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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. LUSTs 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 report.

Sincerely,
Maxim Technologies

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

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

Maxim Technologies Project No.: 4570484

July 28, 2004

Prepared for:

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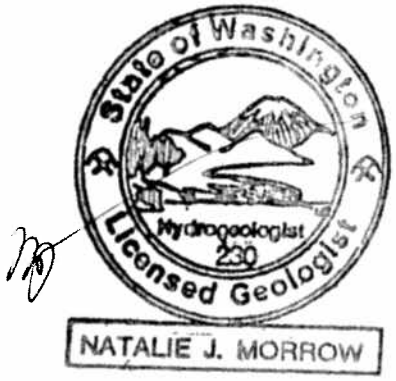
PROFESSIONAL CERTIFICATION

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 1 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

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 µg/L; and mineral oil range TPH ranged from 904 µg/L to 7,300 µg/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

µg/L to 0.910 µg/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 µg/L to 4.36 µg/L.

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

1. 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 µS to 2,120 µS.

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 µg/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-1 and MFG-4) during this monitoring event. Total naphthalene concentrations were 3.53 µg/L in MFG-1 and 4.63 µg/L in MFG-4. Neither result exceeded the 160 µg/L MTCA Method A Groundwater Cleanup Level.

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 µS to 1,634 µS.

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 µg/L to 2,220 µg/L. Heavy oil range hydrocarbons results exceeded MTCA Method A Groundwater Cleanup Levels in three of the four wells. These include MFG-2 (897 µg/L), MFG-3 (1,040 µg/L), and MFG-4 (1,040 µg/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 µg/L to 1,680 µg/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-1 and MFG-4) during this monitoring event. Total naphthalene concentrations were 0.343 µg/L in MFG-1 and 1.37 µg/L in MFG-4. Neither result exceeded the 160 µg/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 µS to 1,679 µS.

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 µg/L to 3,130 µg/L. Heavy oil range hydrocarbon results exceeded MTCA Method A Groundwater Cleanup Levels all four wells with concentrations ranging from 562 µg/L to 747 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 834 µg/L to 2,100 µg/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-1 and MFG-4) during this monitoring event. Total naphthalene concentrations were 0.904 µg/L in MFG-1 and 1.36 µg/L in MFG-4. Neither result exceeded the 160 µg/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 µS to 2,060 µS.

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 µg/L to 1,270 µg/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 µg/L to 859 µg/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-1 had on result for C_{12} to C_{16} Aromatics was detected above the laboratory PQL with a concentration of 58.6 µg/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 µg/L. The result was well below the 160 µg/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 µg/L with a concentration of 1.08 µg/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.

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 1.175×10^{-2} and the Risk factor is 2.121×10^{-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 1.509×10^{-2} and the Risk factor is 1.540×10^{-5}. The Site has an acceptable HI value (less than 1). The results indicate that the Risk factor in this scenario just exceeds the acceptable MTCA risk factor of 1.5×10^{-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-1) had detectable levels of the EPH C_{10}-C_{12} Aromatics and C_{12}-C_{16} 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-1 and MFG-4 had detectable levels of total naphthalenes, ranging from 0.254 µg/L to 4.63 µg/L, well below the MTCA Method A Groundwater Cleanup Level of 160 µg/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-1 during the June 2004 monitoring event at a concentration of 1.08 µg/L, just above the laboratory PQL, and well below the 1,000 µg/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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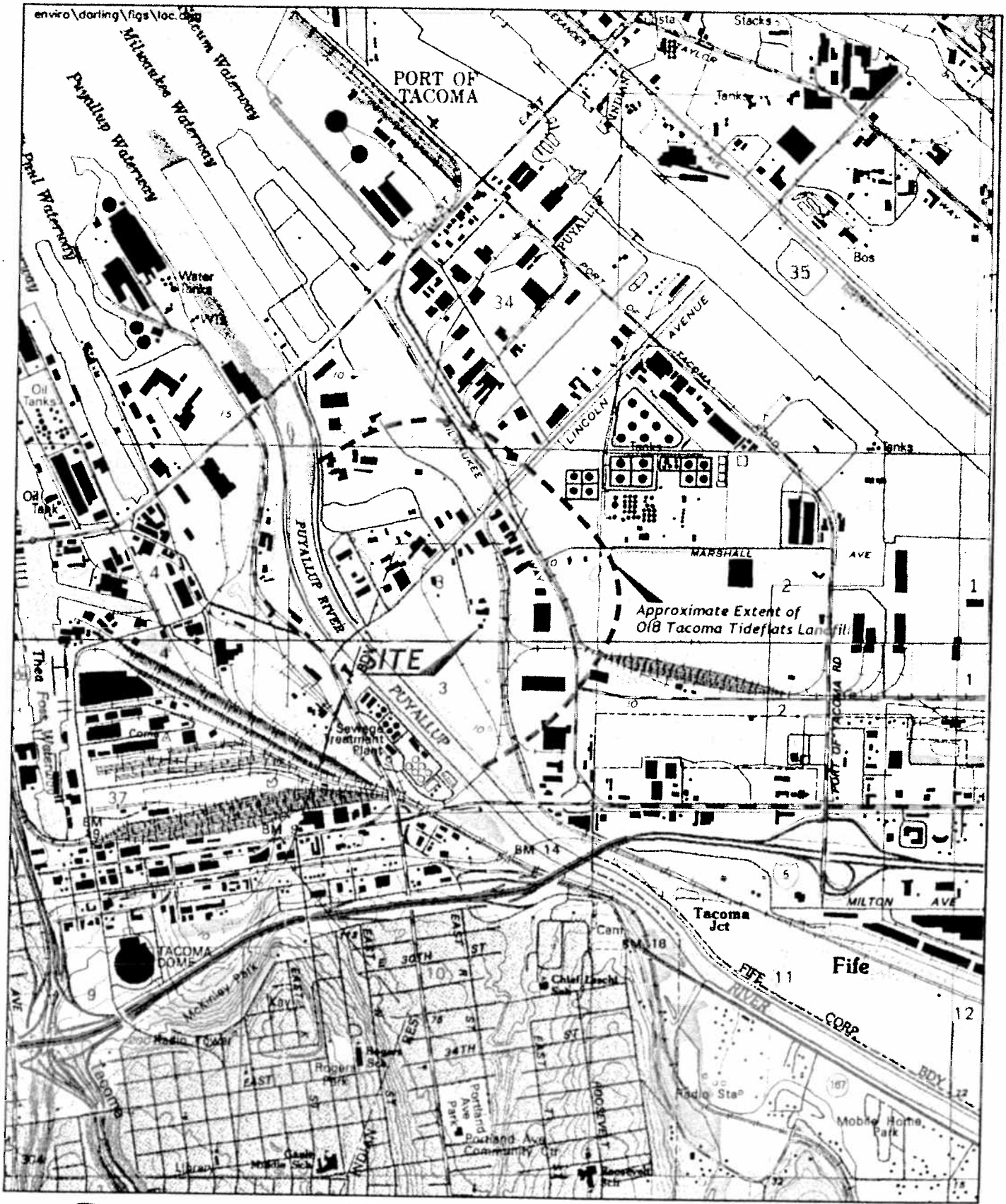
FIGURES



