8.46 0.100 1 10.0 84.6 41-120 4.84 25 Dibenz (a,h) anthracene 8.16 0.100 1 10.0 81.6 24-120 5.28 25 Indeno (1,2,3-cd) pyrene 8.22 0.100 1 10.0 82.2 26-122 3.47 25 Diaphthalene 7.54 0.100 1 10.0 75.4 38-120 4.66 25	lenzo (k) fluoranthene		7.62	0.100	۳	10.0		76.2				
Dibenz (a,h) anthracene 8.16 0.100 " 10.0 81.6 24-120 5.28 25 indeno (1,2,3-cd) pyrene 8.22 0.100 " 10.0 82.2 26-122 3.47 25 iaphthalene 7.54 0.100 " 10.0 75.4 38-120 4.66 25	'hrysene		8.46	0.100	4	10.0		84.6				
ndeno (1,2,3-cd) pyrene 8.22 0.100 ° 10.0 82.2 26-122 3.47 25 (aphthalene 7.54 0.100 ° 10.0 75.4 38-120 4.66 25	Dibenz (a,h) anthracene		8.16	0.100	*	10.0						
Taphthalene 7.54 0.100 " 10.0 75.4 38-120 4.66 25	ndeno (1,2,3-cd) pyrene		8.22	0.100	•	10.0						
Took of 100	laphthalene		7.54	0.100	N.	10.0						
	urrogate: p-Terphenyl-a	114	5.50			8.00		68.8	20-127			

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Page 13 of 16

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC	******	RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3L16007: Prepared 12/16/03	Using El	PA 3520C								
Matrix Spike (3L16007-MS2)					Source: E	3L0406-	01			
Benzo (a) anthracene	6.49	0.100	ug/l	9.71	ND	66.8	50-150			
Benzo (a) pyrene	5.26	0.100	н	9.71	ND	54.2	50-150			
Benzo (b) fluoranthene	6.56	0.100	*	9.71	ND	67.6	50-150			
Benzo (k) fluoranthene	5.51	0.100		9.71	ND	56.7	50-150			
Chrysene	7.13	0.100	*	9.71	ND	73.4	50-150			
Dibenz (a,h) anthracene	2.78	0.100	-	9.71	ND	28.6	50-150			Q-0
Indeno (1,2,3-cd) pyrene	4.08	0.100	7	9.71	ND	42.0	50-150			Q-0
Naphthalene	7.20	0.100	. 11	9.71	ND	74.2	50-150			
Surrogate: p-Terphenyl-d14	5.46		,	7.77		70.3	20-127			
Matrix Spike Dup (3L16007-MSD2)				:	Source: B	3L0406-()1			
Benzo (a) anthracene	6.23	0.100	ug/I	9.52	ND	65.4	50-150	4.09	25	
Benzo (a) pyrene	5.31	0.100	**	9.52	ND	55.8	50-150	0.946	25	
Benzo (b) fluoranthene	6.25	0.100	Ħ	9.52	ND	65.7	50-150	4.84	25	
Benzo (k) fluoranthene	5.47	0.100	н	9.52	ND	57.5	50-150	0.729	25	
Chrysene	6.82	0.100		9.52	ND	71.6	50-150	4.44	25	
Dibenz (a,h) anthracene	2.91	0.100	н	9.52	ND	30.6	50-150	4.57	25	Q-01
ndeno (1,2,3-cd) pyrene	4.04	0.100	*	9.52	ND	42.4	50-150	0.985	25	Q-01
Naphthalene	7.39	0.100	*	9.52	ND	77.6	50-150	2.60	25	201
Surrogate: p-Terphenyl-d14	5.30		"	7.62		69.6	20-127			

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 12/23/03 17:29

BTEX by EPA Method 8021B - Quality Control North Creek Analytical - Bothell

			Reporting		Spike	Source		%REC		RPD	
Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3L14001:	Prepared 12/14/03	Using El	PA 5030B	(P/T)							
Blank (3L14001-BI	.K1)						*******************************		W. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.		
Benzene		ND	0.500	ug/l							
Toluene		ND	0.500	н							
Ethylbenzene		ND	0.500	44							
Xylenes (total)		ND	1.00	**							
Surrogate: 4-BFB (PIL))	47.2		n	48.0		98.3	72-127			
LCS (3L14001-BS1)										
Benzene		6.22	0.500	ug/l	7.38		84.3	80-120			
Toluene		32.6	0.500		34.9		93,4	80-120			
Ethylbenzene		8.12	0.500	ts .	8.19		99.1	80-120			
Xylenes (total)		39.5	1.00	н	39.7		99.5	80-120			
Surrogate: 4-BFB (PID))	45.1		#	48.0		94.0	72-127			
LCS Dup (3L14001-	-BSD1)										
Benzene		6.36	0.500	ug/l	7.38		86.2	80-120	2.23	40	
Toluene		32.8	0.500	**	34.9		94.0	80-120	0.612	40	
Ethylbenzene		8.26	0.500	n	8.19		101	80-120	1.71	40	
Xylenes (total)		39.9	1.00	29	39.7		101	80-120	1.01	40	
Surrogate: 4-BFB (PID)	44.7		"	48.0		93.1	72-127			
Matrix Spike (3L14	001-MS1)				:	Source: B	3L0406-0	1			
Benzene		7.08	0.500	ug/l	7.38	0.125	94.2	70-129			
Toluene		36.8	0.500	4	34.9	0.174	105	73-114			
Ethylbenzene		9.22	0.500		8.19	ND	113	82-120			
(ylenes (total)		45.2	1.00		39.7	0.671	112	74-118			
Surrogate: 4-BFB (PID))	45.9		п	48.0		95.6	72-127			
Matrix Spike Dup (3	JL14001-MSD1)				9	Source: B.	3L0406-0	1			
Benzene		6.91	0.500	ug 1	7.38	0.125	91.9	70-129	2.43	40	
oluene		36.8	0.500	4	34.9	0.174	105	73-114	0.00	40	
thylbenzene		9.09	0.500	M	8.19	ND	111	82-120	1.42	40	
(ylenes (total)		44.4	1.00	*	39.7	0.671	110	74-118	1.79	40	
urrogate: 4-BFB (PID)		46.7			48.0		97.3	72-127			
							7 1 2	12.14/			

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow Reported:

12/23/03 17:29

Notes and Definitions

D-06 The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Q-01 The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the

recovery for this analyte does not represent an out-of-control condition for the batch.

Q-34 The sample container submitted for volatile analysis had either headspace or air bubbles greater than 1/4 inch in diameter.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

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PRINT NAME AND A PRINT NAME A PRINT NAME AND A PRINT NAME AND A PRINT NAME AND A PRINT NAME	KIDIY			1		O > REC	RECEIVED BY	1	V.		DATE	12/0/03
ADDITIONAL REMARKS: Do no+	1 3	4.4		1 1 1 1 1 1 1 1 1 1		PRO	PRINT NAME:	BANK I	INTEL FIRM	FIRM: DICH		町
COCRESSED ALGOTPH-DX	4+1 20	٠ تيا.	n	100	cleanup		and c	Uithout ac	ودرم عراده ع	gel cland		PAGE OF
田本で ロルフーロイタンプ	1	Field +	filtered	٠,٠		Č		١ ١			3	

Samples were not @2-6c upon receiptl

was field filtered

APPENDIX C MARCH 2004 LABORATORY ANALYTICAL RESULTS



Seattle: 11720 North Cidek Pkwy N. Suite 400. Bothell, WA 38011 8244

425 430 9200 134 425 420 9210

Spokane 11922 E. Ist Avenue Spokane hate, WA 94216-5302 554 924 9230 tax 504 924 9230

Portland 1405-3W Yembus Avenue Beaserton CR 91908-1132

593 976 (200 fax 503 976 521) Bend (2003) Empire Avenue, Suite Fill, Bend, CR, 17701-5733

041 189 9312 1ax 541 182 1598 Anchorage 2001 A Internation in Arover Post Surp A10 Anchorage ax 99502 strip PCT 163 1200 1ax 907 163 9210

19 March 2004

Natalie Morrow MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808

RE: Darling-Tacoma UST

Enclosed are the results of analyses for samples received by the laboratory on 03/05/04 12:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr

PM



Scattle: 11720 North Creek Plwy N. Sure 400. Bothes, WA 95011-8244

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Portland 3405 SW Nerbus Avenue Beaverton OR 47008-2132

503 976 9200 fax 503 976 9210 Bend 20032 Empire Avenue Suite Filt Bond CR 97701 5711

541 183 9310 124 541 382 1588

Arichorage (2010 M international Arigort Road, St. le A10, Arichorage, AK 99502, 1519 407-563-9720-18k 97-563-9210

MCS Environmental Project: Darling-Tacoma UST 5562 Alloy Street Project Number: 11093,001 Missoula, MT/USA 59808 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MFG-1	B4C0185-01	Water	03/04/04 13:22	03/05/04 12:45
MFG-2	B4C0185-02	Water	03/04/04 12:13	03/05/04 12:45
MFG-3	B4C0185-03	Water	03/04/04 15:05	03/05/04 12:45
MFG-4	B4C0185-04	Water	03/04/04 16:04	03/05/04 12:45

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North Creek Analytical, Inc. **Environmental Laboratory Network** Page 1 of 16



Seattle: 11720 North Creek Pkwy N. Suite 400 Einheid WA 98011-8244

425 420 9200 Pax 425 420 92 °O

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Portland, 3405 SW Northes Avenue, Beaverton, OR 47008-7100

103 976 5100 131 503 506 1217 Bend 20032 Empire Avenue Cuite Fit (8) nd (0R 97701-571) 541 383 9310 (ax 541 382 7558)

Anchorage 1000 Williamstonar Activit Rhad IS Jile A112 Aechologie IAX 50502 1919 97 503 972 Tax 17 26 3 236

MCS Environmental Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) North Creek Analytical - Bothell

		Reportin	g					<u> </u>	
Analyte	Result	Lim	it Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4C0185-01) Water	Sampled: 03/04/04 1.	3:22 Rec	eived: 03/05/	/04 12:45					
Diesel Range Hydrocarbons	3.12	0.25	0 mg/1	1	4C09016	03/09/04	03/10/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	0.666	0.50	0 "		*	a	•	*	D-10
Mineral Oil Range Hydrocarbons	2.10	0.50	0 •	•	•	*	*	*	
Surrogate: 2-FBP	115 %	50-150			н	н	н	#	
Surrogate: Octacosane	115 %	50-150			m .	н	#	"	
MFG-2 (B4C0185-02) Water	Sampled: 03/04/04 1	2:13 Rec	eived: 03/05/	/04 12:45					
Diesel Range Hydrocarbons	2.00	0.25	0 mg/l	1	4C09016	03/09/04	03/10/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	0.607	0.50	0 *	n	#	н	*	н	D-10
Mineral Oil Range Hydrocarbons	1.39	0.50	0 "	*	*		*	*	
Surrogate: 2-FBP	114 %	50-150			н	п	#	H	
Surrogate: Octacosane	116%	50-150			H	н	"	н	
MFG-3 (B4C0185-03) Water	Sampled: 03/04/04 1:	5:05 Rec	eived: 03/05/	04 12:45					
Diesel Range Hydrocarbons	1.15	0.25) mg/l	1	4C09016	03/09/04	03/10/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	0.562	0.50	, ,		*	•	н	*	D-10
Mineral Oil Range Hydrocarbons	0.834	0.50	"	n	•	•		Ħ	
Surrogate: 2-FBP	104 %	50-150			n	н	~	n	
Surrogate: Octacosane	109 %	50-150			"	Ħ	*	*	
MFG-4 (B4C0185-04) Water	Sampled: 03/04/04 16	6:04 Rec	eived: 03/05/	04 12:45					
Diesel Range Hydrocarbons	3.13	0.25) mg/l	1	4C09016	03/09/04	03/10/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	0.747	0.500) "	*	*		•	•	D-10
Mineral Oil Range Hydrocarbons	2.10	0.500) "	n	*	,		я	
Surrogate: 2-FBP	117 %	50-150			н	n	n	77	
Surrogate: Octacosane	119 %	50-150			*	#	,,	Ħ	

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5/3 9% 9/20 fax 5/3 906 92 fd Bend 1/33/2 Empire Avenue Suite Fill Pierre (2R 97/01/57) f

541 183 9310 15x 541 182 1538

Anchorage IZCOV International Airport Rollet Rullet Act) Anchorage, Ak 99502 1119 (47.585-1230 Tax 307.565-9275)

Project: Darling-Tacoma UST

MCS Environmental 5562 Alloy Street Project Number: 11093.001 Missoula, MT/USA 59808 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note:
MFG-1 (B4C0185-01) Water	Samulada 02/04/04 12	Lazz Danairo	ed: 03/05/0			*	·		
Mineral Oil Range (SGCU)	ND	0.500		14 12:45	4610012	02/00/04	02/12/04	bittermit in	
Diesel Range (SGCU)	ND ND		mg∕l	1	4C10013	03/09/04	03/12/04	NWTPH-Dx	
Lube Oil Range (SGCU)	ND ND	0.250 0.500	н .		*	ti		*	
Surrogate: 2-FBP (SGCU)	76.5 %	50-150			~	, r	н	*	
Surrogate: Octacosane (SGCU)	84.8 %	50-150			~	#	H	н	
MFG-2 (B4C0185-02) Water	Sampled: 03/04/04 12	:13 Receiv	ed: 03/05/0	4 12:45					
Mineral Oil Range (SGCU)	ND	0.500	mg/l	1	4C10013	03/09/04	03/12/04	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	*	•	*		н	H	
Lube Oil Range (SGCU)	ND	0.500	•	*	*	*		-	
Surrogate: 2-FBP (SGCU)	67.5 %	50-150	**		**	~	//	я	
Surrogate: Octacosane (SGCU)	78.8 %	50-150			#	,	rt	"	
MFG-3 (B4C0185-03) Water	Sampled: 03/04/04 15	:05 Receive	ed: 03/05/0	4 12:45					
Mineral Oil Range (SGCU)	ND	0.500	mg/l	1	4C10013	03/09/04	03/12/04	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250		•	*	*	•	×	
Lube Oil Range (SGCU)	ND	0.500	н		H	*	*	п	
Surrogate: 2-FBP (SGCU)	62.3 %	50-150			н	н	#	н	
Surrogate: Octacosane (SGCU)	74.2 %	50-150			#	"	*	н	
MFG-4 (B4C0185-04) Water	Sampled: 03/04/04 16	:04 Receive	ed: 03/05/0	4 12:45					
Mineral Oil Range (SGCU)	ND	0.500	mg/l	1	4C10013	03/09/04	03/12/04	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250		*	•	W	n	#	
Lube Oil Range (SGCU)	ND	0.500	н	#	Ħ	*	*	н	
Surrogate: 2-FBP (SGCU)	70.9 %	50-150			*	77	н	P	
Surrogate: Octacosane (SGCU)	82.1 %	50-150			*	*	H	#	