From USGS 7.5' Tacoma North & Tacoma South Quads

June 2004

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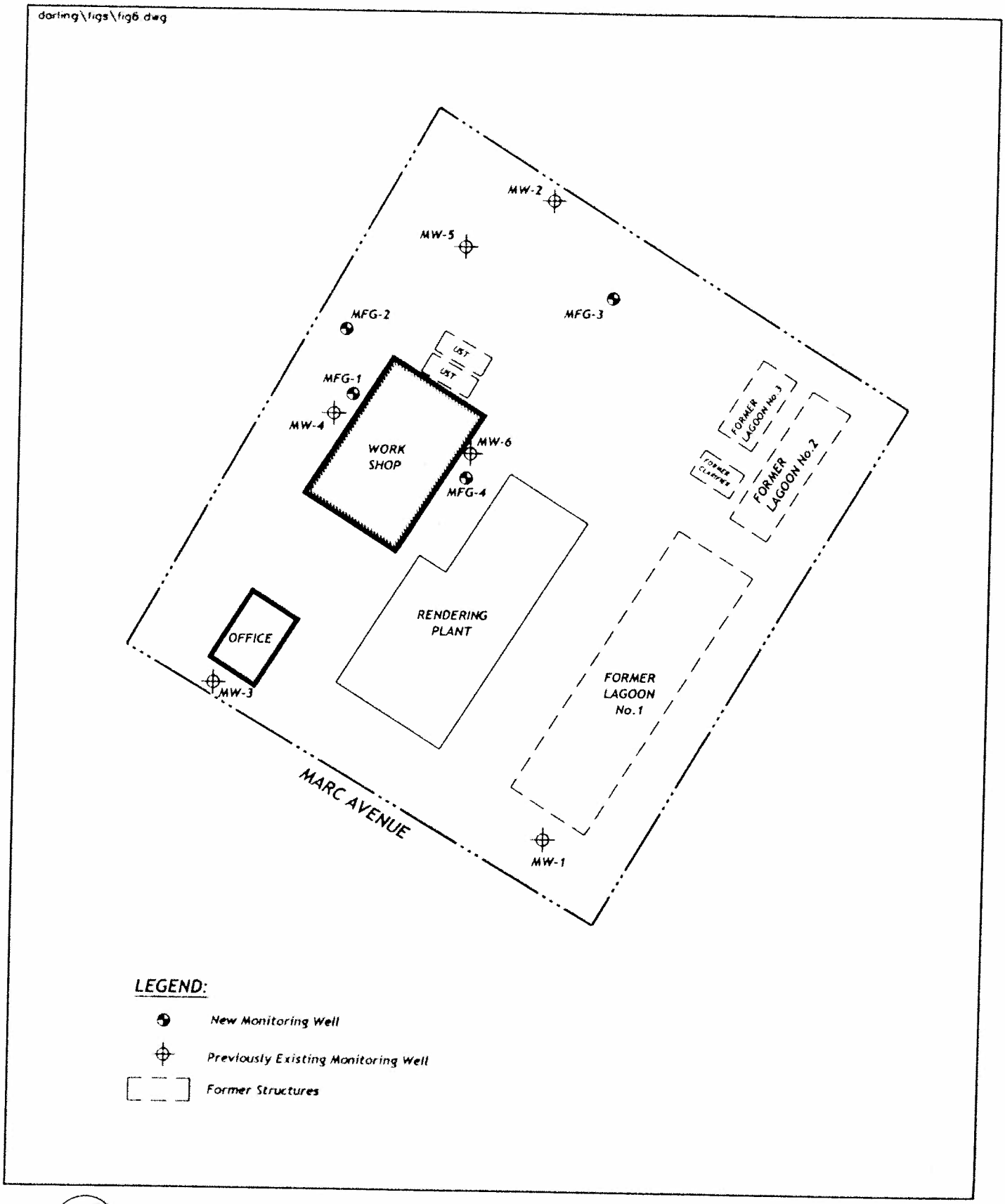
MAXIM TECHNOLOGIES INC. 4570484

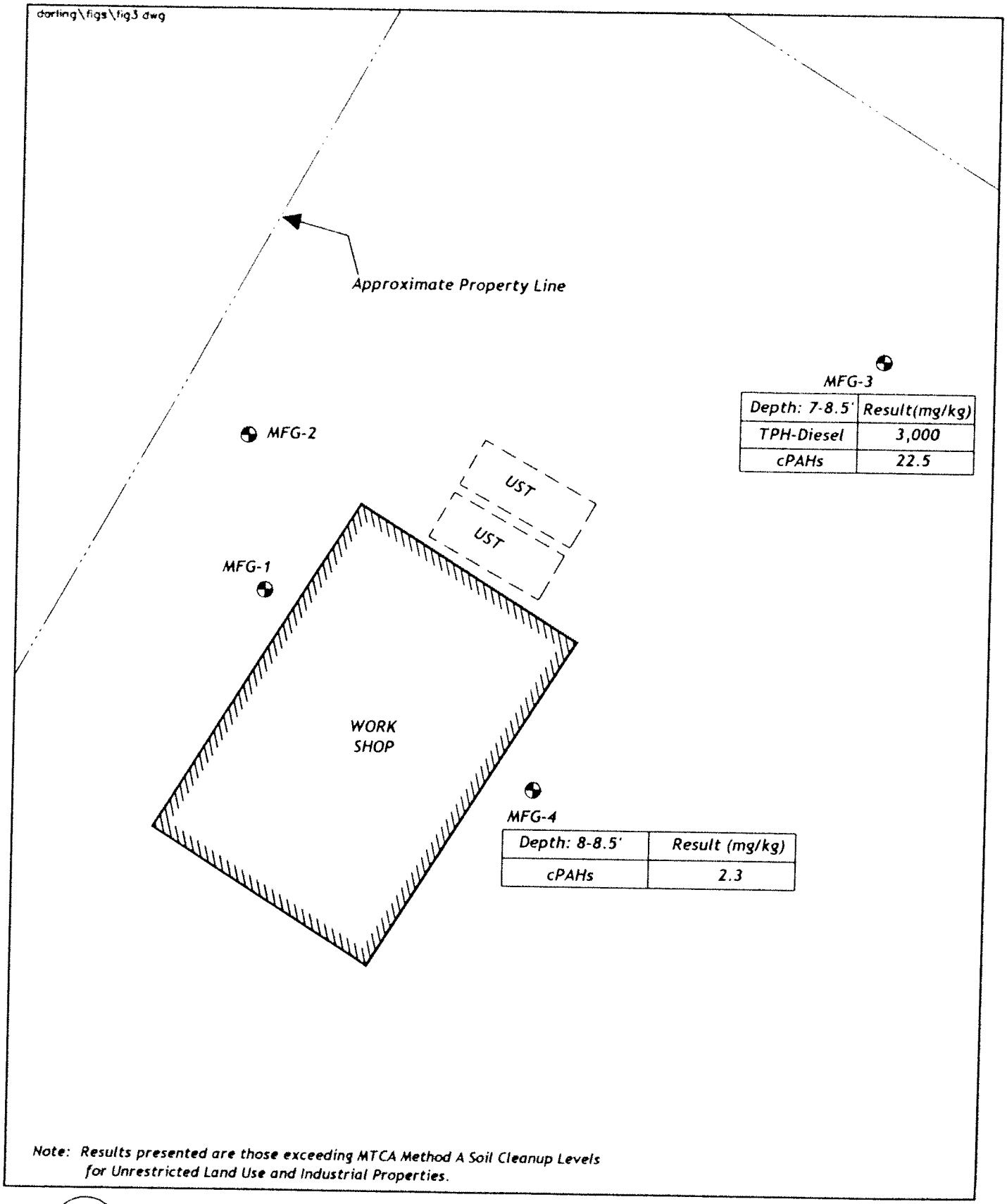
Location Map
Darling International, Inc. LUST Site
2041 Marc Avenue
Tacoma, Washington
FIGURE 1