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541 183 9310 64 541 382 7588

MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808 Project Number: 11093.001

Reported:

03/19/04 14:45

Project Manager: Natalie Morrow

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method North Creek Analytical - Bothell

	R	eporting					······································		
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4C0185-01) Water	Sampled: 03/04/04 13:22	Receiv	ed: 03/05/0	4 12:45					
C8-C10 Aliphatics	ND	50.0	u g/l	1	4C11014	03/11/04	03/14/04	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	Ħ		*	×			
C12-C16 Aliphatics	ND	50.0	*		*			*	
C16-C21 Aliphatics	ND	50.0	*	*	•		*	*	
C21-C34 Aliphatics	ND	50.0	н		*	*	•	11	
C10-C12 Aromatics	ND	50.0	*	*	*		*	H	
C12-C16 Aromatics	ND	50.0	*	*	#	*	m	н	
C16-C21 Aromatics	ND	50.0	*		*		•	n	
C21-C34 Aromatics	ND	50.0	n	*	×	•	*	*	
Extractable Petroleum Hydrocarbons	ND	50.0	п	*		Ħ	*	н	
Surrogate: o-Terphenyl	88.3 % 60	-140			н	#	н	п	
Surrogate: 1-Chlorooctadecane	91.7 % 60	-140			"	н	"	н	
MFG-2 (B4C0185-02) Water	Sampled: 03/04/04 12:13	Receive	ed: 03/05/0	4 12:45					
C8-C10 Aliphatics	ND	50.0	ug/l	1	4C11014	03/11/04	03/14/04	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	•	*	*	*	Ħ	•	
C12-C16 Aliphatics	ND	50.0	н	*		17		*	
C16-C21 Aliphatics	ND	50.0	*	•	•	*	*	•	
C21-C34 Aliphatics	ND	50.0	н	•		*	*	*	
C10-C12 Aromatics	ND	50.0	*	*		•	•	*	
C12-C16 Aromatics	ND	50.0		*		r		•	
C16-C21 Aromatics	ND	50.0	•	*	#	*	а	•	
C21-C34 Aromatics	ND	50.0	*		Ħ	•	н	•	
Extractable Petroleum Hydrocarbons	ND	50.0	Ħ	*	*	*	*	Ħ	
Surrogate: o-Terphenyl	82.6 % 60-	140	Medilik danlarika arros varibiranska semendarila		<i>i</i> 7	*	*	tt	
Surrogate: 1-Chlorooctadecane	84.4 % 60-	140			*	~	n	m	

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100 304 1 100 5 https://doi.org/10.1003/ 103 406 4703 14x 503 306 9213 Bend 1232 Empre Avenue, Sube Fit Bend 12R 97101 5711 541 363 9310 fax 541 382 7568

Anchorage 2003 A International Argert Road Suite A10 Anchorage IAK 99802-1119 907-983-1090-1007-563-9210

MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow Reported:

03/19/04 14:45

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method North Creek Analytical - Bothell

	R	eporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B4C0185-03) Water	Sampled: 03/04/04 15:05	Receiv	ed: 03/05/0	4 12:45					
C8-C10 Aliphatics	ND	50.0	ug/l	1	4C11014	03/11/04	03/14/04	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	*	•	*		*	•	
C12-C16 Aliphatics	ND	50.0	n	*	н	4		ts.	
C16-C21 Aliphatics	ND	50.0	н	*	я	•	*	н	
C21-C34 Aliphatics	ND	50.0	*	*		Ħ		н	
C10-C12 Aromatics	ND	50.0	*	*	H	*	*		
C12-C16 Aromatics	ND	50.0	н	*	•	*		H	
C16-C21 Aromatics	ND	50.0	n	Ħ	н	Ħ	•	60	
C21-C34 Aromatics	ND	50.0	*	Ħ	Ħ			H	
Extractable Petroleum Hydrocarbons	ND ND	50.0	•			n	*	H	
Surrogate: o-Terphenyl	86.7 % 60	-140			п	h	,,	н	
Surrogate: 1-Chlorooctadecane	86.7 % 60	-140			н	н	*	н	
MFG-4 (B4C0185-04) Water	Sampled: 03/04/04 16:04	Receive	ed: 03/05/04	1 12:45					
C8-C10 Aliphatics	ND	50.0	ug/l	1	4C11014	03/11/04	03/14/04	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	*	*	#		н	н	
C12-C16 Aliphatics	ND	50.0	#	*	н	н	*	ĸ	
C16-C21 Aliphatics	ND	50.0	н	#	n	*		•	
C21-C34 Aliphatics	ND	50.0	а	*	n	•	*	n	
C10-C12 Aromatics	ND	50.0	n	*	•	•	*	n	
C12-C16 Aromatics	ND	50.0	4	*	*			n	
C16-C21 Aromatics	ND	50.0	#	•	*	и	•	**	
C21-C34 Aromatics	ND	50.0	Ħ	*	н	*	•	Ħ	
Extractable Petroleum Hydrocarbons	ND	50.0	*	•	•	*	*	н	
Surrogate: o-Terphenyl	71.4% 60-	140	·*····································		<i>n</i>	<i>n</i>	п	H	
Surrogate: 1-Chlorooctadecane	74.0 % 60-	140			*	**	#	"	

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM North Creek Analytical - Bothell

MFG-1 (B4C0185-01) Water Sampled: 03/04/04 13:22 Received: 03/05/04 12:45 1-Methylnaphthalene 0.904 0.100 ug/l 1 4C08009 03/08/04 03.08 2-Methylnaphthalene ND 0.100 " " " " Benzo (a) anthracene ND 0.100 " " " " Benzo (b) fluoranthene ND 0.100 " " " " Benzo (b) fluoranthene ND 0.100 " " " " Benzo (b) fluoranthene ND 0.100 " " " " " Benzo (k) fluoranthene ND 0.100 " " " " " Chrysene ND 0.100 " " " " " Dibenz (a,h) anthracene ND 0.100 " " " " " Namphthalene ND 0.100 " " " "		Re	porting							
1-Methylnaphthalene 2-Methylnaphthalene ND 0.100 " " " " " " " " " " " " " " " " " "	Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
2-Methylnaphthalene ND 0.100 " " " " " " Benzo (a) anthracene ND 0.100 " " " " " " " " " " " " " " " " " "	MFG-1 (B4C0185-01) Water	Sampled: 03/04/04 13:22	Receiv	ed: 03/05/0	4 12:45					
Benzo (a) anthracene ND 0.100 " " " " Benzo (a) pyrene ND 0.100 " " " " " " Benzo (b) fluoranthene ND 0.100 " " " " " " " " " " " " " " " " " "	l-Methylnaphthalene	0.904	0.100	ug/l	l	4C08009	03/08/04	03/09/04	8270-SIM	
Benzo (a) pyrene ND 0.100	2-Methylnaphthalene	ND	0.100	H.	н	*		•	•	
Benzo (b) fluoranthene	Benzo (a) anthracene	ND	0.100	*	*	n	*	•	*	
Benzo (k) fluoranthene	Benzo (a) pyrene	ND	0.100	*	*	*		*	н	
Chrysene ND 0.100 " <	Benzo (b) fluoranthene	ND	0.100	*	*	•	*		*	
Dibenz (a,h) anthracene ND	Benzo (k) fluoranthene	ND	0.100	н	H	Ħ	n		Ħ	
Indeno (1,2,3-cd) pyrene	Chrysene	ND	0.100	я	H	w	n	•	*	
Naphthalene ND 0.100 "	Dibenz (a,h) anthracene	ND	0.100	H	*	*	*		*	
Surrogate: p-Terphenyl-d14 41.0 % 20-127 " " MFG-2 (B4C0185-02) Water Sampled: 03/04/04 12:13 Received: 03/05/04 12:45 1-Methylnaphthalene ND 0.100 ug/l 1 4C08009 03/08/04 03/08/04 2-Methylnaphthalene ND 0.100 " " " " " Benzo (a) anthracene ND 0.100 " " " " " Benzo (a) pyrene ND 0.100 " " " " " Benzo (b) fluoranthene ND 0.100 " " " " " Benzo (k) fluoranthene ND 0.100 " " " " " Chrysene ND 0.100 " " " " " Dibenz (a,h) anthracene ND 0.100 " " " " " Indeno (1,2,3-cd) pyrene ND 0.100 " " " " " " ND 0.100 " " " " " "	indeno (1,2,3-cd) pyrene	ND	0.100	n	н		*		*	
MFG-2 (B4C0185-02) Water Sampled: 03/04/04 12:13 Received: 03/05/04 12:45 1-Methylnaphthalene ND 0.100 ug/l 1 4C08009 03/08/04	Naphthalene	ND	0.100	n	n	*	#	H	Ħ	
1-Methylnaphthalene ND 0.100 ug/l 1 4C08009 03/08/04 03/08/04 2-Methylnaphthalene ND 0.100 " <	Surrogate: p-Terphenyl-d14	41.0 % 20-	127			н	#	#	*	
2-Methylnaphthalene ND 0.100 " " " " " " " " " " " " " " " " " " "	MFG-2 (B4C0185-02) Water	Sampled: 03/04/04 12:13	Receiv	ed: 03/05/04	4 12:45					
Benzo (a) anthracene ND 0.100 " <td>l-Methylnaphthalene</td> <td>ND</td> <td>0.100</td> <td>ug/l</td> <td>1</td> <td>4C08009</td> <td>03/08/04</td> <td>03/10/04</td> <td>8270-SIM</td> <td></td>	l-Methylnaphthalene	ND	0.100	ug/l	1	4C08009	03/08/04	03/10/04	8270-SIM	
Benzo (a) pyrene ND 0.100 "	2-Methylnaphthalene	ND	0.100	*	*	*	*	*	*	
Benzo (b) fluoranthene ND 0.100 "<	Benzo (a) anthracene	ND	0.100	ri ri	*	n	*	*	*	
Benzo (k) fluoranthene ND 0.100 "<	Benzo (a) pyrene	ND	0.100	*	Ħ		Ħ	*	•	
Chrysene ND 0.100 " <	Benzo (b) fluoranthene	ND	0.100	н	ĸ	*	H		H	
Dibenz (a,h) anthracene ND 0.100 n n n n Indeno (1,2,3-cd) pyrene ND 0.100 n n n n Naphthalene ND 0.100 n n n n	Benzo (k) fluoranthene	ND	0.100	n			N	*	п	
Indeno (1,2,3-cd) pyrene ND 0.100 " " " " Naphthalene ND 0.100 " " " "	Chrysene	ND	0.100	#		*	*	*	*	
Naphthalene ND 0.100 " " " "	Dibenz (a,h) anthracene	ND	0.100	•		•		•	н	
	ndeno (1,2,3-cd) pyrene	ND	0.100	#	•	*	*	*	*	
Surrogate: p-Terphenyl-d14 42.8 % 20-127 " "	Naphthalene	ND	0.100	*	H	H	•	#	я	
and a companie and a	Surrogate: p-Terphenyl-d14	42.8 % 20-1	127			"	*	<i>n</i>	n	

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Portland 1905 SW Nimbus Avenue, Beaverton, OR 97008-7132

503 906 9000 13x 503 906 9210

Band 1993, Empire Avenue, Suite F-1, Band, OR 97701-5711

\$41,383,9310, fax 541,382,7588.

Anchorage 1000 W Internaporal August Road, Suite A10, Anchorage, AX 995/3,1119
807,363,9700,158,907,563,9230

Reported:

MCS Environmental Project: Darling-Tacoma UST

5562 Alloy Street Project Number: 11093,001
Missoula, MT/USA 59808 Project Manager: Natalie Morrow

Project Manager: Natalie Morrow 03/19/04 14:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM North Creek Analytical - Bothell

	Re	porting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-3 (B4C0185-03) Water	Sampled: 03/04/04 15:05	Receiv	ed: 03/05/0-	4 12:45					
I-Methylnaphthalene	ND	0.100	ug/l	1	4C08009	03/08/04	03/10/04	8270-SIM	
2-Methylnaphthalene	ND	0.100			•	•		•	
Benzo (a) anthracene	ND	0.100	*				•		
Benzo (a) pyrene	ND	0.100		•	•	•	•	•	
Benzo (b) fluoranthene	ND	0.100			*		*	•	
Benzo (k) fluoranthene	ND	0.100	•	*		*	a l	*	
Chrysene	ND	0.100	#	*	я	•	m	*	
Dibenz (a,h) anthracene	ND	0.100	#	n		*	H	×	
Indeno (1,2,3-cd) pyrene	ND	0.100	*	*		*		Ħ	
Naphthalene	ND	0.100	*	•		*		• :	
Surrogate: p-Terphenyl-d14	41.1 % 20-	127			#	Ħ	**	и	
MFG-4 (B4C0185-04) Water	Sampled: 03/04/04 16:04	Receive	ed: 03/05/04	12:45					
1-Methylnaphthalene	1.96	0.100	ug/l	1	4C08009	03/08/04	03/10/04	8270-SIM	
2-Methylnaphthalene	ND	0.100	*	н	*	H			
Benzo (a) anthracene	ND	0.100	R	*	•	- #	*		
Benzo (a) pyrene	ND	0.100	н	H	*	*	. *	*	
Benzo (b) fluoranthene	ND	0.100	*	*	*			•	
Benzo (k) fluoranthene	ND	0.100	H	Ħ	*	•			
Chrysene	ND	0.100		•		•	•	*	
Dibenz (a,h) anthracene	ND	0.100	п	¥	п	*	*	*	
indeno (1,2,3-cd) pyrene	ND	0.100	*	*	*		*	*	
Naphthalene	ND	0.100	#	*	#		н.		
Surrogate: p-Terphenyl-dl4	34.7 % 20-	127		haking alakahan a	"	n	н	#	

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Environmental Laboratory Network Page 7 of 16



Seattle: 11720 North Cleak Plowy N. Suite 400 Bothes, WA 95011 8044

425 420 9200 fax 425 420 92 to

Spokane 11922 Elist Avenue Spokane Valley WA 99206-5302 509 524 9070 (5x 5/9 924 9290

Portland 1405 SW Nimbus Avenue Beavener OR 97009-7130

503 306 9200 fax 501 908 9210

Bend 20332 Empire Avenue Suite Fill Bend CR 97701-5731 541 183 9310 19x 541 382 7595

Anchorage 200 W memariphal Amber Rose SulfriAtio, Anchorage IAX 99502 1119 R01063 900 193 907 63 9010

MCS Environmental 5562 Alloy Street Missoula, MT/USA 59808 Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

BTEX by EPA Method 8021B North Creek Analytical - Bothell

	Ro	porting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4C0185-01) Water	Sampled: 03/04/04 13:22	Receiv	ved: 03/05/0	4 12:45					
Benzene	ND	0.500	ug/l	1	4C09002	03/09/04	03/09/04	EPA 8021B	
Toluene	ND	0.500	*	*		H	•	w	
Ethylbenzene	ND	0.500	*	*	н	*		•	
Xylenes (total)	ND	1.00	*	•		*	*		
Surrogate: 4-BFB (PID)	96.9 % 72-	127			н	n	<i>r</i>	H	
MFG-2 (B4C0185-02) Water	Sampled: 03/04/04 12:13	Receiv	ed: 03/05/0	4 12:45					Q-34
Benzene	ND	0.500	ug/l	1	4C09002	03/09/04	03/09/04	EPA 8021B	
Toluene	ND	0.500	•	•	•	4	*	н	
Ethylbenzene	ND	0.500	*		*	Ħ	н	я	
Xylenes (total)	ND	1.00	#	*	*	н	H	Ħ	
Surrogate: 4-BFB (PID)	102 % 72-	127			'n	#	#	n	
MFG-3 (B4C0185-03) Water	Sampled: 03/04/04 15:05	Receiv	ed: 03/05/0	4 12:45					Q-34
Benzene	ND	0.500	ug/l	1	4C09002	03/09/04	03/09/04	EPA 8021B	
Toluene	ND	0.500		#	Ħ	*	*	je .	
Ethylbenzene	ND	0.500	н	*	*	H		n	
Xylenes (total)	ND	1.00	н	H	n	n	n	•	
Surrogate: 4-BFB (PID)	107 % 72-	127			л	н	H	7	**************************************
MFG-4 (B4C0185-04) Water	Sampled: 03/04/04 16:04	Receiv	ed: 03/05/04	12:45					Q-34
Benzene	ND	0.500	ug/l	1	4C09002	03/09/04	03/09/04	EPA 8021B	
Toluene	ND	0.500		•	*	*		*	
Ethylbenzene	ND	0.500		n		Ħ	#	r.	
Xylenes (total)	ND	1.00	*	*	п			•	
Surrogate: 4-BFB (PID)	105 % 72-	127			"	Ħ	H	PT	

North Creek Analytical - Bothell

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425 420 9200 fax 425 420 37 fg

Spokane 11922 Elist Avenue Spokane valley WA 99206 5302 589 924 9200 tox 609 924 9290

Portland 3405 SW Nimbus Avenue, Beavenon, CR 97008-7132

503 906 9000 15x 503 906 2010 Bend 2003 W Empire Avenue Suire Fit Bend, CR 97701 5110 541 383 9310 fax 941 382 1588

1000 Will International Argust Road

9/ DEC

MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

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Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Quality Control North Creek Analytical - Bothell

	Reporting			Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4C09016: Prepared 03/09/04	Using El	PA 3520C								
Blank (4C09016-BLK1)										
Diesel Range Hydrocarbons	ND	0.250	mg/l							
Heavy Oil Range Hydrocarbons	ND	0.500	•							
Mineral Oil Range Hydrocarbons	ND	0.500	*							
Surrogate: 2-FBP	0.318		*	0.320		99.4	50-150			
Surrogate: Octacosane	0.174		#	0.160	*	109	50-150			
LCS (4C09016-BS1)										
Diesel Range Hydrocarbons	1.71	0.250	mg/l	2.00		85.5	58-125			
Surrogate: 2-FBP	0.330		77	0.320		103	50-150			
LCS Dup (4C09016-BSD1)										
Diesel Range Hydrocarbons	1.37	0.250	mg/l	2.00		68.5	58-125	22.1	40	
Surrogate: 2-FBP	0.267		"	0.320		83.4	50-150			ne. Waliota di dia any appropriate di Angle I dell'Incer
Matrix Spike (4C09016-MS1)					Source: B	4C0185-0)1			
Diesel Range Hydrocarbons	4.68	0.250	mg/l	2.00	3.12	78.0	25-149			
Surrogate: 2-FBP	0.353		,,	0.320		110	50-150		J	
Matrix Spike Dup (4C09016-MSD1)				;	Source: B	4C0185-0)1			
Diesel Range Hydrocarbons	4.95	0.250	mg/l	2.00	3.12	91.5	25-149	5.61	40	of A. Annual Processing States of St
urrogate: 2-FBP	0.347		н	0.320		108	50-150			

North Creek Analytical - Bothell

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North Creek Analytical, Inc. **Environmental Laboratory Network** Page 9 of 16



Seattle: 11720 North Crieck Plwy N. Suite 400. Bother WA 98011 8214

425 420 9200 19x 425 420 9210

Spokane 11922 E. 1st Avenue. Spokane Variev, WA 99206-5302 649-924-3200-5x-509-924-9290

Portland 1475 SA Mimbus Allemon, Beaveron, OR 910080132

\$23 936 3000 (a) \$13 926 3210 **Bend** I 312 Empire Alence Syte Fit Bend CR \$1701 5711

541 93393 Gx 541 92 7588

Anchorage: 1740 W. International Aspekt Rhad. Suite ASS, Anchorage: AK 94K924444

MCS Environmental Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808 Project Number: 11093.001
Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Quality Control North Creek Analytical - Bothell

	Reporting			Spike	Source		%REC	RPD		***************************************
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4C10013: Prepared 03/09/04	Using El	PA 3520C								
Blank (4C10013-BLK1)										
Diesel Range (SGCU)	ND	0.250	mg/l				hioph Milein and real to lead the control of the Wells			
Lube Oil Range (SGCU)	ND	0.500	•							
Surrogate: 2-FBP (SGCU)	0.256		*	0.320		80.0	50-150			
Surrogate: Octacosane (SGCU)	0.143		*	0.160		89.4	50-150			
LCS (4C10013-BS1)										
Diesel Range (SGCU)	1.28	0.250	mg/l	2.00		64.0	45-105	**************************************		
Surrogate: 2-FBP (SGCU)	0.244		#	0.320		76.2	50-150			
LCS Dup (4C10013-BSD1)										
Diesel Range (SGCU)	1.03	0.250	mg/l	2.00	***************************************	51.5	45-105	21.6	50	
Surrogate: 2-FBP (SGCU)	0.201		п	0.320		62.8	50-150			
Matrix Spike (4C10013-MS1)					Source: B	4C0185-0)1			
Diesel Range (SGCU)	1.70	0.250	mg/l	1.89	0.188	80.0	50-150			W
Surrogate: 2-FBP (SGCU)	0.263		н	0.302		87.1	50-150			
Matrix Spike Dup (4C10013-MSD1)				į	Source: B	4C0185-0)1			
Diesel Range (SGCU)	1.44	0.250	mg/l	1.89	0.188	66.2	50-150	16.6	50	
Surrogate: 2-FBP (SGCU)	0.234		*	0.302		77.5	50-150		A. A	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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North Creek Analytical, Inc. Page Environmental Laboratory Network



MCS Environmental

Missoula, MT/USA 59808

5562 Alloy Street

Seattle: 117.0 North Creek Pkwy N. State 4100. Bother, WA 97011 8244

425 426 9203 194 425 420 9210

Spokane 11372 E 1st Avenue Spokane Valley WA (42/8/39)2 5/4 924 9200 (5x 5/9 924 9250)

Portland: 9405 Sife Nimbus Avenue, Beavietich, CR 97 (08-7132

57 EF 9200 Na 573 HE 9210

%REC

Bend 2:337 Empire Avenue Suite Fill Bend 198 97 tot 5711 541 198 9310 fax 541 562 1568 Anchorage: 1970-W International Arguet Road: Suite A10, Anchorage: Ak 93502-1513

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

RPD

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

Reporting

		Reporting		Spike	Source		%REC		KPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4C11014: Prepared 03/11	/04 Using E	EPA 3520C								
Blank (4C11014-BLK1)										
C8-C10 Aliphatics	ND	50.0	ug/l							
C10-C12 Aliphatics	ND	50.0	*							
C12-C16 Aliphatics	ND	50.0	•							
C16-C21 Aliphatics	ND	50.0	я							
C21-C34 Aliphatics	ND	50.0	R							
C10-C12 Aromatics	ND	50.0	н							
C12-C16 Aromatics	ND	50.0	*							
C16-C21 Aromatics	ND	50.0	*							
C21-C34 Aromatics	ND	50.0	н							
Extractable Petroleum Hydrocarbons	ND	50.0	H							
Surrogate: o-Terphenyl	353	, , , , , , , , , , , , , , , , , , ,	#	400		88.2	60-140			
Surrogate: 1-Chlorooctadecane	347		n	400		86.8	60-140			
LCS (4C11014-BS1)										
C8-C10 Aliphatics	63.7	50.0	ug/l	100		63.7	70-130			Q-0
C10-C12 Aliphatics	89.8	50.0	×	100		89.8	70-130			
C12-C16 Aliphatics	178	50.0	Ħ	200		89.0	70-130			
C16-C21 Aliphatics	196	50.0	н	200		98.0	70-130			
C21-C34 Aliphatics	646	50.0	Ħ	700		92.3	70-130			
C10-C12 Aromatics	78.3	50.0	*	100		78.3	70-130			
C12-C16 Aromatics	260	50.0	*	300		86.7	70-130			
C16-C21 Aromatics	436	50.0	*	500		87.2	70-130			
C21-C34 Aromatics	748	50.0	*	800		93.5	70-130			
Extractable Petroleum Hydrocarbons	2760	50.0		3100		89.0	70-130			
Surrogate: o-Terphenyl	385	and an account of the state of	н	400		96.2	60-140			and the second s
Surrogate: 1-Chlorooctadecane	376		#	400		94.0	60-140			
LCS Dup (4C11014-BSD1)										
C8-C10 Aliphatics	51.1	50.0	ug/l	100		51.1	70-130	22.0	25	Q-0
C10-C12 Aliphatics	75.6	50.0		100		75.6	70-130	17.2	25	
C12-C16 Aliphatics	167	50.0	•	200		83.5	70-130	6.38	25	
C16-C21 Aliphatics	188	50.0	*	200		94.0	70-130	4.17	25	
C21-C34 Aliphatics	623	50.0	•	700		89.0	70-130	3.62	25	
C10-C12 Aromatics	79.0	50.0		100		79.0	70-130	0.890	25	

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Environmental Laboratory Network



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Portland: 9405 SW Nimbus Avenue, Bessetton, OR 91008-71 12 503 306 9200 (ax 503 906 9210

Bend 20002 Empire Avenue Suite Filt Bend OR 97701 5711 541 383 9310 15x 541 382 3588

10, 293 3706 AV 50, 283 45, 20

5562 Alloy Street Missoula, MT/USA 59808

MCS Environmental

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4C11014: Prepared 03/11/04	Using E	PA 3520C								
LCS Dup (4C11014-BSD1)										
C12-C16 Aromatics	255	50.0	ug/l	300		85.0	70-130	1.94	25	
C16-C21 Aromatics	442	50.0		500		88.4	70-130	1.37	25	
C21-C34 Aromatics	771	50.0	*	800		96.4	70-130	3.03	25	
Extractable Petroleum Hydrocarbons	2710	50.0	*	3100		87.4	70-130	1.83	25	
Surrogate: o-Terphenyl	380		H	400		95.0	60-140			
Surrogate: 1-Chlorooctadecane	354		#	400		88.5	60-140			
Matrix Spike (4C11014-MS1)					Source: B	4C0185-	01			
C8-C10 Aliphatics	61.5	50.0	ug/l	96.2	11.1	52.4	70-130			Q-01
C10-C12 Aliphatics	96.8	50.0	Ħ	96.2	6.93	93.4	70-130			
C12-C16 Aliphatics	171	50.0	N	192	ND	89.1	70-130			
C16-C21 Aliphatics	188	50.0		192	13.9	90.7	70-130			
C21-C34 Aliphatics	575	50.0	*	673	10.1	83.9	70-130			
C10-C12 Aromatics	99.9	50.0	N	96.2	19.5	83.6	70-130			
C12-C16 Aromatics	286	50.0	•	288	12.9	94.8	70-130			
C16-C21 Aromatics	431	50.0	H	481	13.9	86.7	70-130			
C21-C34 Aromatics	721	50.0	•	769	ND	93.8	70-130			
Extractable Petroleum Hydrocarbons	2690	50.0	•	2980	0.00	90.3	70-130			
Surrogate: o-Terphenyl	367		п	385		95.3	60-140			
Surrogate: 1-Chlorooctadecane	354		"	385		91.9	60-140			
Matrix Spike Dup (4C11014-MSD1)				9	Source: B	4C0185-0	1			
C8-C10 Aliphatics	57.5	50.0	ug/l	95.2	11.1	48.7	70-130	6.72	25	Q-01
C10-C12 Aliphatics	84.0	50.0		95.2	6.93	81.0	70-130	14.2	25	
C12-C16 Aliphatics	171	50.0	*	190	ND	90.0	70-130	0.00	25	
C16-C21 Aliphatics	188	50.0	п	190	13.9	91.6	70-130	0.00	25	
C21-C34 Aliphatics	579	50.0	*	667	10.1	85.3	70-130	0.693	25	
C10-C12 Aromatics	104	50.0	н	95.2	19.5	88.8	70-130	4.02	25	
C12-C16 Aromatics	267	50.0	*	286	12.9	88.8	70-130	6.87	25	
C16-C21 Aromatics	411	50.0	*	476	13.9	83.4	70-130	4.75	25	
C21-C34 Aromatics	660	50.0	H	762	ND	86.6	70-130	8.83	25	
Extractable Petroleum Hydrocarbons	2580	50.0		2950	0.00	87.5	70-130	4.17	25	
Surrogate: o-Terphenyl	359		*	381		94.2	60-140			- Andrew Control of the Address
Surrogate: 1-Chlorooctadecane	361		n	381		94.8	60-140			

North Creek Analytical - Bothell

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Portland, 9465 SW Nimbus Avenue, Beaverton, CR 97008-7132 533 906 9230 154 50 1326 9219

Bend 1932 Empire Allenue, Suite Filt, Bestd, CR 97701-5715 541 383 9315, Gall 541 382 7588

Arichorage, 2000 W. International Amport Rhad, Suite A10, Anchorage, Axi 99502, 1119

MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control North Creek Analytical - Bothell