MAXIM TECHNOLOGIES INC. 4570484

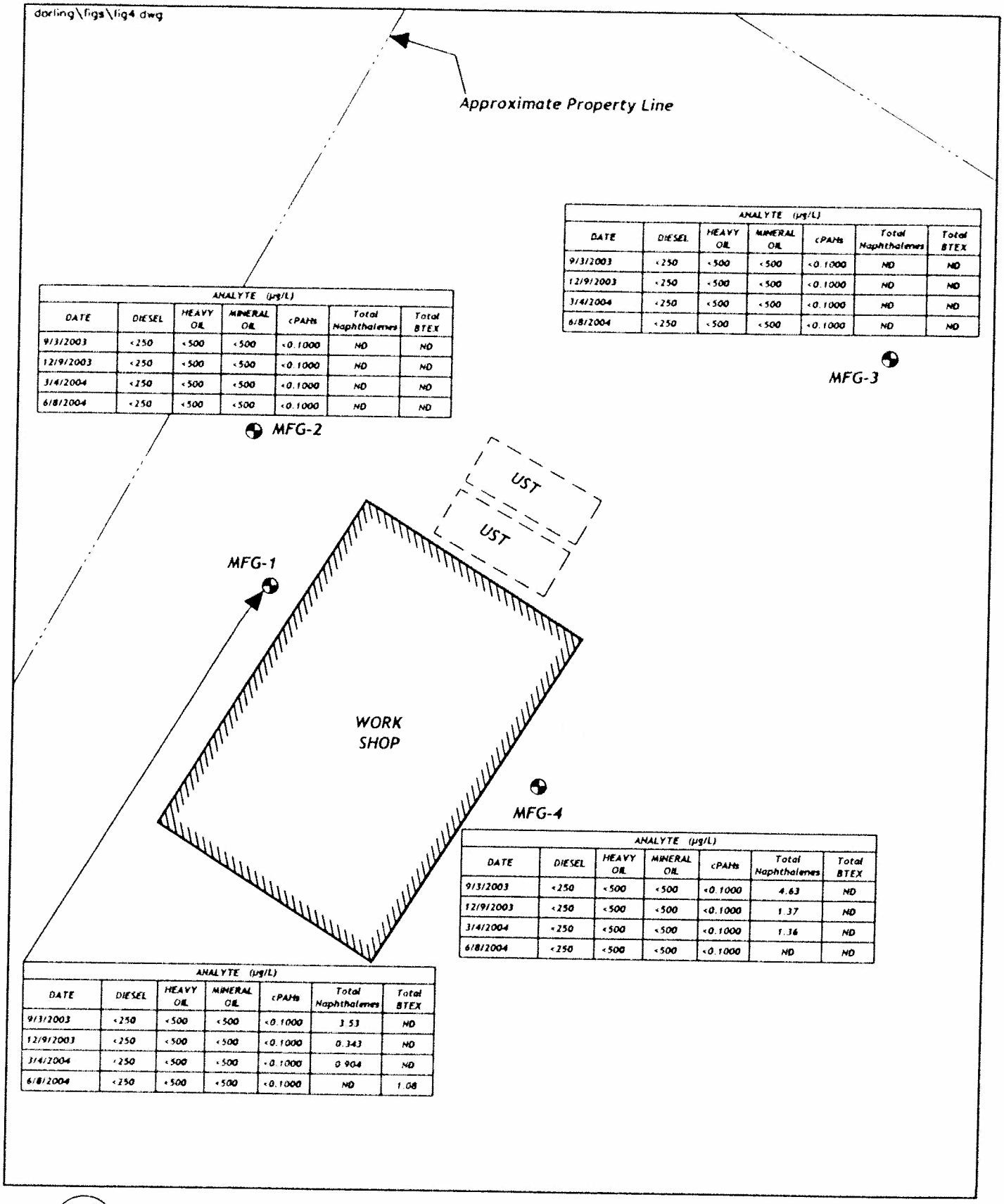
July 2004

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



July 2004

February 2002 Subsurface Soil Analytical Results
Darling International, Inc. LUST Site
2041 Marc Avenue
Tacoma, Washington
FIGURE 3



ANALYTE (µg/L)						
DATE	DIESEL	HEAVY OIL	MINERAL OIL	cPAHs	Total Naphthalenes	Total BTEX
9/3/2003	<250	<500	<500	<0.1000	ND	ND
12/9/2003	<250	<500	<500	<0.1000	ND	ND
3/4/2004	<250	<500	<500	<0.1000	ND	ND
6/8/2004	<250	<500	<500	<0.1000	ND	ND

MFG-2

ANALYTE (µg/L)						
DATE	DIESEL	HEAVY OIL	MINERAL OIL	cPAHs	Total Naphthalenes	Total BTEX
9/3/2003	<250	<500	<500	<0.1000	ND	ND
12/9/2003	<250	<500	<500	<0.1000	ND	ND
3/4/2004	<250	<500	<500	<0.1000	ND	ND
6/8/2004	<250	<500	<500	<0.1000	ND	ND

MFG-3

ANALYTE (µg/L)						
DATE	DIESEL	HEAVY OIL	MINERAL OIL	cPAHs	Total Naphthalenes	Total BTEX
9/3/2003	<250	<500	<500	<0.1000	4.63	ND
12/9/2003	<250	<500	<500	<0.1000	1.37	ND
3/4/2004	<250	<500	<500	<0.1000	1.36	ND
6/8/2004	<250	<500	<500	<0.1000	ND	ND

MFG-4

ANALYTE (µg/L)						
DATE	DIESEL	HEAVY OIL	MINERAL OIL	cPAHs	Total Naphthalenes	Total BTEX
9/3/2003	<250	<500	<500	<0.1000	3.53	ND
12/9/2003	<250	<500	<500	<0.1000	0.343	ND
3/4/2004	<250	<500	<500	<0.1000	0.904	ND
6/8/2004	<250	<500	<500	<0.1000	ND	1.08

0 Feet 20

MAXIM TECHNOLOGIES INC. 4570484

Monitoring Well

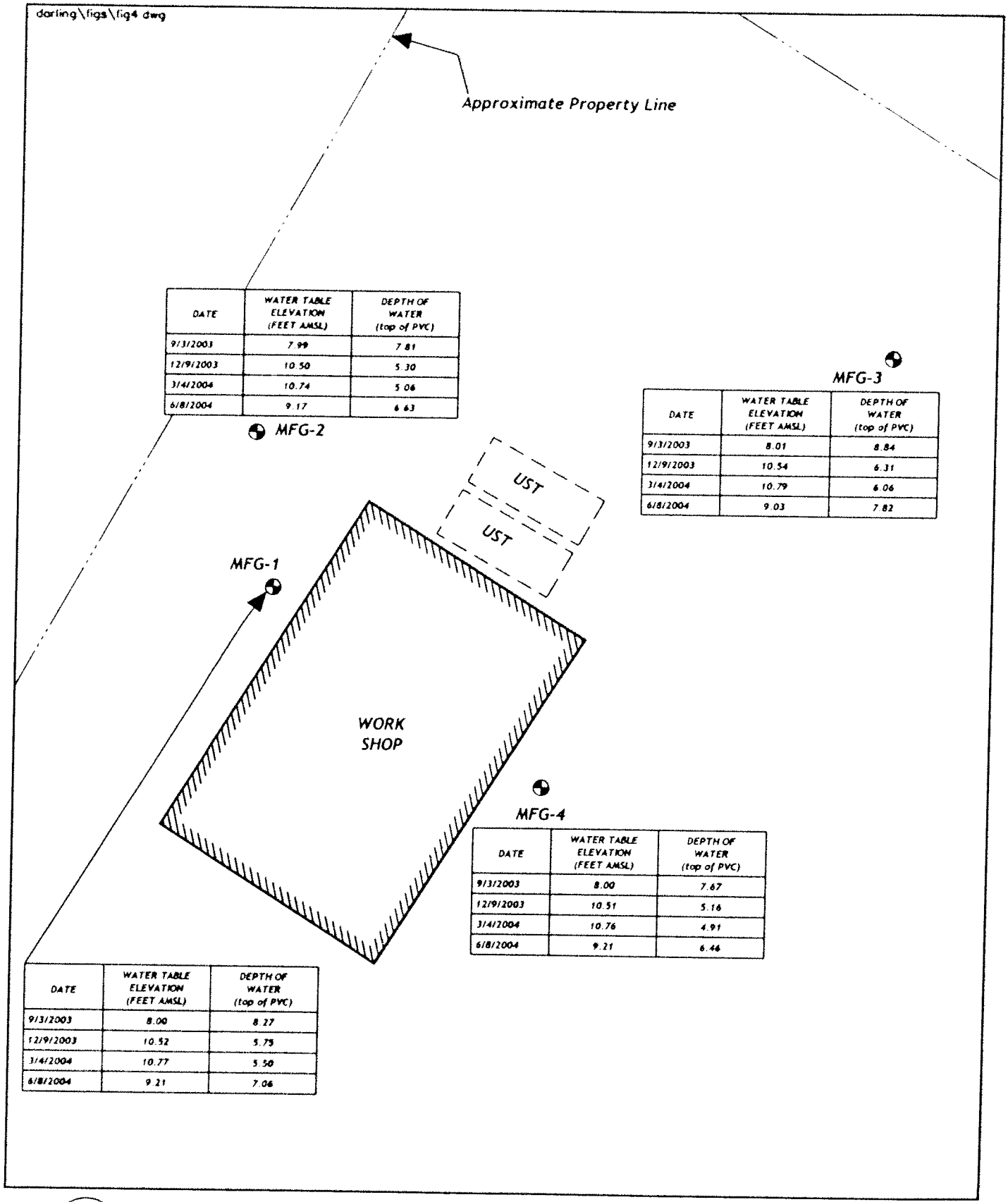
Former Structures

ND No individual constituents detected at or above laboratory PQL

< Constituent was not detected at or above laboratory PQL

July 2004

2003-2004 Groundwater Analytical Results Summary
Darling International, Inc. LUST Site
2041 Marc Avenue
Tacoma, Washington
FIGURE 4



DATE	WATER TABLE ELEVATION (FEET AMSL)	DEPTH OF WATER (top of PVC)
9/3/2003	7.99	7.81
12/9/2003	10.50	5.30
3/4/2004	10.74	5.06
6/8/2004	9.17	6.63

MFG-2

DATE	WATER TABLE ELEVATION (FEET AMSL)	DEPTH OF WATER (top of PVC)
9/3/2003	8.01	8.84
12/9/2003	10.54	6.31
3/4/2004	10.79	6.06
6/8/2004	9.03	7.82

MFG-3

DATE	WATER TABLE ELEVATION (FEET AMSL)	DEPTH OF WATER (top of PVC)
9/3/2003	8.00	8.27
12/9/2003	10.52	5.75
3/4/2004	10.77	5.50
6/8/2004	9.21	7.06

MFG-1

DATE	WATER TABLE ELEVATION (FEET AMSL)	DEPTH OF WATER (top of PVC)
9/3/2003	8.00	7.67
12/9/2003	10.51	5.16
3/4/2004	10.76	4.91
6/8/2004	9.21	6.46