	***************************************	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4C08009: Prepared 03/08/04	Using E	EPA 3520C								
Blank (4C08009-BLK1)										
1-Methylnaphthalene	ND	0.100	ug/l		***************************************		*******************			
2-Methylnaphthalene	ND	0.100	*							
Benzo (a) anthracene	ND	0.100	#							
Benzo (a) pyrene	ND	0.100	*							
Benzo (b) fluoranthene	ND	0.100	н							
Benzo (k) fluoranthene	ND	0.100	Ħ							
Chrysene	ND	0.100	H							
Dibenz (a,h) anthracene	ND	0.100								
Indeno (1,2,3-cd) pyrene	ND	0.100	•							
Naphthalene	ND	0.100	и							
Surrogate: p-Terphenyl-d14	46.4		77	50.0		92.8	20-127			
LCS (4C08009-BS1)										
Benzo (a) anthracene	8.10	0.100	ug/l	10.0		81.0	41-121			
Benzo (a) pyrene	7.10	0.100	*	10.0		71.0	33-125			
Benzo (b) fluoranthene	7.26	0.100	n	10.0		72.6	35-133			
Benzo (k) fluoranthene	6.26	0.100	n	10.0		62.6	28-127			
Chrysene	7.82	0.100	Ħ	10.0		78.2	41-120			
Dibenz (a,h) anthracene	6.26	0.100	•	10.0		62.6	24-120			
Indeno (1,2,3-cd) pyrene	7.52	0.100	H	10.0		75.2	26-122			
Naphthalene	8.06	0.100	*	10.0		80.6	38-120			
Surrogate: p-Terphenyl-d14	39.9		**	50.0		79.8	20-127			
LCS Dup (4C08009-BSD1)										
Benzo (a) anthracene	8.56	0.100	ug/l	10.0		85.6	41-121	5.52	25	
Benzo (a) pyrene	7.10	0.100	•	10.0		71.0	33-125	0.00	25	
Benzo (b) fluoranthene	6.48	0.100	*	10.0		64.8	35-133	11.4	25	
Benzo (k) fluoranthene	7.40	0.100	H	10.0		74.0	28-127	16.7	25	
Chrysene	7.64	0.100	ĸ	10.0		76.4	41-120	2.33	25	
Dibenz (a,h) anthracene	6.08	0.100	H	10.0		60.8	24-120	2.92	25	
indeno (1,2,3-cd) pyrene	7.38	0.100		10.0		73.8	26-122	1.88	25	
Naphthalene	7.16	0.100	*	10.0		71.6	38-120	11.8	25	
Surrogate: p-Terphenyl-d14	41.0	***************************************	#	50.0		82.0	20-127			

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Page 13 of 16



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541 163 9310 164 541 382 7588

Anchorage ICCC Will rematerial Americ Road Study A10 Anchorage IAX 995 17 1119
401 - N3 9200 - Fax 907 563 9219

MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC	-	RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4C08009: Prepared 03/08/04	Using El	PA 3520C								
Matrix Spike (4C08009-MS1)					Source: E	4C0185-	01			
Benzo (a) anthracene	6.19	0.100	ug/l	9.43	ND	65.6	50-150			***********
Benzo (a) pyrene	3.83	0.100		9.43	ND	40.6	50-150			Q-0:
Benzo (b) fluoranthene	4.32	0.100	•	9.43	ND	45.8	50-150			Q-0:
Benzo (k) fluoranthene	3.64	0.100	*	9.43	ND	38.6	50-150			Q-03
Chrysene	5.19	0.100	•	9.43	ND	55.0	50-150			
Dibenz (a,h) anthracene	2.02	0.100	*	9.43	ND	21.4	50-150			Q-02
indeno (1,2,3-cd) pyrene	2.49	0.100	*	9.43	ND	26.4	50-150			Q-02
Naphthalene	6.83	0.100	*	9.43	ND	72.4	50-150			
Surrogate: p-Terphenyl-d14	19.3		*	47.2		40.9	20-127			
Matrix Spike Dup (4C08009-MSD1)					Source: B	4C0185-0)1			
Benzo (a) anthracene	6.36	0.100	ug/l	9.52	ND	66.8	50-150	2.71	25	
Benzo (a) pyrene	4.08	0.100	•	9.52	ND	42.9	50-150	6.32	25	Q-02
Benzo (b) fluoranthene	5.45	0.100	k	9.52	ND	57.2	50-150	23.1	25	
Benzo (k) fluoranthene	3.24	0.100		9.52	ND	34.0	50-150	11.6	25	Q-02
Chrysene	5.70	0.100	*	9.52	ND	59.9	50-150	9.37	25	·
Dibenz (a,h) anthracene	2.19	0.100	Ħ	9.52	ND	23.0	50-150	8.08	25	Q-02
ndeno (1,2,3-cd) pyrene	2.93	0.100	#	9.52	ND	30.8	50-150	16.2	25	Q-02
Naphthalene	6.86	0.100		9.52	ND	72.1	50-150	0.438	25	•
Surrogate: p-Terphenyl-d14	20.1		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	47.6		42.2	20-127		,	

North Creek Analytical - Bothell

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541 383 9310 fax 541 382 7588

Anchorage 1000 Will remational Airport Road St. te A18, Amborage, Ax 99500 to

MCS Environmental

Project: Darling-Tacoma UST

5562 Alloy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

BTEX by EPA Method 8021B - Quality Control North Creek Analytical - Bothell

			Reporting		Spike	Source		%REC		RPD	
Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4C09002:	Prepared 03/09/04	Using E	PA 5030B	(P/Γ)							
Blank (4C09002-BLE	(1)										
Benzene		ND	0.500	ug/l				· · · · · · · · · · · · · · · · · · ·			
Toluene		ND	0.500	*							
Ethylbenzene		ND	0.500								
Xylenes (total)		ND	1.00	H							
Surrogate: 4-BFB (PID)		43.6		Ħ	48.0		90.8	72-127	4 At ab		
LCS (4C09002-BS1)											
Benzene		6.04	0.500	ug/l	7.35		82.2	80-120			
Toluene		31.6	0.500		34.8		90.8	80-120			
Ethylbenzene		8.28	0.500	H	8.20		101	80-120			
Xylenes (total)		39.6	1.00	*	39.6		100	80-120			
Surrogate: 4-BFB (PID)		46.7		Ħ	48.0		97.3	72-127			
LCS Dup (4C09002-B	SD1)										
Benzene		6.06	0.500	u g/l	7.35		82.4	80-120	0.331	40	
Toluene		31.8	0.500		34.8		91.4	80-120	0.631	40	
Ethylbenzene		8.28	0.500		8.20		101	80-120	0.00	40	
Xylenes (total)		39.8	1.00	*	39.6		101	80-120	0.504	40	
Surrogate: 4-BFB (PID)		48.2		И	48.0		100	72-127			
Matrix Spike (4C0900	02-MS1)					Source: B	4C0185-0)1			
Benzene		6.01	0.500	ug/l	7.35	0.118	80.2	70-129			
Toluen e		31.3	0.500	*	34.8	0.106	89.6	73-114			
Ethylbenzene		8.35	0.500	Ħ	8.20	ND	102	82-120			
Xylenes (total)		39.3	1.00	•	39.6	0.406	98.2	74-118			
Surrogate: 4-BFB (PID)		48.3	····	#	48.0	****	101	72-127			
Matrix Spike Dup (4C	09002-MSD1)				:	Source: B	4C0185-0	1			
3enzene	and the state of t	6.23.	0.500	ug/l	7.35	0.118	83.2	70-129	3.59	40	American and a state of state of states and a state of states and states are states as a state of states and states are states as a state of states are states are states as a state of states are states are states are states as a state of states are states are states as a state of states are
Tolu ene		32.3	0.500	M	34.8	0.106	92.5	73-114	3.14	40	
Ethylbenzene		8.60	0.500	•	8.20	ND	105	82-120	2.95	40	
Xylenes (total)		40.6	1.00	*	39.6	0.406	102	74-118	3.25	40	
Surrogate: 4-BFB (PID)	AND THE RESIDENCE OF THE PROPERTY OF THE PROPE	47.5		r r	48.0	***************************************	99.0	72-127			

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Anchorage 2000 Will remaind all Angert Road, Suite A10, Anchorage, Aic Pasco, His

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MCS Environmental

Project: Darling-Tacoma UST

5562 Alioy Street Missoula, MT/USA 59808

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 03/19/04 14:45

Notes and Definitions

D-10	The heavy oil range organics present are due to	hydrocarbons eluting	primarily in the diesel range.
------	---	----------------------	--------------------------------

Q-01 The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.

Q-02 The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.

Q-34 The sample container submitted for volatile analysis had either headspace or air bubbles greater than 1/4 inch in diameter.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

North Creek Analytical - Bothell

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3209 Denali St, Anchorage, AK 99503-4030

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APPENDIX D JUNE 2004 LABORATORY ANALYTICAL RESULTS



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541 383 9310 194 541 382 7588

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307 563 9200 (ax 907 563 9210

12 July 2004

Natalie Morrow Maxim-Missoula, MT 2436 Dixon Ave./ P.O. Box 2730 Missoula, MT/USA 59801

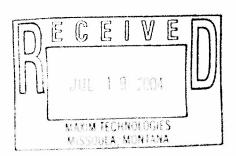
RE: Darling-Tacoma UST

Enclosed are the results of analyses for samples received by the laboratory on 06/08/04 15:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amar Gill

Project Manager





Seattle: 11720 North Creek Pkwy N. Soite 400, Bornet, WA 98011-8244

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907 563 9200 1sx 907 563 9210

CASE NARRATIVE for B4F0271

Client: Maxim Technologies Project Manager: Natalie Morrow Project Name: Darling Tacoma UST

Project Number: 11093.001

1.0 DESCRIPTION OF CASE

Four (4) Water samples were submitted for the analysis of:

- Semivolatile Petroleum Products by NWTPH-Dx without Silica Gel Clean-up
- Semivolatile Petroleum Products by NWTPH-Dx with Silica Gel Clean-up
- Extractable Petroleum Hydrocarbons by EDOE TPH Policy Method
- Polynuclear Aromatic Hydrocarbons by GC/MS-SIM
- BTEX by EPA Method 8021B

2.0 COMMENTS ON SAMPLE RECEIPT

The samples were received 8th June 2004 at a temperature of 10.1°C and logged in 9th June 2004. The samples were received outside the recommended temperature range of 2 to 6 Degrees Celsius. Since the samples were received shortly after collection and may not have had sufficient time to equilibrate with the coolant a temperature range of 2 to 15 Degrees Celsius is considered acceptable.

3.0 PREPARATION AND ANALYSIS

Semivolatile Petroleum Products by NWTPH-Dx without Silica Gel Clean-up

No additional anomalies or discrepancies were associated with this analysis other than those already qualified in the data.

Semivolatile Petroleum Products by NWTPH-Dx with Silica Gel Clean-up

The samples were extracted into analytical batch 4F17018 using the non-silica gel cleaned Diesel extracts from analytical batch 4F15014. The samples were analyzed without a closing Continuous Calibration Verification (CCV) standard for the Mineral Oil Range Hydrocarbons. The reported mineral oil range hydrocarbon results should be considered estimated values only. No additional anomalies or discrepancies were associated with this analysis other than those already qualified in the data.

Extractable Petroleum Hydrocarbons by EDOE TPH Policy Method

The samples were extracted into analytical batch 4F11011 for which the following non-conforming conditions were observed:

Amar Gill Project Manager

North Creek Analytical



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541 353 9310 124 541 342 1588

Anchorage 1000 W International Airport Road, Suite A10, Anchorage, AK 99502-1119

407 563 9200 fax 307 563 9210

CASE NARRATIVE for B4F0271

- The spike recovery for the aliphatic carbon range, C8-C10 in the analytical batch Blank Spike (BS) was below method established control limits.
- The spike recovery for the aromatic carbon range, C8-C10 in the analytical batch Blank Spike and Blank Spike Duplicate (BS/BSD) was below method established control limits. In addition the relative percent difference (RPD) was outside control limits for this range.
- The spike recovery for the aromatic carbon range, C10-C12 in the analytical batch BS was outside control limits.
- The spike recoveries for carbon ranges, C8-C10 aliphatic and aromatic and C10-C12 aliphatic in outside method established control limits.
- No additional anomalies or discrepancies were associated with this analysis other than those
 already qualified in the data in the analytical batch matrix spike and matrix spike duplicates
 (MS/MSD) due to sample matrix and sample extraction issues.

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

A 1 Liter unpreserved field filtered sample volume was provided for project samples, MFG-1 and MFG-2. A 1 Liter unpreserved sample volume was provided for project samples, MFG-3 and MFG-4, these sample volumes were to be filtered through a 0.45uM filter in the laboratory prior to extraction. These samples were extracted in analytical batch 4F10059 for which target analytes were observed in the batch Blank. The spike recoveries for target analytes in the Blank Spike Duplicate for analytical batch 4F10059 were below the method established control limit. The samples were re-extracted into analytical batch 4F15044 using HCl preserved aliquots. The reported PAH results are the HCl preserved extracts only. No additional anomalies or discrepancies were associated with this analysis other than those already qualified in the data

BTEX by EPA Method 8021B

No additional anomalies or discrepancies were associated with this analysis other than those already qualified in the data.

Amar Gill Project Manager

North Creek Analytical



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Maxim-Missoula, MT

2436 Dixon Ave./ P.O. Box 2730

Missoula, MT/USA 59801

Project: Darling-Tacoma UST

Project Number: 11093.001

Project Manager: Natalie Morrow

Reported:

07/12/04 14:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MFG-1	B4F0271-01	Water	06/08/04 09:45	06/08/04 15:40
MFG-2	B4F0271-02	Water	06/08/04 11:10	06/08/04 15:40
MFG-3	B4F0271-03	Water	06/08/04 12:15	06/08/04 15:40
MFG-4	B4F0271-04	Water	06/08/04 13:40	06/08/04 15:40

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Amar Gill, Project Manager

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> North Creek Analytical, Inc. **Environmental Laboratory Network**

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541 383 9310 tox 541 382 1588

Anchorage 2000 W International Airport Road Suite A10 Anchorage, AK 99502-1119

BITCH FAR THE ARE INCOMES THE

Maxim-Missoula, MT

Project: Darling-Tacoma UST

2436 Dixon Ave./ P.O. Box 2730

Project Number: 11093.001

Reported:

Missoula, MT/USA 59801

Project Manager: Natalie Morrow

07/12/04 14:35

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note:
MFG-1 (B4F0271-01) Water	Sampled: 06/08/04 09:	45 Receiv	ed: 06/08/0	4 15:40					
Diesel Range Hydrocarbons	1.27	0.250	mg/l	1	4F15014	06/15/04	06/16/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	0.500	*	*	н	**	#	*	
Mineral Oil Range Hydrocarbons	0.852	0.500	н	н	#		н	•	
Surrogate: 2-FBP	94.9 %	50-150			n	7	#	"	
Surrogate: Octacosane	94.6 %	50-150			H	"	ĸ	*	
MFG-2 (B4F0271-02) Water 5	Sampled: 06/08/04 11:1	0 Receive	ed: 06/08/0	4 15:40					
Diesel Range Hydrocarbons	0.837	0.250	mg/l	1	4F15014	06/15/04	06/16/04	NWTPH-Dx	***************************************
Heavy Oil Range Hydrocarbons	ND	0.500	**	**	R	,,	н		
Mineral Oil Range Hydrocarbons	0.615	0.500	н	н	н	•	и	N	
Surrogate: 2-FBP	81.6%	50-150			#	"	ır	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	***************************************
Surrogate: Octacosane	90.8 %	50-150			п	,,	н	,,	
MFG-3 (B4F0271-03) Water S	Sampled: 06/08/04 12:1	5 Receive	ed: 06/08/04	4 15:40					
Diesel Range Hydrocarbons	1.09	0.250	mg/l	1	4F15014	06/15/04	06/16/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	0.500	Ħ	+	н	"	**	н	
Mineral Oil Range Hydrocarbons	0.859	0.500	п	**	н	н	**	n	
Surrogate: 2-FBP	88.2 %	50-150			п	17	"	"	***************************************
Surrogate: Octacosane	93.5 %	50-150			**	n	#	"	
MFG-4 (B4F0271-04) Water S	ampled: 06/08/04 13:4	0 Receive	d: 06/08/04	1 15:40					
Diesel Range Hydrocarbons	1.17	0.250	mg/l	1	4F15014	06/15/04	06/16/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	0.500	,	*	11	н	n	N .	
Mineral Oil Range Hydrocarbons	0.769	0.500	+	"	H	*		п	
Surrogate: 2-FBP	105 % 5	0-150			· -· · · · · · · · · · · · · · · · · ·	··	·		
Surrogate: Octacosane	97.8 % 5	0-150				*	"	n	

North Creek Analytical - Bothell

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Amar Gill, Project Manager

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07.563.9000 (n. 907.563.97).n

Maxim-Missoula, MT

2436 Dixon Ave./ P.O. Box 2730

Missoula, MT/USA 59801

Project: Darling-Tacoma UST

Project Number: 11093.001

Project Manager: Natalie Morrow

Reported:

07/12/04 14:35

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up North Creek Analytical - Bothell

		Rep	corting				***************************************			
Analyte	Result		Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-1 (B4F0271-01) Water	Sampled: 06/08/04 09):45	Receive	d: 06/08/0	4 15:40					
Mineral Oil Range Hydrocarbons	ND		0.500	mg/l	l	4F17018	06/15/04	06/22/04	NWTPH-Dx)
Diesel Range (SGCU)	ND		0.250	"	н	н	14	н	н	
Lube Oil Range (SGCU)	ND		0.500	Ħ	H	**	*	**	*	
Surrogate: 2-FBP (SGCU)	98.4 %	50-1	50			*	<i>N</i>	·	H	
Surrogate: Octacosane (SGCU)	93.5 %	50-1	50			*	*	H	"	
MFG-2 (B4F0271-02) Water	Sampled: 06/08/04 11	:10	Received	1: 06/08/0	4 15:40					
Mineral Oil Range Hydrocarbons	ND		0.500	mg/l	1	4F17018	06/15/04	06/22/04	NWTPH-Dx	Х
Diesel Range (SGCU)	ND		0.250	**	**	#	*	н	н	21
Lube Oil Range (SGCU)	ND		0.500	n	*	*		**	н	
Surrogate: 2-FBP (SGCU)	82.0 %	50-1.	50			*	п	<i>"</i>	#	
Surrogate: Octacosane (SGCU)	90.8 %	50-1.	50			*	"	"	"	
MFG-3 (B4F0271-03) Water	Sampled: 06/08/04 12	:15 1	Received	l: 06/08/04	15:40					
Mineral Oil Range Hydrocarbons	ND		0.500	mg/l	1	4F17018	06/15/04	06/22/04	NWTPH-Dx	X
Diesel Range (SGCU)	ND	4	0.250	n	n	*	H.	н	*	
Lube Oil Range (SGCU)	ND	(0.500	Ħ	н	н	Ħ	H	m ·	
Surrogate: 2-FBP (SGCU)	87.8 %	50-15	50		***************************************	**	,,	n	п	
Surrogate: Octacosane (SGCU)	90.8 %	50-15	50			**	**	*	#	
MFG-4 (B4F0271-04) Water	Sampled: 06/08/04 13:	40 F	Received	: 06/08/04	15:40					
Mineral Oil Range Hydrocarbons	ND	(0.500	mg/l	1	4F17018	06/15/04	06/22/04	NWTPH-Dx	X
Diesel Range (SGCU)	ND	(0.250	н	*	4	**	H	H	А
ube Oil Range (SGCU)	ND	€	0.500	н	*	n	н	•	н	
Surrogate: 2-FBP (SGCU)	102 %	50-15	0			· · - · · · · · · · · · · · · ·		··	· · · · · · · · · · · · · · ·	· - ^
Surrogate: Octacosane (SGCU)	101%	50-15	. ~							

North Creek Analytical - Bothell

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Maxim-Missoula, MT

2436 Dixon Ave./ P.O. Box 2730

Missoula, MT/USA 59801

Project: Darling-Tacoma UST

Project Number: 11093,001

Project Manager: Natalie Morrow

Reported:

07/12/04 14:35

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method North Creek Analytical - Bothell

	R	eporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-1 (B4F0271-01) Water S	Sampled: 06/08/04 09:45	Receiv	ed: 06/08/0	4 15:40					***************************************
Extractable Petroleum Hydrocarbons	ND	500	ug/l	1	[CALC]	06/11/04	06/25/04	WA MTCA-EPH	
C8-C10 Aliphatics	ND	50.0	· H	"	4F11011	19		*	3
C10-C12 Aliphatics	ND	50.0	н	**	н	*	**	п	
C12-C16 Aliphatics	ND	50.0	11	и	19			н	
C16-C21 Aliphatics	ND	50.0	· ·	н	ts	#		N	
C21-C34 Aliphatics	ND	50.0	**	н	17	н	re	n	
C8-C10 Aromatics	ND	50.0	Ħ	•	++	*	n	*	X
C10-C12 Aromatics	ND	50.0	н	Ħ	**	•	is .		X
C12-C16 Aromatics	58.6	50.0	*1	le :	"	**	н	*	
C16-C21 Aromatics	ND	50.0	'n	**	14	"	*	n	
C21-C34 Aromatics	ND	50.0	**	"	н	n	**	н	
Surrogate: o-Terphenyl	60.7% 60-	140			#	n	н	11	
Surrogate: 1-Chlorooctadecane	66.0 % 60-	140			#	n	"	3 <i>11</i>	
MFG-2 (B4F0271-02) Water S	ampled: 06/08/04 11:10	Receive	ed: 06/08/0	4 15:40					
Extractable Petroleum Hydrocarbons	ND	500	ug/l	i	[CALC]	06/11/04	07/01/04	WA MTCA-EPH	
C8-C10 Aliphatics	ND	50.0	"	*	4F11011	ė.	06/25/04	9	X
C10-C12 Aliphatics	ND	50.0	# 1	п	н	•	n	n	
C12-C16 Aliphatics	ND	50.0	**		tr.	**	н	н	
C16-C21 Aliphatics	ND	50.0	"	**	**	**	**	н	
C21-C34 Aliphatics	ND	50.0	· a	17	(4	n		н	
C8-C10 Aromatics	ND	50.0	er e	H	n	H	07/01/04	*	X
C10-C12 Aromatics	ND	50.0	'#	**	н	and the same of	7	*	X
C12-C16 Aromatics	ND	50.0	ч	31	re	**	n	W	Λ
C16-C21 Aromatics	ND	50.0	4	±.	pt	**	н	н	
21-C34 Aromatics	ND	50.0		н	ri .		*	*	
Surrogate: o-Terphenyl	67.1 % 60-	140			"	"	,	"	
Surrogate: 1-Chlorooctadecane	72.9 % 60-	40			ø	•	06-25-04	**	

North Creek Analytical - Bothell

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Amar Gill, Project Manager



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Project: Darling-Tacoma UST

Project Number: 11093,001 Project Manager: Natalie Morrow Reported:

07/12/04 14:35

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method North Creek Analytical - Bothell

	Re	porting				*****			
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B4F0271-03) Water Sa	mpled: 06/08/04 12:15	Receive	ed: 06/08/0	4 15:40					
Extractable Petroleum Hydrocarbons	ND	500	ug/l	1	[CALC]	06/11/04	06/25/04	WA MTCA-EPH	
C8-C10 Aliphatics	ND	50.0	H	14	4F11011	н	н	и	х
C10-C12 Aliphatics	ND	50.0	н	н	**	**	н	**	
C12-C16 Aliphatics	ND	50.0	н	н	-	н	н	п	
C16-C21 Aliphatics	ND	50.0	**	**		**	11	n	
C21-C34 Aliphatics	ND	50.0	**	н		4	•	н	
C8-C10 Aromatics	ND	50.0	н	*	**	*	н	н	х
C10-C12 Aromatics	ND	50.0	**	н	**	n	#	*	X
C12-C16 Aromatics	ND	50.0	#	**	**	н	"	*	.1
C16-C21 Aromatics	ND	50.0	Ħ	H	н	н	14	н	
C21-C34 Aromatics	ND	50.0	•	**	н	n	**	•	
Surrogate: o-Terphenyl	63.0 % 60-	140			н	"	#	r#	
Surrogate: 1-Chlorooctadecane	75.2 % 60-	140			#	н	**	#	
MFG-4 (B4F0271-04) Water Sar	mpled: 06/08/04 13:40	Receive	d: 06/08/0	4 15:40					
Extractable Petroleum Hydrocarbons	ND	595	ug/l	1	[CALC]	06/11/04	06/25/04	WA MTCA-EPH	
C8-C10 Aliphatics	ND	59.5	"	Ħ	4F11011	"	н	*	X
C10-C12 Aliphatics	ND	59.5	н	19	н	**	Ħ	*	А
C12-C16 Aliphatics	ND	59.5		H	*	n	**	Ħ	
C16-C21 Aliphatics	ND	59.5	n	**	H	it	**	н	
C21-C34 Aliphatics	ND	59.5	н	#	n	Ħ	**	H	
C8-C10 Aromatics	ND	59.5	*	**		**	61		X
C10-C12 Aromatics	ND	59.5	•	*	it	"	16	н	X X
C12-C16 Aromatics	ND	59.5	п	**		*	62	н	A
C16-C21 Aromatics	ND	59.5	**	**	**	**	(+	-	
C21-C34 Aromatics	ND	59.5	н	n	rŧ		rr	н	
urrogate: o-Terphenyl	72.3 % 60-1	40		**			 H	:	
urrogate: 1-Chlorooctadecane	73.3 % 60-1	40			H	#	nt	7	

North Creek Analytical - Bothell

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Project: Darling-Tacoma UST

Project Number: 11093,001

Project Manager: Natalie Morrow

Reported:

07/12/04 14:35

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM North Creek Analytical - Bothell

		Reporting					***************************************		
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-1 (B4F0271-01RE1) Water	Sampled: 06/08	/04 09:45 Re	ceived: 06/	08/04 15:40)				
1-Methylnaphthalene	ND	0.100	ug/l	1	4F15044	06/15/04	06/17/04	8270-SIM	
2-Methylnaphthalene	ND	0.100	"	*	H		*	*	
Benzo (a) anthracene	ND	0.100	*	it	Ħ	10	H	*	
Benzo (a) pyrene	ND	0.100	14	If	и	н	н	*	
Benzo (b) fluoranthene	ND	0.100	#	н	н	Ħ	н	n	
Benzo (k) fluoranthene	ND	0.100	**	н	19	**	н	n	
Chrysene	ND	0.100	Ħ	#	14	**	0	n	
Dibenz (a,h) anthracene	ND	0.100	"	н	и	,,	11	n	
Indeno (1,2,3-cd) pyrene	ND	0.100	n	В	"	n	н		
Naphthalene	ND	0.100	++	19	11	**	11	n	
Surrogate: p-Terphenyl-d14	24.1 %	20-127	***		"	n	н	и	
MFG-2 (B4F0271-02RE1) Water	Sampled: 06/08/	04 11:10 Rec	eived: 06/6	08/04 15:40					
l-Methylnaphthalene	ND	0.100	ug/l	1	4F15044	06/15/04	06/17/04	8270-SIM	
2-Methylnaphthalene	ND	0.100	11	rt	n	"		n	
Benzo (a) anthracene	ND	0.100	**	**	**	19	H	*	
Benzo (a) pyrene	ND	0.100	"	Ħ	**	**	"	ĸ	
Benzo (b) fluoranthene	. ND	0.100	n	it	h	19		n	
Benzo (k) fluoranthene	ND	0.100	#	N	**	"	#	п	
Chrysene	ND	0.100	н	н	**	"	**	н	
Dibenz (a,h) anthracene	ND	0.100	n	n	"	rr .	37	N	
ndeno (1,2,3-cd) pyrene	ND	0.100	H	,,	48	н	н	•	
Japhthalene	ND	0.100	n		,,	•	п	*	
urrogate: p-Terphenyl-d14	25.7 %	20-127	-		 #	· · · · · · · · · · · · · · · · · · ·			

North Creek Analytical - Bothell

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Amar Gill, Project Manager

North Creek Analytical, Inc. **Environmental Laboratory Network**



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Project: Darling-Tacoma UST

Project Number: 11093.001

Project Manager: Natalie Morrow

Reported:

07/12/04 14:35

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-3 (B4F0271-03RE1) Water	Sampled: 06/08/	04 12:15 Re	ceived: 06/	08/04 15:40)				
1-Methylnaphthalene	ND	0.100	ug/l	1	4F15044	06/15/04	06/17/04	8270-SIM	
2-Methylnaphthalene	ND	0.100	н	11	*	+	4	8	
Benzo (a) anthracene	ND	0.100	tr	**	H	**			
Benzo (a) pyrene	ND	0.100	**	*	16	н	ø	*	
Benzo (b) fluoranthene	ND	0.100	n	и	*		11	n	
Benzo (k) fluoranthene	ND	0.100	н	H		*	n	н	
Chrysene	ND	0.100		16	н	ļ.,	64	*	
Dibenz (a,h) anthracene	ND	0.100	n		11	16	H	#	
Indeno (1,2,3-cd) pyrene	ND	0.100	**	11	H	59	,	ff	
Naphthalene	ND	0.100	**	4	n	it.	"	11	
Surrogate: p-Terphenyl-d14	31.1 %	20-127			"	N	H	H	
MFG-4 (B4F0271-04RE1) Water	Sampled: 06/08/	04 13:40 Rec	eived: 06/0	08/04 15:40					
I-Methylnaphthalene	ND	0.100	ug/l	1	4F15044	06/15/04	06/17/04	8270-SIM	
2-Methylnaphthalene	0.254	0.100	"	н	8	"	#	0270-3HVI	
Benzo (a) anthracene	ND	0.100	a	**	**	n	"	н	
Benzo (a) pyrene	ND	0.100	н	**	11	n	19	*	
Benzo (b) fluoranthene	ND	0.100	н	11	144	н	19	*	
Benzo (k) fluoranthene	ND	0.100	or I	**	**	н		Ħ	
Chrysene	ND	0.100	"			9	ft	**	
Dibenz (a,h) anthracene	ND	0.100	11	10	**	4	н		
ndeno (1,2,3-cd) pyrene	ND	0.100	*	ч	"		n	*	
Naphthalene	ND	0.100	n n	n	**	и	14	#	
Surrogate: p-Terphenyl-d14	22.7 %	20-127				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,	w	

North Creek Analytical - Bothell

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Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 07/12/04 14:35

BTEX by EPA Method 8021B North Creek Analytical - Bothell

	R	eporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MFG-1 (B4F0271-01) Water	Sampled: 06/08/04 09:45	Receiv	ed: 06/08/0	4 15:40					
Benzene	ND	0.500	սց/1]	4F15006	06/15/04	06/15/04	EPA 8021B	
Toluene	ND	0.500	*		**	H	H	E171 0021D	
Ethylbenzen e	ND	0.500	19	H	19	19	N	я	
Xylenes (total)	1.08	1.00	19	н	н	**	н	**	
Surrogate: 4-BFB (PID)	104 % 68	-140		**************************************	n	7	2 7	a	
MFG-2 (B4F0271-02) Water	Sampled: 06/08/04 11:10	Receive	ed: 06/08/04	15:40					
Benzene	ND	0.500	ug/l	1	4F15006	06/15/04	06/15/04	EPA 8021B	
Toluene	ND	0.500	16	н	н	16	н	#	
Ethylbenzen e	ND	0.500	н	н		n	н		
Xylenes (total)	ND	1.00	н	11		н	H	•	
Surrogate: 4-BFB (PID)	101 % 68-	140		***************************************	"	'n	;;	Н	
MFG-3 (B4F0271-03) Water	Sampled: 06/08/04 12:15	Receive	d: 06/08/04	15:40					
Benzene	ND	0.500	ug/l	1	4F15006	06/15/04	06/15/04	EPA 8021B	
Toluene	ND	0.500	"		d I	н	"	# #	
Ethylbenzene	ND	0.500		н	59	H ₁	4	n	
Xylenes (total)	ND	1.00	#	**	n	"	15	п	
Surrogate: 4-BFB (PID)	102 % 68-	140			"	"	"	#	
MFG-4 (B4F0271-04) Water	Sampled: 06/08/04 13:40	Receive	d: 06/08/04	15:40					
Benzene	ND	0.500	ug/l		4F15006	06/15/04	06/15/04	EPA 8021B	
oluene	ND	0.500	н .	n.	H	9 TS/19 T	*	CFA 6021B	
Ethylbenzene	ND	0.500		n	н	.,	н	n	
(ylenes (total)	ND	1.00	**	н	н	н	ы	*	

North Creek Analytical - Bothell

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> North Creek Analytical, Inc. **Environmental Laboratory Network**



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Maxim-Missoula, MT

Project: Darling-Tacoma UST

2436 Dixon Ave./ P.O. Box 2730

Project Number: 11093.001

Reported:

Missoula, MT/USA 59801

Project Manager. Natalie Morrow

07/12/04 14:35

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC		RPD	***************************************
Analyte	Result	Limit	Units	Level	Result	*REC	Limits	RPD	Limit	Notes
Batch 4F15014: Prepared 06/15/0	4 Using El	PA 3520C								
Blank (4F15014-BLK1)										
Diesel Range Hydrocarbons	ND	0.250	mg/l		Hetr of Brown and and Angella and and		***************************************			
Heavy Oil Range Hydrocarbons	ND	0.500	ĸ							
Mineral Oil Range Hydrocarbons	ND	0.500	*							
Surrogate: 2-FBP	0.213		ff.	0.270		78,9	50-150	-		
Surrogate: Octacosane	0.161		n	0.195		82.6	50-150			
LCS (4F15014-BS1)										
Diesel Range Hydrocarbons	1.42	0.250	mg/l	2.00		71.0	58-125		**************************************	
Surrogate: 2-FBP	0.205		H	0.270		75.9	50-150			
LCS Dup (4F15014-BSD1)										
Diesel Range Hydrocarbons	1.55	0.250	mg/l	2.00		77.5	58-125	8.75	40	
Surrogate: 2-FBP	0.221	Andread to the second of the s	n	0.270		81.9	50-150		Andrian	And the second second second
Matrix Spike (4F15014-MS1)				:	Source: B	34F0271-0	1			
Diesel Range Hydrocarbons	2.79	0.250	mg/l	1.89	1.27	80.4	25-149			
Surrogate: 2-FBP	0.246		"	0.255		96.5	50-150			
Matrix Spike Dup (4F15014-MSD1)				5	Source: B	4F0271-0	1			
Diesel Range Hydrocarbons	2.62	0.250	mg/l	1.89	1.27	71.4	25-149	6.28	40	
Surrogate: 2-FBP	0.242			0.255		94.9	50-150			

North Creek Analytical - Bothell

Amar Gill, Project Manager

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North Creek Analytical, Inc.



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Project: Darling-Tacoma UST

Project Number: 11093.001

Project Manager: Natalie Morrow

Reported:

07/12/04 14:35

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Quality Control North Creek Analytical - Bothell

ng	Limit EPA 3520C	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
ng	EPA 3520C								
								······································	
ND	0.500	mg/l				***************************************			
ND	0.250	*							•
ND	0.500	*							
16		"	0.270	***************************************	80.0	50-150			***************************************
74		*	0.195		89.2	50-150			
38	0.250	¹ mg∕l	2.00		69.0	45-105			
02		"	0.270		74.8	50-150			
62	0.250	mg/l	2.00		81.0	45-105	16.0	50	
45		#	0.270		90.7	50-150			
	ND ND ND 216 174 38 202	ND 0.250 ND 0.500 216 174 338 0.250 202 62 0.250	ND 0.250 " ND 0.500 " 216 " 174 " 38 0.250 mg/l 62 0.250 mg/l	ND 0.250 " ND 0.500 " 216 " 0.270 174 " 0.195 38 0.250 mg/l 2.00 202 " 0.270 62 0.250 mg/l 2.00	ND 0.250 " ND 0.500 " 216 " 0.270 174 " 0.195 38 0.250 mg/l 2.00 62 0.250 mg/l 2.00	ND 0.250 " ND 0.500 " 216 " 0.270 80.0 174 " 0.195 89.2 38 0.250 mg/l 2.00 69.0 62 0.250 mg/l 2.00 81.0	ND 0.250 " ND 0.500 " 216 " 0.270 80.0 50-150 174 " 0.195 89.2 50-150 38 0.250 mg/l 2.00 69.0 45-105 202 " 0.270 74.8 50-150 62 0.250 mg/l 2.00 81.0 45-105	ND 0.250 " ND 0.500 " 216 " 0.270 80.0 50-150 174 " 0.195 89.2 50-150 38 0.250 mg/l 2.00 69.0 45-105 202 " 0.270 74.8 50-150 62 0.250 mg/l 2.00 81.0 45-105 16.0	ND 0.250 " ND 0.500 " 216 " 0.270 80.0 50-150 174 " 0.195 89.2 50-150 38 0.250 mg/l 2.00 69.0 45-105 202 " 0.270 74.8 50-150 62 0.250 mg/l 2.00 81.0 45-105 16.0 50

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907 583 4390 to 907 583 4340

Maxim-Missoula, MT

2436 Dixon Ave./ P.O. Box 2730

Missoula, MT/USA 59801

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported:

07/12/04 14:35

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

1. ,			Reporting		Spike	Source		%REC		RPD	
Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4F11011: Prepare	ed 06/11/04	Using E	PA 3520C								
Blank (4F11011-BLK1)											
C8-C10 Aliphatics	de charles anno anno anno anno a n no an anno anno anno anno anno anno an	ND	50.0	ug/l							
C10-C12 Aliphatics		ND	50.0	*							•
C12-C16 Aliphatics		ND	50.0								
C16-C21 Aliphatics		ND	50.0	*							
C21-C34 Aliphatics		ND	50.0	*							
C8-C10 Aromatics		ND	50.0	н							
C10-C12 Aromatics		ND	50.0	Ħ							
C12-C16 Aromatics		ND	50.0	н							
C16-C21 Aromatics		ND	50.0	n							
C21-C34 Aromatics		ND	50.0	n							
Surrogate: o-Terphenyl		267	- In the control of the state o	77	400		66.8	60-140			
Surrogate: 1-Chlorooctadecane		308		**	400		77.0	60-140			
LCS (4F11011-BS1)											
C8-C10 Aliphatics		63.5	50.0	ug/l	100		63.5	70-130			X
C10-C12 Aliphatics		85.4	50.0	н	100		85.4	70-130			,
C12-C16 Aliphatics		145	50.0	n	200		72.5	70-130			
C16-C21 Aliphatics		163	50.0	*	200		81.5	70-130			
C21-C34 Aliphatics		672	50.0	н	700		96.0	70-130			
C8-C10 Aromatics		ND	50.0	п	100			70-130			Х
C10-C12 Aromatics		66.1	50.0	н	100		66.1	70-130			X
C12-C16 Aromatics		344	50.0	н	300		115	70-130			,·
C16-C21 Aromatics		404	50.0	п	500		80.8	70-130			
C21-C34 Aromatics		678	50.0	Ħ	800		84.8	70-130			
Surrogate: o-Terphenyl		322		н	400	-	80.5	60-140			
Surrogate: 1-Chlorooctadecane		303		"	400		75.8	60-140			
LCS Dup (4F11011-BSD1)											
C8-C10 Aliphatics		72.7	50.0	ug/l	100		72.7	70-130	13.5	25	X
C10-C12 Aliphatics		92.4	50.0	•	100		92.4	70-130	7.87	25	Х
C12-C16 Aliphatics		158	50.0	*	200		79.0	70-130	8.58	25	
C16-C21 Aliphatics		178	50.0	•	200		89.0	70-130	8.80	25	
C21-C34 Aliphatics		732	50.0	×	700		105	70-130	8.55	25	
C8-C10 Aromatics	•	24.3	50.0	*	100		24.3	70-130	المهاجر والمها	25	Х

North Creek Analytical - Bothell

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541 383 9310 fax 541 382 7588

Anchorage, 2000 W International Arport Road, Suite A10, Archorage, AX 99502-1113

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Maxim-Missoula, MT

2436 Dixon Ave./ P.O. Box 2730

Missoula, MT/USA 59801

Project: Darling-Tacoma UST

Project Number: 11093,001

Project Manager: Natalie Morrow

Reported:

07/12/04 14:35

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control North Creek Analytical - Bothell

Analyte		Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F11011:	Prepared 06/11/04	Using E	EPA 3520C								ivotes
LCS Dup (4F11011-B											
C10-C12 Aromatics	angan at ting semanah dari dang selementan semanah dangan at ting selementa selementa dan selementa selementa s	70.7	50.0	ug/l	100		70.7	70-130	6.73	25	
C12-C16 Aromatics		343	50.0	*	300		114	70-130	0.291	25	
C16-C21 Aromatics		482	50.0		500		96.4	70-130	17.6	25	
C21-C34 Aromatics		853	50.0	•	800		107	70-130	22.9	25	
Surrogate: o-Terphenyl	A STATE OF THE STA	387	many manufacture action is no physical parameters, it is no man	н	400		96.8	60-140			thanks dies is an incommentary of places in the
Surrogate: 1-Chlorooctaa	lecane	332		#	400		83.0	60-140			
Matrix Spike (4F1101	1-MS1)					Source: B	4F0271	0.1			
C8-C10 Aliphatics		71.3	50.0	ug/l	94.3	36.0	37.4	70-130			*/
C10-C12 Aliphatics		102	50.0	*	94.3	31.9	74.3	70-130			
C12-C16 Aliphatics		166	50.0	ď	189	ND	87.8	70-130			
C16-C21 Aliphatics		184	50.0	•	189	23.3	85.0	70-130			
C21-C34 Aliphatics		730	50.0	•	660	ND	111	70-130			
28-C10 Aromatics		22.2	50.0	W	94.3	ND	23.5	70-130			
C10-C12 Aromatics		96.9	50.0	*	94.3	20.7	80.8	70-130			•
C12-C16 Aromatics		338	50.0	14	283	58.6	98.7	70-130			
C16-C21 Aromatics		363	50.0	n	472	37.7	68,9	70-130			Q-0
21-C34 Aromatics		432	50.0	н	755	ND	57.2	70-130			Q-0
urrogate: o-Terphenyl		268		q	377		71.1	60-140			~ ~ ~
urrogate: 1-Chlorooctade	rcane	336		"	377		89.1	60-140			
latrix Spike Dup (4F)	11011-MSD1)				s	Source: B4	LF0271_0	1			
8-C10 Aliphatics		79.4	50.0	ug/l	94.3	36.0	46.0	70-130	10.7	25	· · · · · · · · · · · · · · · · · · ·
10-C12 Aliphatics		93.8	50.0		94.3	31.9	65.6	70-130	8.38	25	Q-01
12-C16 Aliphatics		141	50.0	4.	189	ND	74.6	70-130	16.3	25 25	Q-0.
16-C21 Aliphatics		156	50.0	*	189	23.3	70.2	70-130	16.5	25	
21-C34 Aliphatics		623	50.0	4	660	ND	94.4	70-130	15.8	25	
8-C10 Aromatics		ND	50.0		94.3	ND	27.7	70-130	NA	25	,
10-C12 Aromatics		90.3	50.0		94.3	20,7	73.8	70-130	7.05	45 25)
12-C16 Aromatics		327	50.0	• :	283	58.6	94.8	70-130	3.31	25 25	
16-C21 Aromatics		377	50.0	•	472	37.7	71.9	70-130	3.78	25 25	
21-C34 Aromatics		475	50.0	*	755	ND	62.9	70-130	9,48	25 25	O-02
urrogate: o-Terphenyl		283		,	377		25.1			=,, ==================================	Q-02
rrogate: 1-Chlorooctade	cano	285		~	377		75.6	60-140 60-140			