MFG-4

N

0 Feet 20

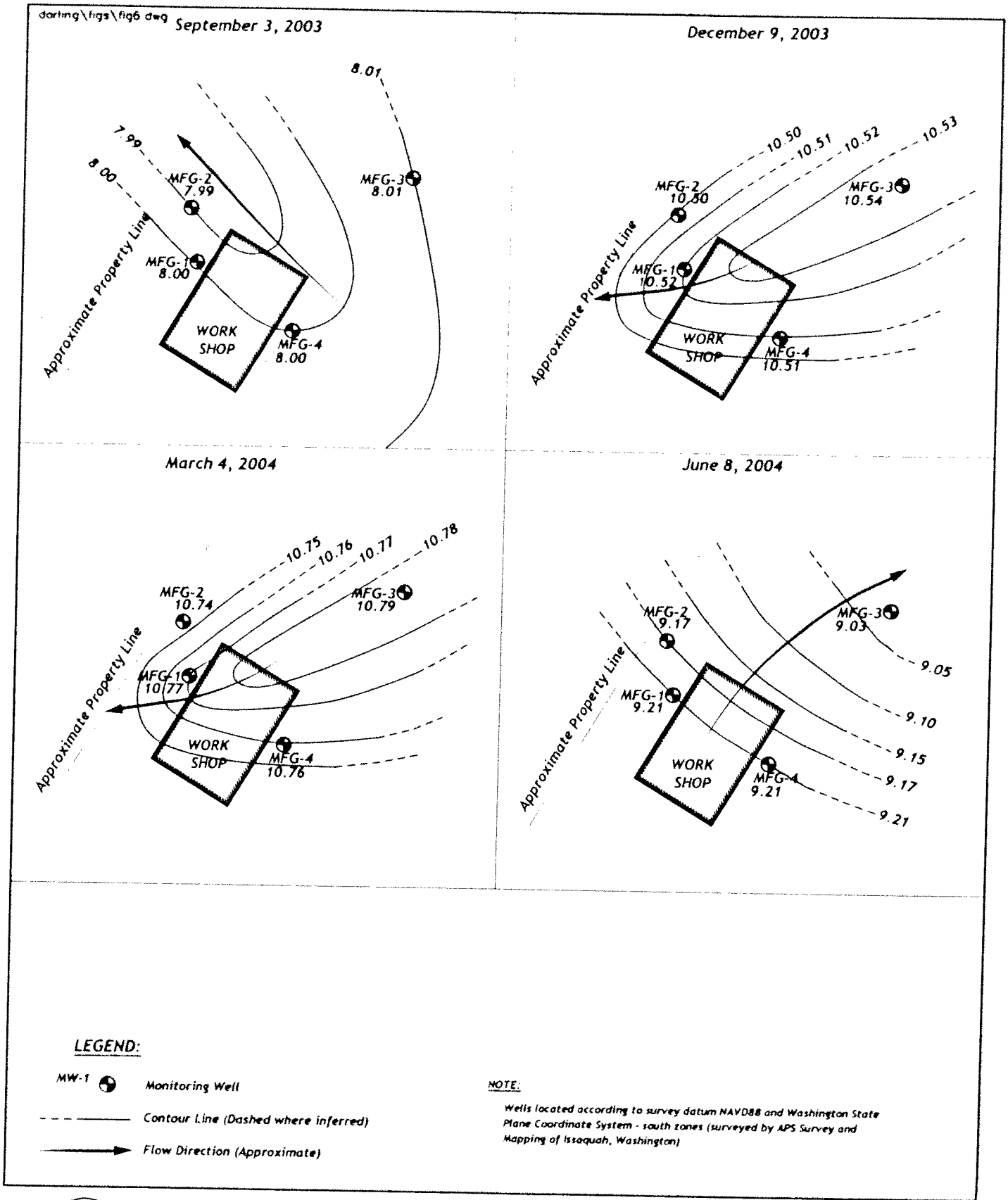
Monitoring Well

Former Structures

MAXIM TECHNOLOGIES INC. 4570484

July 2004

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



MAXIM TECHNOLOGIES INC. 4570484

July 2004

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

TABLES

TABLE 1
Well Completion Information
Darling International, Inc.
2041 Marc Avenue, Tacoma, Washington

Well Identification		Soil Boring Name	Date Well Completed	Well Construction	Well Dia. (inch.)	PVC Screen Slot Size	Total Depth of Borehole (ft bgs)	Total Depth of Well (ft bgs)	Screened Interval (ft bgs)	[1,2]Measuring Point Elevation (ft AMSL)	[3]Northing Coordinate	[3]Easting Coordinate	[2]Latitude	[2]Longitude
MFG Well#	WA State Unique Well#													
MFG-1	AGP054	MFG-B1	2/5/2002	Sch. 40 PVC	2	0.010	16.5	15.2	5.1 - 14.4	16.27	704986.37	1167047.48	47°15'02.9585	122°24'22.4035
MFG-2	AGP055	MFG-B2	2/5/2002	Sch. 40 PVC	2	0.010	14	10.13	4.97 - 9.3	15.80	705001.71	1167066.46	47°15'03.1144	122°24'22.1339
MFG-3	AGP056	MFG-B3	2/5/2002	Sch. 40 PVC	2	0.010	16.5	15.26	5.89 - 14.43	16.85	704924.7	1167130.23	47°15'02.3697	122°24'21.1828
MFG-4	AGP057	MFG-B4	2/6/2002	Sch. 40 PVC	2	0.010	14.5	15.4	5.24 - 14.57	15.67	704933.66	1167044.13	47°15'02.4376	122°24'22.4336

Sch. = Schedule
PVC = Polyvinylchloride
ft = feet
bgs = below ground surface

AMSL = Above Mean Sea Level (NAVD88 survey datum)
[1]Measuring Point = Top of PVC casing, north side
[2]Survey datum = NAVD88
[3]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 Soil Cleanup Levels	MFG-B2	MFG-B3		MFG-B4	
Sample Depth Interval (ft bgs)		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	2/6/2002	2/6/2002
Dry weight (%)		49.4[3]	94.6	49.0[3]	91.9	49.5[3]
Total Petroleum Hydrocarbons (mg/kg)						
Diesel Range	2,000	**37**	<10	<820	**17**	**650**
Heavy Oil Range	2,000	**120**	<20	***3,000***[1]	**43**	**1,300**
Mineral Oil Range	4,000	**180**	<25	**3,200**	**59**	**2,200**
Extractable Petroleum Hydrocarbons (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	**26.9**
C16-C21 Aliphatics	—	<10.1	<5	**22.9**	<5	**100**
C21-C34 Aliphatics	—	**40.3**	<5	**176**	**8.48**	**369**
C10-C12 Aromatics	—	<10.1	<5	<10.2	<5	<10.1
C12-C16 Aromatics	—	<10.1	<5	<10.2	<5	<10.1
C16-C21 Aromatics	—	<10.1	<5	**71.6**	<5	**39.6**
C21-C34 Aromatics	—	<10.1	<5	**207**	<5	**160**
Total EPH	—	**40.3**	<5	**477**	**8.48**	**718**
Carcinogenic Polynuclear Aromatic Hydrocarbons (mg/kg)						
Benzo(a)anthracene	—	<0.020	<0.010	**4.2**	<0.010	**0.27**
Benzo(a)pyrene	0.1 (2[2])	<0.020	<0.010	**4.9**	<0.010	**0.51**
Benzo(b)fluoranthene	—	<0.020	<0.010	**4.4**	**0.01**	**0.64**
Benzo(k)fluoranthene	—	<0.020	<0.010	**1.3**	<0.010	**0.18**
Chrysene	—	<0.020	<0.010	**4.4**	<0.010	**0.34**
Dibenz(a,h)anthracene	—	<0.020	<0.010	**0.58**	<0.010	<0.020
Ideno(1,2,3-cd)pyrene	—	<0.020	<0.010	**2.7**	<0.010	**0.39**
Total Carcinogenic PAHs	0.1 (2[2])	NA	NA	***22.5***[1]	**0.01**	***2.3***[1]
Naphthalenes (mg/kg)						
1-Methylnaphthalene	—	<0.020	<0.010	**0.17**	<0.010	**0.084**
2-Methylnaphthalene	—	<0.020	<0.010	**0.23**	<0.010	**0.08**
Naphthalene	—	<0.020	<0.010	**0.30**	<0.010	**0.047**
Total Naphthalenes	5	NA	NA	**0.70**	NA	**0.21**
BTEX (mg/kg)						
Benzene	0.03	<0.0607	<0.0300	<0.0612	<0.0300	<0.0606
Toluene	7	<0.101	<0.0500	<0.102	<0.0500	<0.101
Ethylbenzene	6	<0.101	<0.0500	<0.102	<0.0500	<0.101
Xylenes (total)	9	<0.202	<0.100	<0.204	<0.100	<0.202

bgs = below ground surface
NA = Not Applicable.
Bold = Result is above method detection limit but not above MTCA Method A Soil Cleanup Levels
Bold[1] =Result is above MTCA Method A Soil Cleanup Level for unrestricted land use and industrial properties.
[2] MTCA Method A Soil Cleanup Level for Industrial Properties
[3] Low percent dry weight (high moisture content) may affect analytical results.

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Darling International, Inc.
2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method A Groundwater Cleanup Levels	MFG-1							
Date Sample Collected		2/13/2002	6/19/2002	9/26/2002	12/19/2002	9/3/2003	12/9/2003	3/4/2004	6/8/2004
Water Table Elevation (ft amsl)		10.97	9.18	7.94	8.81	8.00	10.52	10.77	9.21
Field Parameters									
Temperature (°C)	—	12.8	16.7	19.4	16.4	16.9	15.3	14.2	17.7
pH (standard units)	—	6.1	6.0	5.9	5.9	6.7	6.7	6.7	7.4
Specific Conductivity (uS)	—	1,043	1,311	1,133	1,081	1,830	1,284	787	751
Oxidation-Reduction Potential (mV)	—	-322	-67	-67	-81	NM	NM	NM	NM
Total Petroleum Hydrocarbons (ug/L) without Acid/Silica Gel Clean-up									
Diesel Range	500	3,100	4,160	3,130	1,350	2,870	1,350	3,120	1,270
Heavy Oil Range	500	730	763	612	514	<500	<0.500	666	<500
Mineral Oil Range	500	3,300	2,390	1,970	949	2,300	976	2,100	852
Total Petroleum Hydrocarbons (ug/L) with Acid/Silica Gel Clean-up									
Diesel Range	500	—	—	—	—	<250	<250	<250	<250
Heavy Oil Range	500	—	—	—	—	<500	<500	<500	<500
Mineral Oil Range	500	—	—	—	—	<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L)									
C8-C10 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C16-C21 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aliphatics	—	126	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aromatics	—	<100	<100	<50	<50	63.3	<50	<50	<50
C12-C16 Aromatics	—	<100	<100	<50	82.1	<50	<50	<50	58.6
C16-C21 Aromatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aromatics	—	<100	<100	<50	<50	<50	<50	<50	<50
Total EPH	—	126	NA	NA	82.1	63.3	NA	NA	58.6
Carcinogenic Polynuclear Aromatic Hydrocarbons (ug/L)									
Benzo(a)anthracene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(a)pyrene	0.1	<0.100	<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	<0.100
Dibenz(a,h)anthracene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Ideno(1,2,3-cd)pyrene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Total Carcinogenic PAHs	0.1	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalenes (ug/L)									
1-Methylnaphthalene	—	1.0	2.5	1.08	0.738	3.04	0.343	0.904	<0.100
2-Methylnaphthalene	—	<0.10	0.418	<0.10	<0.10	0.170	<0.100	<0.100	<0.100
Naphthalene	—	<0.10	0.277	<0.10	<0.10	0.321	<0.100	<0.100	<0.100
Total Naphthalenes	160	1.0	3.19	1.08	0.738	3.53	0.343	0.904	NA
BTEX (ug/L)									
Benzene	5	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Toluene	1,000	<0.5	<0.5	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	700	<0.5	<0.5	<0.500	<1.00	<0.500	<0.500	<0.500	<0.500
Xylenes (total)	1,000	<1.00	<1.00	<1.00	<1.50	<1.00	<1.00	<1.00	1.08

bgs = below ground surface
Bold=At or Above MTCA Method A Groundwater Cleanup Level
< =analyte was not detected at or above the method reporting limit
NM = Not Measured
NA = Not Applicable
— Not Analyzed
2003-2004 PAHs results are for dissolved PAHs

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Darling International, Inc.
2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method A Groundwater Cleanup Levels	MFG-2							
Date Sample Collected		2/13/2002	6/19/2002	9/26/2002	12/19/2002	9/3/2003	12/9/2003	3/4/2004	6/8/2004
Water Table Elevation (ft amsl)		10.98	9.17	7.94	8.80	7.99	10.50	10.74	9.17
Field Parameters									
Temperature (°C)	—	13.5	19.8	21.6	18.2	20.0	16.5	13.3	20.3
pH (standard units)	—	6.2	6.1	5.9	6.0	6.5	6.6	6.7	7.5
Specific Conductivity (uS)	—	992	1,161	982	1,111	1,693	1,434	815	1,200
Oxidation-Reduction Potential (mV)	—	-331	-93	-98	-96	NM	NM	NM	NM
Total Petroleum Hydrocarbons (ug/L) without Acid/Silica Gel Clean-up									
Diesel Range	500	**2,300**	**2,920**	**1,710**	**1,530**	**2,050**	**1,430**	**2,000**	**837**
Heavy Oil Range	500	<500	**992**	**634**	**620**	**1,110**	**897**	**607**	<500
Mineral Oil Range	500	**2,500**	**1,750**	**1,120**	**1,160**	**1,790**	**1,130**	**1,390**	**815**
Total Petroleum Hydrocarbons (ug/L) with Acid/Silica Gel Clean-up									
Diesel Range	500	—	—	—	—	<250	<250	<250	<250
Heavy Oil Range	500	—	—	—	—	<500	<500	<500	<500
Mineral Oil Range	500	—	—	—	—	<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L)									
C8-C10 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aliphatics	—	<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	<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
Carcinogenic Polynuclear Aromatic Hydrocarbons (ug/L)		NA	NA	<50	79.9	NA	NA	NA	NA
Benzo(a)anthracene	—	<0.100	<0.100	0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(a)pyrene	0.1	<0.100	<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	<0.100
Dibenz(a,h)anthracene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Ideno(1,2,3-cd)pyrene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Total Carcinogenic PAHs	0.1	NA	NA	0.100	NA	NA	NA	NA	NA
Naphthalenes (ug/L)									
1-Methylnaphthalene	—	0.330	0.218	0.120	<0.10	<0.10	<0.100	<0.100	<0.100
2-Methylnaphthalene	—	0.21	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
Naphthalene	—	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
Total Naphthalenes	160	0.54	0.218	0.12	NA	NA	NA	NA	NA
BTEX (ug/L)									
Benzene	5	<0.5	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500	<0.500
Toluene	1,000	<0.5	<0.5	<0.5	<2.00	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	700	<0.5	<0.5	<0.5	<1.00	<0.500	<0.500	<0.500	<0.500
Xylenes (total)	1,000	<1.00	<1.00	<1.00	<1.50	<1.00	<1.00	<1.00	<1.00

bgs = below ground surface
Bold=At or Above MTCA Method A Groundwater Cleanup Level
< =analyte was not detected at or above the method reporting lim
NM = Not Measured
NA = Not Applicable.
— Not Analyzed
2003-2004 PAHs results are for dissolved PAHs

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Darling International, Inc.
2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method A Groundwater Cleanup Levels	MFG-3							
Date Sample Collected		2/13/2002	6/19/2002	9/26/2002	12/19/2002	9/3/2003	12/9/2003	3/4/2004	6/8/2004
Water Table Elevation (ft amsl)		10.96	9.19	7.96	8.61	8.01	10.54	10.79	9.03
Field Parameters									
Temperature (°C)	—	13.7	23.5	20.8	15.3	20.2	16.0	12.7	19.9
pH (standard units)	—	6.6	6.4	6.1	6.2	6.7	6.8	6.9	7.5
Specific Conductivity (uS)	—	659	879	777	769	1,184	1,312	1,036	1,260
Oxidation-Reduction Potential (mV)	—	-363	-159	-122	-113	NM	NM	NM	NM
Total Petroleum Hydrocarbons (ug/L) without Acid/Silica Gel Clean-up									
Diesel Range	500	6,100	1,760	1,270	1,670	1,090	1,290	1,150	1,090
Heavy Oil Range	500	1,100	761	636	936	<500	1,040	562	<500
Mineral Oil Range	500	7,300	1,150	904	1,280	976	1,080	834	859
Total Petroleum Hydrocarbons (ug/L) with Acid/Silica Gel Clean-up									
Diesel Range	500	—	—	—	—	<250	<250	<250	<250
Heavy Oil Range	500	—	—	—	—	<500	<500	<500	<500
Mineral Oil Range	500	—	—	—	—	<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L)									
C8-C10 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aliphatics	—	<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	<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 Aromatics	—	<100	<100	<50	<50	<50	<50	<50	<50
Total EPH	—	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic Polynuclear Aromatic Hydrocarbons (ug/L)									
Benzo(a)anthracene	—	<0.200	<0.100	0.182	<0.100	<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	<0.100
Benzo(b)fluoranthene	—	<0.200	<0.100	0.121	<0.100	<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(a,h)anthracene	—	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Ideno(1,2,3-cd)pyrene	—	<0.200	<0.100	0.101	<0.100	<0.100	<0.100	<0.100	<0.100
Total Carcinogenic PAHs	0.1	NA	NA	0.910	NA	NA	NA	NA	NA
Naphthalenes (ug/L)									
1-Methylnaphthalene	—	0.39	0.24	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
2-Methylnaphthalene	—	<0.20	0.12	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
Naphthalene	—	<0.20	<0.10	0.303	<0.10	<0.10	<0.100	<0.100	<0.100
Total Naphthalenes	160	0.39	0.36	0.303	NA	NA	NA	NA	NA
BTEX (ug/L)									
Benzene	5	<0.5	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500	<0.500
Toluene	1,000	0.513	<0.5	<0.5	<2.00	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	700	<0.5	<0.5	<0.5	<1.00	<0.500	<0.500	<0.500	<0.500
Xylenes (total)	1,000	1.08	<1.00	<1.00	<1.50	<1.00	<1.00	<1.00	<1.00

bgs = below ground surface
Bold=At or Above MTCA Method A Groundwater Cleanup Level
< =analyte was not detected at or above the method reporting lim
NM = Not Measured
NA = Not Applicable.
— Not Analyzed
2003-2004 PAHs results are for dissolved PAHs