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Page 12 of 15 Environmental Laboratory Network



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Maxim-Missoula, MT 2436 Dixon Ave./ P.O. Box 2730 Missoula, MT/USA 59801

Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 07/12/04 14:35

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control North Creek Analytical - Bothell

		Reporting		Spike	Source		%REC	***************************************	RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4F15044: Prepared 06/15/04	Using E	PA 3520C				<u> </u>				
Blank (4F15044-BLK1)							······································			
1-Methylnaphthalene	ND	0.100	ug/l		*** **********************************	·····		Parties of the American of the American State of the American Stat	*	Particular and the second second second second
2-Methylnaphthalene	ND	0.100	H							
Benzo (a) anthracene	ND	0.100	*							
Benzo (a) pyrene	ND	0.100	•							
Benzo (b) fluoranthene	ND	0.100								
Benzo (k) fluoranthene	ND	0.100	н							
Chrysene	ND	0.100	- и							
Dibenz (a,h) anthracene	ND	0.100	H							
Indeno (1,2,3-cd) pyrene	ND	0.100	H							
Naphthalene	ND	0.100	*							
Surrogate: p-Terphenyl-d14	45.9	and the second s	n	50.0		91.8	20-127	······································		
LCS (4F15044-BS1)										
Benzo (a) anthracene	9.85	0.100	ug/l	10.0		98.5	41-121			
Benzo (a) pyrene	8.28	0.100	*	10.0		82.8	33-125			
Benzo (b) fluoranthene	10.3	0.100	н	10.0		103	35-133			
Benzo (k) fluoranthene	8.60	0.100	н	10.0		86.0	28-127			
Chrysene	10.0	0.100	n	10.0		100	41-120			
Dibenz (a,h) anthracene	8.09	0.100	•	10.0		80.9	24-120			
Indeno (1,2,3-cd) pyrene	8.46	0.100	H	10.0		84.6	26-122			
Naphthalene	8.28	0.100	н	10.0		82.8	38-120			
Surrogate: p-Terphenyl-d14	22.2	,	, 1)	50.0		44.4	20-127	-11		
LCS Dup (4F15044-BSD1)										
Benzo (a) anthracene	10.2	0.100	ug/l	10.0		102	41-121	3.49	25	
Benzo (a) pyrene	8.58	0.100	n	10.0		85.8	33-125	3.56	25	
Benzo (b) fluoranthene	11.5	0.100	2	10.0		115	35-133	11.0	25	
Benzo (k) fluoranthene	8.52	0.100	*	10.0		85.2	28-127	0.935	25	
Chrysene	10.2	0.100	*	10.0		102	41-120	1.98	25	
Dibenz (a,h) anthracene	8.90	0.100	-	10.0		89.0	24-120	9.54		
Indeno (1,2,3-cd) pyrene	9.25	0.100		10.0		92.5	26-122		25	
Naphthalene	7.61	0.100	*	10.0		76.1	38-120	8.92 8.43	25 25	
Surrogate: p-Terphenyl-d14	22.8		н	50.0		45.6	20-127		<u>, , , , , , , , , , , , , , , , , , , </u>	Pelbara

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503 906 9730 184 533 976 9710

Bend IN 332 Employ Avenue Suite Fill Bland CR 91711 5713 541 (83.931.) fax 541 382 1548

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Project: Darling-Tacoma UST

Project Number: 11093.001 Project Manager: Natalie Morrow

Reported: 07/12/04 14:35

BTEX by EPA Method 8021B - Quality Control North Creek Analytical - Bothell

			Reporting		Spike	Source		%REC		RPD	
Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4F15006:	Prepared 06/15/04	Using E	PA 5030B	(P/T)							
Blank (4F15006-BL1	K1)								· · · · · · · · · · · · · · · · · · ·		
Benzene	Annual Control of the	ND	0.500	ug/l			entende de la lacia de la lacia de la composició de la composició de la composició de la composició de la comp				
Toluene		ND	0.500	*							
Ethylbenzene		ND	0.500	*							
Xylenes (total)		ND	1.00	*							
Surrogate: 4-BFB (PID)	TO THE PROPERTY OF THE PROPERT	48.6	Andrew 1 and 1	11	48.0		101	68-140			The second of th
LCS (4F15006-BS1)											
Benzene		6.85	0.500	ug/l	6.20		110	80-120			
Toluene		34.2	0.500	н	34.8		98.3	80-120			
Ethylbenzene		8.31	0.500	*	8.35		99,5	80-120			
Xylenes (total)		40.7	1.00	я	40.5		100	80-120			
Surrogate: 4-BFB (PID)		50.2		"	48.0	·	105	68-140			
LCS Dup (4F15006-B	BSD1)										
Benzene		7.25	0.500	ug/l	6.20		117	80-120	5.67	25	**************************************
Toluene		36.0	0.500	Ħ	34.8		103	80-120	5.13	25	
Ethylbenzene		8.78	0.500	•	8.35		105	80-120	5.50	25	
(ylenes (total)		43.0	1.00	•	40.5		106	80-120	5.50	25	
Surrogate: 4-BFB (PID)		49.4			48.0		103	68-140			
Matrix Spike (4F1500)6-MS1)					Source: B	4F0271_0				
Benzene		7.25	0.500	ug/l	6.20	0.187	114	46-130			
foluene		35.5	0.500	,	34.8	0.481	101	60-124			
thylbenzene		8.65	0.500	#	8.35	0.212	101	56-141			
(ylenes (total)		42.3	1.00		40.5	1.08	102	66-132			
urrogate: 4-BFB (PID)		49.0			48.0		102	68-140			
1atrix Spike Dup (4F	(15006-MSD1)				•	Source: B4	150271 O				
enzene		7.33	0.500	tig/l	6.20	0.187	115	46-130	1.10	40	
oluene		35.5	0.500	# .a	34.8	0.481	101	60-124	1.10	40	
thylbenzene		8.65	0.500	N	8.35	0.481	101	56-141	0 00	40	
ylenes (total)		42.0	1.00	*	40.5	1.08	101	66-132	0.712	40 40	
urrogate: 4-BFB (PID)		48.6		"	48.0		101	68-140	U. I E.		

North Creek Analytical - Bothell

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541 383 9310 fax 541 382 7588 Anchorage 2000 W International Apport Road Suite A10 Anchorage Aik 99532-1113

201 563 31 10 Gr 201 563 3210

Maxim-Missoula, MT

2436 Dixon Ave./ P.O. Box 2730

Missoula, MT/USA 59801

Project: Darling-Tacoma UST

Project Number: 11093,001 Project Manager: Natalie Morrow Reported:

07/12/04 14:35

Notes and Definitions

Q-02 The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.

X See case narrative.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

North Creek Analytical - Bothell

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Amar Gill, Project Manager

North Creek Analytical, Inc.

Pa
Environmental Laboratory Network



All and 1488, stor thong lim 15, ct Por 2403. name 6/7/04 dusted show the NCA WO ID So HIL **1** × FAX 334-9210 FAX 420-9210 FAX 924-9290 FAX 906-9210 FAX 382-7588 * Turnaround Requests less than standard may incur Rush Charges. Q. Dissolved IAA, Volumber Sempling quecket NOT: day of MF6 -1 Work Order #: B F 4027 Must meed ANTCA TURNAROUND REQUEST AGE 11/m fax 2 1111 Petroleum Hydrocarbon Analyses DATE LOCATION / COMMENTS TIME DATE TIME 7 Organic & Inorganic Analyses See AMRA DR. in Business Days * 40/8/4 DA 541-383-9310 907-334-9200 TEMP: 425-420-9200 509-924-9200 503-906-9200 S OTHER Specify 4000 4 # OF CONT. s 4 11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-9508 11115 E Montgomery Suite B, Spokane, WA 99206-4776 9405 SW Nimbus Ave, Beaverton, OR 97008-7132 3209 Denali St, Anchorage, AK 99503-4030 20332 Empire Ave Suite F-1, Bend, OR 99701-5711 3 MATRIX (W, S, O) FIRM: 9 63 \overline{o} 9 RECEIVED BY: / RECEIVED BY: PRINT NAME: PRINT NAME: REQUESTED ANALYSES PRESERVATIVE 1 54/ 5W CHAIN OF CUSTODY REPORT SAME 10/8/9 P.O. NUMBER INVOICE TO: 1540 BIEK ٧ У y۷ × PAHS PAHS DATE: TIME بلا DATE TIME X 403 X y. 2015/2010 DE 19-HOLMI upim بير yL. X 火 FIRM: MAX! M VINTERH-DIX بح 人 بلا FIRM 2460 DATE/TIME 1340 SAMPLING Technologies 0= 1215 REPORT TO: NATALIE ME room 2436 Dixon RELEASED BY: Vation Mor Go 40/8/07 PHONE: 406-543-3045 FAX: Maxim CLIENT SAMPLE IDENTIFICATION PROJECT NUMBER: ADDITIONAL REMARKS: PROJECT NAME: SAMPLED BY: ADDRESS: MPET RELEASED BY MFG-2 MF6-3 antio -PRINT NAME PRINT NAME: CLENT ERIT AUTHORITION

Samples were not @2-6c upon receipt!

APPENDIX E MTCA RISK TABLES

Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact Pathway: Method C-Industrial Land Use (Refer to MTCA WAC 173-340-745)

Date: 13-Jul-04
Site Name: Darling International, Inc. LUSTs Site - Tacoma, WA
Sample Name: MTCA Method C: Lowest Concentrations