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Darling International, Inc.
2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method A Groundwater Cleanup Levels	MFG-4							
Date Sample Collected		2/13/2002	6/19/2002	9/26/2002	12/19/2002	9/3/2003	12/9/2003	3/4/2004	6/8/2004
Water Table Elevation (ft amsl)		10.97	9.16	7.96	6.61	6.00	10.51	10.76	9.21
Field Parameters									
Temperature (°C)	—	15.5	23.9	21.2	16.8	19.7	15.5	13.1	18.1
pH (standard units)	—	6.2	6.1	5.9	6.0	6.7	6.5	6.6	7.6
Specific Conductivity (uS)	—	1,026	1,362	1,235	1,182	2,120	1,635	1,679	2,060
Oxidation-Reduction Potential (mV)	—	-345	-115	-83	-94	NM	NM	NM	NM
Total Petroleum Hydrocarbons (ug/L) without Acid/Silica Gel Clean-up									
Diesel Range	500	4,700	4,770	4,480	3,460	3,770	2,220	3,130	1,170
Heavy Oil Range	500	1,000	1,590	1,420	1,190	1,720	1,040	747	<500
Mineral Oil Range	500	5,100	2,680	2,970	2,450	3,260	1,680	2,100	789
Total Petroleum Hydrocarbons (ug/L) with Acid/Silica Gel Clean-up									
Diesel Range	500	—	—	—	—	<250	<250	<250	<250
Heavy Oil Range	500	—	—	—	—	<500	<500	<500	<500
Mineral Oil Range	500	—	—	—	—	<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L)									
C8-C10 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
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 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
C21-C34 Aliphatics	—	148	<100	95.9	91.4	<50	<50	<50	<59.5
C10-C12 Aromatics	—	<100	<100	<50	50.6	<50	<50	<50	<59.5
C12-C16 Aromatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
C16-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	—	148	NA	NA	142	NA	NA	NA	NA
Carcinogenic Polynuclear Aromatic Hydrocarbons (ug/L)									
Benzo(a)anthracene	—	<0.100	<0.100	0.139	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(a)pyrene	0.1	<0.100	<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	<0.100
Chrysene	—	<0.100	<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
Ideno(1,2,3-cd)pyrene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Total Carcinogenic PAHs	0.1	NA	NA	0.258	NA	NA	NA	NA	NA
Naphthalenes (ug/L)									
1-Methylnaphthalene	—	2.5	3.27	0.97	1.47	4.23	0.712	1.96	<0.100
2-Methylnaphthalene	—	0.45	0.554	0.158	0.121	0.212	0.481	<0.100	0.254
Naphthalene	—	0.41	0.536	<0.10	0.222	0.192	0.173	<0.100	<0.100
Total Naphthalenes	160	1.6	4.36	1.13	1.81	4.63	1.37	1.36	0.254
BTEX (ug/L)									
Benzene	5	1.7	2.24	0.596	0.630	<0.500	<0.500	<0.500	<0.500
Toluene	1,000	0.848	0.504	<0.5	<2.00	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	700	<0.5	<0.5	<0.5	<1.00	<0.500	<0.500	<0.500	<0.500
Xylenes (total)	1,000	1.38	<1.00	<1.00	<1.50	<1.00	<1.00	<1.00	<1.00

bgs = below ground surface
Bold=At or Above MTCA Method A Groundwater Cleanup Level
< = analyte was not detected at or above the method reporting lim
NM = Not Measured
NA = Not Applicable
— Not Analyzed
2003-2004 PAHs results are for dissolved PAHs

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)	Potentiometric Surface Elevation (ft AMSL)
MFG-1	2/8/2002	16.27	5.06	11.21
	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
	12/19/2002		7.46	8.81
	9/3/2003		8.27	8.00
	12/9/2003		5.75	10.52
	3/4/2004		5.50	10.77
	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
	6/19/2002		6.63	9.17
	9/26/2002		7.86	7.94
	12/19/2002		7.00	8.80
	9/3/2003		7.81	7.99
	12/9/2003		5.30	10.50
	3/4/2004		5.06	10.74
	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		5.77	11.08
	6/19/2002		7.66	9.19
	9/26/2002		8.87	7.98
	12/19/2002		8.04	8.81
	9/3/2003		8.84	8.01
	12/9/2003		6.31	10.54
	3/4/2004		6.06	10.79
	6/8/2004		7.82	9.03
MFG-4	2/8/2002	15.67	4.51	11.16
	2/13/2002		4.70	10.97
	2/26/2002		4.58	11.09
	6/19/2002		6.49	9.18
	9/26/2002		7.71	7.96
	12/19/2002		6.86	8.81
	9/3/2003		7.67	8.00
	12/9/2003		5.16	10.51
	3/4/2004		4.91	10.76
	6/8/2004		6.46	9.21

Survey datum = NAVD88

TABLE 5
Human Health Risk Assessment
Darling International, Inc.
2041 Marc Avenue, Tacoma, Washington

Scenario	MTCA Method	Hazard Index	Acceptable Hazard Index (<1)?	Risk Factor	AcceptableRisk Factor (<1E^{-6})?
Highest EPH and PAHs Concentrations	MTCA C Industrial	4.306E-05	Yes	1.540E-05	No
Lowest EPH and PAHs Concentrations	MTCA C Industrial	1.175E-02	Yes	2.121E-06	Yes
Average EPH and PAHs Concentrations	MTCA C Industrial	5.462E-03	Yes	3.448E-06	Yes

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 B3I0093

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.

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Project Manager
North Creek Analytical

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MFG-1	B3I0093-01	Water	09/03/03 15:25	09/04/03 13:25
MFG-2	B3I0093-02	Water	09/03/03 13:32	09/04/03 13:25
MFG-3	B3I0093-03	Water	09/03/03 17:17	09/04/03 13:25
MFG-4	B3I0093-04	Water	09/03/03 18:44	09/04/03 13:25
MFG-1 Diss	B3I0093-05	Water	09/03/03 15:25	09/04/03 13:25
MFG-2 Diss	B3I0093-06	Water	09/03/03 13:32	09/04/03 13:25
MFG-3 Diss	B3I0093-07	Water	09/03/03 17:17	09/04/03 13:25
MFG-4 Diss	B3I0093-08	Water	09/03/03 18:44	09/04/03 13:25
Trip Blank	B3I0093-09	Water	09/03/03 12:00	09/04/03 13:25

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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	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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B3I0093-01) Water Sampled: 09/03/03 15:25 Received: 09/04/03 13:25									
Diesel Range Hydrocarbons	**2.87**	0.250	mg/l	1	3I08010	09/08/03	09/09/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	0.500	"	"	"	"	"	"	
Mineral Oil Range Hydrocarbons	**2.30**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*96.1 %*	*50-121*			"	"	"	"	
Surrogate: Octacosane	*84.4 %*	*56-123*			"	"	"	"	
MFG-2 (B3I0093-02) Water Sampled: 09/03/03 13:32 Received: 09/04/03 13:25									
Diesel Range Hydrocarbons	**2.05**	0.250	mg/l	1	3I08010	09/08/03	09/09/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	**1.11**	0.500	"	"	"	"	"	"	D-06
Mineral Oil Range Hydrocarbons	**1.79**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*89.4 %*	*50-121*			"	"	"	"	
Surrogate: Octacosane	*89.7 %*	*56-123*			"	"	"	"	
MFG-3 (B3I0093-03) Water Sampled: 09/03/03 17:17 Received: 09/04/03 13:25									
Diesel Range Hydrocarbons	**1.09**	0.250	mg/l	1	3I08010	09/08/03	09/09/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	0.500	"	"	"	"	"	"	
Mineral Oil Range Hydrocarbons	**0.976**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*84.1 %*	*50-121*			"	"	"	"	
Surrogate: Octacosane	*82.5 %*	*56-123*			"	"	"	"	
MFG-4 (B3I0093-04) Water Sampled: 09/03/03 18:44 Received: 09/04/03 13:25									
Diesel Range Hydrocarbons	**3.77**	0.250	mg/l	1	3I08010	09/08/03	09/09/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	**1.72**	0.500	"	"	"	"	"	"	D-06
Mineral Oil Range Hydrocarbons	**3.26**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*95.1 %*	*50-121*			"	"	"	"	
Surrogate: Octacosane	*93.5 %*	*56-123*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-4 Diss (B3I0093-08) Water Sampled: 09/03/03 18:44 Received: 09/04/03 13:25									
Diesel Range Hydrocarbons	**3.52**	0.250	mg/l	1	3I08010	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	"	"	"	"	"	"	
Surrogate: 2-FBP	*96.1 %*	*50-121*			"	"	"	"	
Surrogate: Octacosane	*85.7 %*	*56-123*			"	"	"	"	