CPF, kg-day/mg HQ RISK Fail? Pass or Pass or			E	Exposure Parameters	aramete	2	Toxicity	Parameters		Current Condition	1993					adjusted condition at a specified TPH
			•							THE COURT			Adjusted	Condition		concentration.
		ured Soil										Soil Conc				b. Check columns at left for Pass/Fail det
		T	AB1	AF	ABS	3	R.D.	CPF,	ЙH	RISK	Pass or			RISK	Pass or	
				ng/cm²-day	unitlegs	unitless	mg/kg-day	kg-day/mg	unitless	unitless		na Asa	,	+	Fail?	
6 0 1 0.2 0.03 0.8 5.7 No.05—00 No.05—00 Pass or Fall? Plas or Fall? <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1118/118</td><td>milicas</td><td>4</td><td></td><td>TPH, mg/kg= 281.280</td></t<>												1118/118	milicas	4		TPH, mg/kg= 281.280
1 0.2 0.0		0		0.2	0.03	8.0	5.7					0000				HI= 1.175E-02
0 0 0 0 0 0 Dess or Fail? Pass or Fail? <td></td> <td>0</td> <td>_</td> <td>0.2</td> <td>0.03</td> <td>8.0</td> <td>5.7</td> <td></td> <td></td> <td></td> <td></td> <td>0.00E+00</td> <td>********</td> <td></td> <td></td> <td>Cancer RISK = 2.121E-06</td>		0	_	0.2	0.03	8.0	5.7					0.00E+00	********			Cancer RISK = 2.121E-06
2 2 2 2 0	_	0		0.2	0.03	0.8	0.03					0.00E+00	-			Pass or Fail? Pass
6 3.69 1 0.2 0.1 0.5 0.3 1.32E-04 9.90E-00 2.77E-04 3.78E-04 4 8.48 1 0.2 0.11 0.5 2 1.32E-05 9.77E-00 2.77E-06 9.77E-04 3.3E-06 6 6 6 3.6 0.05 0.05 0.05 0.00E-00 0.00E+00 7.7E-04		3.2		0.7	0.03	80	0 03		\$ 33E 04			0.00E+00		••••		
1.152 1 0.2 0.1 0.5 2. 1.23E-0.3 1.15E-0.4 1.35E-0.4 1.35E		6.9		0.2	0.1	0.5	000		3.32E-04			9.90E+00	2.27E-04			
4 848 1 0.2 0.01 0.05 0.05 0.05 0.00 0		6.2		0.2	0.1	0.5	7	_	1.33E-U3			1.15E+01	5.74E-04			
1 0.2 0.03 0.8 0.05 0.0 0.00E+00 0.00		48		0.2		- ·	۰ ،		1.74E-03			9.77E+00	7.33E-06			
1 1 1 1 1 2 1 1 2 1 2 2		-	-	60	200		7,0		6.36E-06			3.62E+00	2.71E-06			
1				7.0	6.6	×	0.03					0.00E+00				
1 0 0 0 0 0 0 0 0 0		, ,		7.	S S	×.	0.05					0.00E+00				A dimeted Pro- and
159 1 0.2 0.1 0.5 0.03 0.05		-		0.5	0.0	0.5	0.05			· Tallian ia		OOETOO				Wolling Colling
159 1 0.2 0.00 0.05 0.00				0.2	0.1	0.5	0.03		1 89F-03			0.000				TPH, mg/kg= 120.000
0 1 0.2 0.0005 0.0005 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 Pass or Fail? Pass 0 1 0.2 0.03 0.9 0.1 0.2 0.03 0.9 0.1 0.05 0.00E+00		65	-	0.2	0.1	0.5	0.03		7.05E 03			1.01E+01	8.04E-04			HI= 5.012E-03
a 0 1 0.2 0.03 1 0.00E+00 0.00		_	-	T	0.0005	0.05	0,003	2000	(U-3/C/)			6.78E+01	3.39E-03			Cancer RISK = 9.047E-07
0 1 0.2 0.0 1 0.00E+00 0.00E+00 0.00E+00 2.00E+00 2.00E+00 2.00E+00 2.00E+00 2.00E+00 2.00E+00 2.00E+00 2.00E+00 2.00E+00 3.00E+00 3.00E+00 <t< td=""><td></td><td></td><td>_</td><td></td><td>0.03</td><td>} -</td><td>5000</td><td>0.055</td><td></td><td>0.00E+00</td><td></td><td>0.00E+00</td><td></td><td>0.00E+00</td><td></td><td>Pass or Fail?</td></t<>			_		0.03	} -	5000	0.055		0.00E+00		0.00E+00		0.00E+00		Pass or Fail?
s 0				0.2	0.03	0.92	-					0.00E+00				
0.21 1 0.2 0.13 0.89 0.02 1.29E-05 8.96E-02 5.51E-06 Correctiongers 0 1 0.2 0.03 0.8 0.06 0.00E+00 0.00				0.2	0.03	6.0				····		0.00E+00				
0 1 0.2 0.03 0.8 0.06 4.00 5.51E-06 Average Body Weight, ABW 70 0 1 0.2 0.03 0.8 0.0005 8.96E-02 5.51E-06 Average Body Weight, ABW 70 0 0 0.00 0 0.00E+00 0.			-	0.2	0.13	68 0	000		1 305 05			0.00E+00				Exposure Parameters
0 1 0.2 0.03 0.8 0.00057 85 0.00E+00 0.00				0.2	0.03	8.0	90.0	-	CD-2167'1			-	5.51E-06			
0 1 0.2 0.03 0.8 0.0005-0 85 0.00E+00 Demail Surface Area, S.R. 50 0.18 0.19 0.13 0.89 0.73 1.22E-06 2.18E-01 1.84E-08					•		•	_					0.00E+00			70
0 1 0.2 0.03 0.03 0.091 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 Exposure Frequency, EF 0.7 0.27 0.13 0.89 0.73 6.47E-08 1.15E-01 2.76E-08 Soil Ingestion Rate, SIR 50 0.18 0.2 0.13 0.89 0.73 1.53E-07 2.73E-01 2.76E-08 Soil Ingestion Rate, SIR 50 0.18 0.2 0.13 0.89 0.73 1.22E-06 2.13E-01 1.84E-08 Demai Surface Area, SA 250 0.51 1 0.2 0.13 0.89 0.073 1.22E-06 2.18E-01 2.18E-01 Demai Surface Area, SA 250 0.54 1 0.2 0.13 0.89 0.073 8.14E-09 1.45E-01 Averaging time, AT, C 75 0.39 0.39 0.35 0.39E-07 2.39E-01 2.29E-01 3.98E-08 Averaging time, AT, C 75				0.2	0.03		0.000057	85		O OOETOO						20
0.27 0.13 0.89 0.73 6.47E-08 1.55E-07 0.00E+00 Exposure Duration, ED 20 0.64 1 0.2 0.13 0.89 0.73 1.53E-07 2.73E-01 2.76E-08 Soil Ingestion Rate, SIR 50 0.51 1 0.2 0.13 0.89 0.73 4.31E-08 7.68E-02 1.84E-08 Instance Area, SA 2500 0.51 1 0.2 0.13 0.89 0.073 1.22E-06 2.18E-01 S.21E-07 Parameters for Carcinogens 0.56 1 0.2 0.13 0.89 0.073 8.14E-09 1.45E-01 Averaging time, AT_C 75 0.39 0.03 0.73 0.73 0.73E-09 0.73E-09 1.45E-01 3.47E-09 Averaging time, AT_C 75 2.39E-01 0.2 0.13 0.89 0.73 0.73E-08 1.66E-01 3.98E-08 3.98E-08		1	_	0.7	0.03		0.03	0.091		0.00E+00			0.00E+00	0.00E+00		0.7
U.04 1 0.2 0.13 0.89 0.73 1.53E-07 2.73E-01 2.70E-08 Soil Ingestion Rate, SIR 50 0.18 0.2 0.13 0.89 0.73 4.31E-08 7.68E-02 1.84E-08 Dermal Surface Area, SA 250 0.51 1 0.2 0.13 0.89 0.073 1.22E-06 2.18E-01 2.18E-01 Parameters for Carcinogens 0.56 1 0.2 0.13 0.89 0.073 8.14E-09 1.45E-01 Averaging time, AT C 75 0.39 1 0.2 0.13 0.89 0.73 9.34E-08 1.66E-01 3.98E-01 3.98E-07				0.2	0.13	68.0		0.73		6.47E-08		+	0.00E+00		Ī	20
0.18 1 0.2 0.13 0.89 0.73 4.31E-08 7.3E-04 0.54E-08 Dermal Surface Area, SA 2500 0.51 0.1 0.2 0.13 0.89 0.73 1.22E-06 2.18E-01 5.21E-07 Parameters for Carcinogens 0.56 1 0.2 0.13 0.89 0.073 8.14E-09 1.45E-01 3.47E-09 Averaging time, AT C 75 2.39 0.1 0.2 0.13 0.89 0.73 9.34E-08 1.66E-01 3.98E-07 3.98E-07 75 281.28 0.2 0.13 0.89 0.73 0.73 1.66E-01 3.98E-01 3.98E-07 3.98E-08		4 4			0.13	68.0		0.73		1.53E-07		3 775 01		2.76E-08		90
0.51 1 0.2 0.13 0.89 7.3 4.51E-06 7.6E-02 1.84E-08 1.84E-08 for Carcinogens 0.34 1 0.2 0.13 0.89 0.073 8.14E-09 1.45E-01 5.21E-07 Parameters for Carcinogens 0.56 1 0.2 0.13 0.89 2.92 5.36E-07 2.39E-01 3.47E-09 Averaging time, AT C 75 2.39 1 0.2 0.13 0.89 0.73 9.34E-08 1.66E-01 3.98E-07 3.98E-08					0.13	68.0		0.73		4 115 00		7.75E-01		6.54E-08		2500
0.34 1 0.2 0.13 0.89 0.073 8.14E-09 2.18E-01 5.21E-07 Parameters for Carcinogens 0.56 1 0.2 0.13 0.89 2.92 8.14E-09 1.45E-01 3.47E-09 Averaging time, AT C 75 0.39 0.73 0.73 9.34E-08 1.66E-01 3.98E-07 2.39E-07 3.98E-08			_		0.13	0.89		7.3		4.31E-08		7.68E-02		1.84E-08		
0.56 1 0.2 0.13 0.89 2.92 8.14E-99 1.45E-01 3.47E-09 Averaging time, AT C 75 0.39 1 0.2 0.13 0.89 0.73 9.34E-08 1.66E-01 3.98E-07 3.98E-07 75 281.28 1 0.2 0.73 1.66E-01 3.98E-08 3.98E-08		-				080		0.073		1.225-00		2.18E-01		5.21E-07		
0.39 1 0.2 0.13 0.89 0.73 3.36E-07 2.39E-01 2.29E-07 281.28 1.66E-01 3.98E-08 3.98E-08		9				68.0		2.07		8.14E-09		1.45E-01		3.47E-09		75
1.665-01						0.89		25.72		3.36E-07		2.39E-01		2.29E-07	i	
	281.2	82								7.34E-08		1.66E-01		3.98E-08	-	

Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact Pathway: Method C-Industrial Land Use (Refer to MTCA WAC 173-340-745)

Date: 14-Jul-04
Site Name: Darling International, Inc. LUSTs Site - Tacoma, WA
Sample Name: MTCA Method C Soil: Highest concentrations of EPHs and PAHs

		1	Exposure Parameters	aramete	E	Toxicity P.	Parameters	٥	Current Condition	ion		Adinated Condition	andition		aujusteu condinon at a specified 1 PH concentration
	-								Tent Collett	700		Adjusted C	onditton		Concentration.
Me Chemical of Concern	Measured Soil Cone											*	***************************************		b. Check columns at left for Pass/Fall detail.
or EC Group			ΑF	ABS	5	RMD,	CPF.	но	RISK	Pass or Fail?	paren Sumar	ЮH	RISK	Pass or Fail?	Current Condition
	mg/kg	unitiess	mg/cm²-day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless	_	mg/kg	unitiess	unitiess		TPH mg/kg= 798 660
CUOSCUM CL Fraction	-														HI= 1 509E-02
AL_EC>5-6	0		0.2	0.03	8.0	5.7					0.00E+00				*
AL_EC>6-8	0		0.2	0.03	8.0	5.7					0.00E+00				•
AL_EC>8-10	0		0.2	0.03	8.0	0.03					0.00E+00				۱
AL_EC >10-12	23.2		0.7	0.03	8.0	0.03		5.32E-04			1.88E+03	4.30E-02			
AL_EC >12-16	26.9		0.2	0.1	0.5	0.03		1.35E-03			2.18E+03	1 00E-01			
AL_EC > [6-2]	8	_	0.7	0.1	0.5	7		7.50E-05			8.09E+03	6.07E-03			
AL EC >21-34	369	-	0.7	0.1	0.5	7		2.77E-04			2 98E+04	2 24E 02			
AR_EC >8-10	0	_	0.2	0.03	8.0	0.05					000000	70-71-77			
AR_EC>10-12	0	-	0.2	0.03	0.8	0.05					0.00E+00				
AR_EC>12-16	0		0.2		0.5	0.05					U.VOETOU				Adjusted Condition
AR EC > 16-21	52.4		6.0			60.0	-				0.005+00				TPH, mg/kg= 64592.864
AR EC>21-34	25.	•	; ;		5 6	0.03		7.62E-03			4.24E+03	2.12E-01			HI= 1.221E+00
Description		†	†	3		0.03		1.02E-02			1.65E+04	8.25E-01			Cancer RISK = 1.245E-03
Tohione	> 0		*****	0.0005	0.95	0.003	0.055		0.00E+00		0.00E+00		0.00E+00		Pass or Fail Fail
Ethylbenzene	> 0		7 6	50.0	_ {	0.2					0.00E+00				
Total Xvienes	· c	· -	4 6	S 8	7, 6						0.00E+00				
Total Narhthalenes	20	†	7.0	0.00	600	7					0.00E+00				Exposure Parameters
n-Hevane	; c		4 6	2 5	6.0	0.02		4.31E-05			5.66E+01	3.48E-03			for Non-carcinogens
MTBE	- c	_	*	CO:O	e	9 9 9					0.00E+00	0.00E+00			ABW 70
Ethylene Dibromide (EDB)			,		0	- 100000			!						Averaging Time, AT 20 yr
1,2 Dichloroethane (EDC)			7 6	20.00	9.0	0.000057	85		0.00E+00			0.00E+00 0.00E+00	0.00E+00		S
Renzes a lanthracene	 	+	75	CO.D	0:0	0.03	0.091		0.00E+00		0.00E+00	0.00E+00	0.00E+00		20
Benzosh) fluoranthene	7 7		7.0	0.13	68.0		0.73		1.01E-06		3.40E+02		8.14E-05		=
Benerit Missenstein	· ·		7.0	0.13	0.89		0.73		1.05E-06		3.56E+02		8.52E-05		7 2500
Henzotalminene	J 6		7.0	0.13	0.89		0.73		3.11E-07		1.05E+02		2.52E-05		
minited (a)	· ·		7.0	51.0	6.83		7.3		1.17E-05		3.96E+02		9.49E-04		inogens
Dibenzos a blanchesses	4.4		70	51.0	68.0		0.073		1.05E-07		3.56E+02		8.52E-06		Averaging time, AT C 75
Indeno(1.2.3-cd)nyrene	2.70		7.0	0.13	68.0		2.92		5.36E-07		4.53E+01		4.34E-05		
		-	7.7	2.5	. 0.0	_	0.73	-	6 47E 07	_	1 100000				
								_	10-711-0		4.10E+UZ		5.23E-05	_	

Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact Pathway: Method C-Industrial Land Use (Refer to MTCA WAC 173-340-745)

Date: 13-Jul-04

Site Name: Darling International, Inc. LUSTs Site - Tacoma, WA

Sample Name: MTCA Method C: Average Soil Concentrations

a. "TPH Test" button below is for testing

unitless mg/day Check columns at left for Pass/Fail detail. year 3 Ĭ adjusted condition at a specified TPH Current Condition Adjusted Condition Cancer RISK = 3.448E-06 HI = 5.462E-03HI= 2.508E-03 Cancer RISK= 1.583E-06 Pass TPH, mg/kg= 120.000 TPH, mg/kg= 261.404 Exposure Parameters Pass or Fail? Pass or Fail? Parameters for Carcinogens verage Body Weight, ABV Dermal Surface Area, SA Exposure Frequency, EF Soil Ingestion Rate, SIR Exposure Duration, ED concentration Averaging time, AT C for Non-carcinogens Averaging Time, AT for Carcinogens Pass or Fail? 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 RISK 3.30E-08 1.10E-07 1.21E-06 1.04E-08 5.28E-08 6.82E-08 unities Adjusted Condition 7.37E-05 1.93E-04 9.16E-06 4.10E-05 4.71E-04 1.71E-03 5.48E-06 0.00E+00 2.51E-03 unitiess ΉÓ being tested 3.22E+00 9.41E+00 0.00E+00 3.86E+00 1.22E+01 0.00E+00 0.00E+00 Soll Conc 0.00E+00 5.46E+01 0.00E+00 0.00E+00 0.00E+00 3.43E+01 0.00E+00 0.00E+00 8.91E-02 0.00E+00 0.00E+00 0.00E+00 0.00E+00 .20E+02 5.51E-02 mg/kg 4.13E-01 4.59E-01 1.38E-01 5.05E-01 4.36E-0 Pass or Fall? Current Condition 0.00E+00 .00E+00 3.45E-06 0.00E+00 2.16E-07 2.40E-07 7.19E-08 2.63E-06 1.48E-07 2.28E-08 1.15E-07 RISK unitless 4.21E-04 2.00E-05 3.74E-03 1.61E-04 8.93E-05 1.03E-03 5.46E-03 unitless Œ **Toxicity Parameters** kg-day/mg CPF 0.055 0.73 0.73 0.73 7.3 0.073 85 1691 mg/kg-day 0.000057 0.03 ę, 0.03 0.05 0.05 0.05 0.03 0.003 90.0 0.03 0.03 0.2 0.1 ĕ 0.5 0.5 0.8 0.5 0.5 0.92 68.0 68.0 0.8 68.0 0.5 68.0 0.89 0.9 0.8 0.8 Exposure Parameters unitless ABS 3.0005 0.03 0.03 0.03 0.1 0.03 0.03 0.13 0.03 0.03 0.13 0.13 0.13 0.03 0.03 0.13 0.1 0.1 0.03 0.130.13 0.1 0 AF 0.2 002 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 mitiess A.B.I Measured Soil dry basis Conc mg/kg 261.404 9.97 20.5 8.41 74.7 0.12 0.95 0 0 AL EC>6-8 AL_EC >8-10 AL_EC>12-16 AL EC >5-6 AL_EC>10-12 AL_EC>16-21 AR_EC >8-10 AR_EC > 12-16 MTBE AL_EC >21-34 AR_EC > 10-12 AR_EC>16-21 AR EC >21-34 Toluene Ethylbenzene Total Xylenes otal Naphthalenes n-Hexane Ethylene Dibromide (EDB) Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Chrysene 1,2 Dichloroethane (EDC) Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Chemical of Concern etroleum EC Fraction or EC Group Sum

1.58E-06