Scott A. Woerman For Kortland Orr, PM

MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

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	Notes
MFG-1 (B3I0093-01) Water Sampled: 09/03/03 15:25 Received: 09/04/03 13:25									
Mineral Oil Range (SGCU)	ND	0.500	mg/l	1	3I09033	09/08/03	09/11/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*90.3 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*90.3 %*	*50-150*			"	"	"	"	
MFG-2 (B3I0093-02) Water Sampled: 09/03/03 13:32 Received: 09/04/03 13:25									
Mineral Oil Range (SGCU)	ND	0.500	mg/l	1	3I09033	09/08/03	09/11/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*84.6 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*92.9 %*	*50-150*			"	"	"	"	
MFG-3 (B3I0093-03) Water Sampled: 09/03/03 17:17 Received: 09/04/03 13:25									
Mineral Oil Range (SGCU)	ND	0.500	mg/l	1	3I09033	09/08/03	09/11/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*89.0 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*90.3 %*	*50-150*			"	"	"	"	
MFG-4 (B3I0093-04) Water Sampled: 09/03/03 18:44 Received: 09/04/03 13:25									
Mineral Oil Range (SGCU)	ND	0.500	mg/l	1	3I09033	09/08/03	09/11/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*92.5 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*90.9 %*	*50-150*			"	"	"	"	

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

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	Notes
MFG-4 Diss (B310093-08) Water Sampled: 09/03/03 18:44 Received: 09/04/03 13:25									
Mineral Oil Range (SGCU)	ND	0.500	mg/l	1	3I09033	09/08/03	09/11/03	NWTPH-Dx	
Diesel Range (SGCU)	ND	0.250	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*92.9 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*90.9 %*	*50-150*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B3I0093-01) Water Sampled: 09/03/03 15:25 Received: 09/04/03 13:25									
C8-C10 Aliphatics	ND	50.0	ug/l	1	3I06008	09/06/03	09/18/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	**63.3**	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	**63.3**	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*72.1 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*63.4 %*	*60-140*			"	"	"	"	
MFG-2 (B3I0093-02) Water Sampled: 09/03/03 13:32 Received: 09/04/03 13:25									
C8-C10 Aliphatics	ND	50.0	ug/l	1	3I06008	09/06/03	09/21/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*71.9 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*78.0 %*	*60-140*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B3I0093-03) Water Sampled: 09/03/03 17:17 Received: 09/04/03 13:25									
C8-C10 Aliphatics	ND	50.0	ug/l	1	3I06008	09/06/03	09/21/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	09/18/03	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*59.9 %*	*60-140*			"	"	"	"	*X*
Surrogate: 1-Chlorooctadecane	*61.8 %*	*60-140*			"	"	*09/21/03*	"	
MFG-3 (B3I0093-03RE1) Water Sampled: 09/03/03 17:17 Received: 09/04/03 13:25									**Q-29**
C8-C10 Aliphatics	ND	50.0	ug/l	1	3I23003	09/23/03	09/26/03	WA MTCA-EPH	
C10-C12 Aliphatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*61.3 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*59.7 %*	*60-140*			"	"	"	"	*S-04*

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-4 (B310093-04) Water Sampled: 09/03/03 18:44 Received: 09/04/03 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	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*61.9 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*67.5 %*	*60-140*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	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 (B3I0093-05RE1) Water	**Sampled: 09/03/03 15:25**	**Received: 09/04/03 13:25**							Q-29
1-Methylnaphthalene	**3.04**	0.100	ug/l	1	3I18011	09/18/03	09/22/03	8270-SIM	
2-Methylnaphthalene	**0.170**	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	"	"	"	"	"	"	
Naphthalene	**0.321**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*41.9 %*	*30-150*			"	"	"	"	
MFG-2 Diss (B3I0093-06RE1) Water	**Sampled: 09/03/03 13:32**	**Received: 09/04/03 13:25**							Q-29
1-Methylnaphthalene	ND	0.100	ug/l	1	3I18011	09/18/03	09/22/03	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	"	"	"	"	"	"	
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	*38.7 %*	*30-150*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	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-3 Diss (B3I0093-07RE1) Water	**Sampled: 09/03/03 17:17**		**Received: 09/04/03 13:25**						Q-29
1-Methylnaphthalene	ND	0.100	ug/l	1	3I18011	09/18/03	09/22/03	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	"	"	"	"	"	"	
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	*44.9 %*	*30-150*			"	"	"	"	
MFG-4 Diss (B3I0093-08RE1) Water	**Sampled: 09/03/03 18:44**		**Received: 09/04/03 13:25**						Q-29
1-Methylnaphthalene	**4.23**	0.100	ug/l	1	3I18011	09/18/03	09/22/03	8270-SIM	
2-Methylnaphthalene	**0.212**	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	"	"	"	"	"	"	
Naphthalene	**0.192**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*43.7 %*	*30-150*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

BTEX by EPA Method 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B3I0093-01) Water Sampled: 09/03/03 15:25 Received: 09/04/03 13:25									
Benzene	ND	0.500	ug/l	1	3I10023	09/10/03	09/11/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*92.9 %*	*72-127*			"	"	"	"	
MFG-1 (B3I0093-01RE1) Water Sampled: 09/03/03 15:25 Received: 09/04/03 13:25									A-01
Benzene	ND	0.500	ug/l	1	3I14005	09/10/03	09/14/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*98.1 %*	*72-127*			"	"	"	"	
MFG-2 (B3I0093-02) Water Sampled: 09/03/03 13:32 Received: 09/04/03 13:25									
Benzene	ND	0.500	ug/l	1	3I10023	09/10/03	09/11/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*91.5 %*	*72-127*			"	"	"	"	
MFG-2 (B3I0093-02RE1) Water Sampled: 09/03/03 13:32 Received: 09/04/03 13:25									
Benzene	ND	0.500	ug/l	1	3I14005	09/10/03	09/14/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*97.1 %*	*72-127*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

BTEX by EPA Method 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B3I0093-03) Water Sampled: 09/03/03 17:17 Received: 09/04/03 13:25									
Benzene	ND	0.500	ug/l	1	3I10023	09/10/03	09/11/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*89.6 %*	*72-127*			"	"	"	"	
MFG-3 (B3I0093-03RE1) Water Sampled: 09/03/03 17:17 Received: 09/04/03 13:25									A-01
Benzene	ND	0.500	ug/l	1	3I14005	09/10/03	09/14/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*97.9 %*	*72-127*			"	"	"	"	
MFG-4 (B3I0093-04) Water Sampled: 09/03/03 18:44 Received: 09/04/03 13:25									
Benzene	ND	0.500	ug/l	1	3I10023	09/10/03	09/11/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*94.4 %*	*72-127*			"	"	"	"	
MFG-4 (B3I0093-04RE1) Water Sampled: 09/03/03 18:44 Received: 09/04/03 13:25									
Benzene	ND	0.500	ug/l	1	3I14005	09/10/03	09/14/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*99.6 %*	*72-127*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

BTEX by EPA Method 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (B3I0093-09) Water Sampled: 09/03/03 12:00 Received: 09/04/03 13:25									
Benzene	ND	0.500	ug/l	1	3I10023	09/10/03	09/11/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*94.2 %*	*72-127*			"	"	"	"	
Trip Blank (B3I0093-09RE1) Water Sampled: 09/03/03 12:00 Received: 09/04/03 13:25									
Benzene	ND	0.500	ug/l	1	3I14005	09/10/03	09/14/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*96.2 %*	*72-127*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	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) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I08010: Prepared 09/08/03 Using EPA 3520C										
Blank (3I08010-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	*0.271*		"	*0.320*		*84.7*	*50-121*			
Surrogate: Octacosane	*0.155*		"	*0.160*		*96.9*	*56-123*			
LCS (3I08010-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 (3I08010-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 (3I08010-MS1)					**Source: B3I0093-01**					
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*			
Matrix Spike Dup (3I08010-MSD1)					**Source: B3I0093-01**					
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*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I09033: Prepared 09/08/03 Using EPA 3520C										
Blank (3I09033-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 (3I09033-BS1)										
Diesel Range (SGCU)	1.64	0.250	mg/l	2.00		82.0	45-105			
Surrogate: 2-FBP (SGCU)	*0.273*		"	*0.320*		*85.3*	*50-150*			
LCS Dup (3I09033-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 (3I09033-MS1)					**Source: B3I0093-01**					
Diesel Range (SGCU)	1.63	0.250	mg/l	1.92	0.0859	80.4	50-105			
Surrogate: 2-FBP (SGCU)	*0.294*		"	*0.308*		*95.5*	*50-150*			
Matrix Spike Dup (3I09033-MSD1)					**Source: B3I0093-01**					
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*		"	*0.308*		*92.5*	*50-150*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

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 3I06008: Prepared 09/06/03 Using EPA 3520C										
Blank (3I06008-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	"							
C21-C34 Aliphatics	ND	50.0	"							
C10-C12 Aromatics	ND	50.0	"							
C12-C16 Aromatics	ND	50.0	"							
C16-C21 Aromatics	ND	50.0	"							
C21-C34 Aromatics	ND	50.0	"							
Extractable Petroleum Hydrocarbons	ND	50.0	"							
Surrogate: o-Terphenyl	*323*		"	*400*		*80.8*	*60-140*			
Surrogate: 1-Chlorooctadecane	*293*		"	*400*		*73.2*	*60-140*			
LCS (3I06008-BS1)										
C8-C10 Aliphatics	80.6	50.0	ug/l	100		80.6	70-130			
C10-C12 Aliphatics	80.9	50.0	"	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	"	700		89.4	70-130			
C10-C12 Aromatics	80.3	50.0	"	100		80.3	70-130			
C12-C16 Aromatics	257	50.0	"	300		85.7	70-130			
C16-C21 Aromatics	498	50.0	"	500		99.6	70-130			
C21-C34 Aromatics	796	50.0	"	800		99.5	70-130			
Extractable Petroleum Hydrocarbons	2860	50.0	"	3100		92.3	70-130			
Surrogate: o-Terphenyl	*355*		"	*400*		*88.8*	*60-140*			
Surrogate: 1-Chlorooctadecane	*328*		"	*400*		*82.0*	*60-140*			
LCS Dup (3I06008-BSD1)										
C8-C10 Aliphatics	86.2	50.0	ug/l	100		86.2	70-130	6.71	25	
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	
C16-C21 Aliphatics	205	50.0	"	200		102	70-130	4.49	25	
C21-C34 Aliphatics	648	50.0	"	700		92.6	70-130	3.45	25	
C10-C12 Aromatics	81.1	50.0	"	100		81.1	70-130	0.991	25	

Scott A. Woerman For Kortland Orr, PM

MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

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 3I06008: Prepared 09/06/03 Using EPA 3520C										
LCS Dup (3I06008-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	"	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*		"	*400*		*89.0*	*60-140*			
Surrogate: 1-Chlorooctadecane	*320*		"	*400*		*80.0*	*60-140*			
Matrix Spike (3I06008-MS1)					**Source: B3I0093-01**					
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	"	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	"	189	11.8	91.1	70-130			
C21-C34 Aliphatics	589	50.0	"	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*		"	*377*		*69.8*	*60-140*			
Surrogate: 1-Chlorooctadecane	*272*		"	*377*		*72.1*	*60-140*			
Matrix Spike Dup (3I06008-MSD1)					**Source: B3I0093-01**					
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	"	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	"	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	"	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	"	2920	63.3	83.8	70-130	1.97	25	
Surrogate: o-Terphenyl	*258*		"	*377*		*68.4*	*60-140*			
Surrogate: 1-Chlorooctadecane	*257*		"	*377*		*68.2*	*60-140*			

Scott A. Woerman For Kortland Orr, PM

MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

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 3I23003: Prepared 09/23/03 Using EPA 3520C										
Blank (3I23003-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	"							
C21-C34 Aliphatics	ND	50.0	"							
C10-C12 Aromatics	ND	50.0	"							
C12-C16 Aromatics	ND	50.0	"							
C16-C21 Aromatics	ND	50.0	"							
C21-C34 Aromatics	ND	50.0	"							
Extractable Petroleum Hydrocarbons	ND	50.0	"							
Surrogate: o-Terphenyl	*313*		"	*400*		*78.2*	*60-140*			
Surrogate: 1-Chlorooctadecane	*330*		"	*400*		*82.5*	*60-140*			
LCS (3I23003-BS1)										
C8-C10 Aliphatics	81.4	50.0	ug/l	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	"	200		95.5	70-130			
C21-C34 Aliphatics	693	50.0	"	700		99.0	70-130			
C10-C12 Aromatics	83.9	50.0	"	100		83.9	70-130			
C12-C16 Aromatics	245	50.0	"	300		81.7	70-130			
C16-C21 Aromatics	427	50.0	"	500		85.4	70-130			
C21-C34 Aromatics	661	50.0	"	800		82.6	70-130			
Extractable Petroleum Hydrocarbons	2740	50.0	"	3100		88.4	70-130			
Surrogate: o-Terphenyl	*329*		"	*400*		*82.2*	*60-140*			
Surrogate: 1-Chlorooctadecane	*353*		"	*400*		*88.2*	*60-140*			
LCS Dup (3I23003-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	"	100		84.2	70-130	3.75	25	
C12-C16 Aliphatics	178	50.0	"	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	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

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 3I23003: Prepared 09/23/03 Using EPA 3520C										
LCS Dup (3I23003-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	"	3100		86.5	70-130	2.21	25	
Surrogate: o-Terphenyl	*324*		"	*400*		*81.0*	*60-140*			
Surrogate: 1-Chlorooctadecane	*350*		"	*400*		*87.5*	*60-140*			

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

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I18011: Prepared 09/18/03 Using EPA 3520C										
Blank (3I18011-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	"							
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*		"	*50.0*		*92.8*	*30-150*			
LCS (3I18011-BS1)										
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	"	10.0		71.8	50-150			
Naphthalene	8.10	0.100	"	10.0		81.0	50-150			
Surrogate: p-Terphenyl-d14	*43.1*		"	*50.0*		*86.2*	*30-150*			
LCS Dup (3I18011-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	
Benzo (b) fluoranthene	8.10	0.100	"	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	"	10.0		65.6	50-150	2.78	25	
Indeno (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*		"	*50.0*		*86.2*	*30-150*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

BTEX by EPA Method 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I10023: Prepared 09/10/03 Using EPA 5030B (P/T)										
Blank (3I10023-BLK1)										
Benzene	ND	0.500	ug/l							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (PID)	*44.0*		"	*48.0*		*91.7*	*72-127*			
LCS (3I10023-BS1)										
Benzene	7.01	0.500	ug/l	7.38		95.0	80-120			
Toluene	35.9	0.500	"	34.9		103	80-120			
Ethylbenzene	8.91	0.500	"	8.19		109	80-120			
Xylenes (total)	43.3	1.00	"	39.7		109	80-120			
Surrogate: 4-BFB (PID)	*43.3*		"	*48.0*		*90.2*	*72-127*			
LCS Dup (3I10023-BSD1)										
Benzene	7.12	0.500	ug/l	7.38		96.5	80-120	1.56	40	
Toluene	36.5	0.500	"	34.9		105	80-120	1.66	40	
Ethylbenzene	9.03	0.500	"	8.19		110	80-120	1.34	40	
Xylenes (total)	43.9	1.00	"	39.7		111	80-120	1.38	40	
Surrogate: 4-BFB (PID)	*44.1*		"	*48.0*		*91.9*	*72-127*			
Matrix Spike (3I10023-MS1)					**Source: B3H0780-05**					
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	"	39.7	0.419	96.7	74-118			
Surrogate: 4-BFB (PID)	*43.6*		"	*48.0*		*90.8*	*72-127*			
Matrix Spike (3I10023-MS2)					**Source: B3I0093-02**					
Benzene	6.66	0.500	ug/l	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	"	8.19	ND	107	82-120			
Xylenes (total)	42.7	1.00	"	39.7	ND	108	74-118			
Surrogate: 4-BFB (PID)	*43.8*		"	*48.0*		*91.2*	*72-127*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

BTEX by EPA Method 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I10023: Prepared 09/10/03 Using EPA 5030B (P/T)										
Matrix Spike Dup (3I10023-MSD1)					**Source: B3H0780-05**					
Benzene	6.04	0.500	ug/l	7.38	ND	81.8	70-129	0.998	40	
Toluene	32.9	0.500	"	34.9	0.447	93.0	73-114	1.51	40	
Ethylbenzene	7.97	0.500	"	8.19	0.186	95.0	82-120	0.625	40	
Xylenes (total)	38.8	1.00	"	39.7	0.419	96.7	74-118	0.00	40	
Surrogate: 4-BFB (PID)	*44.0*		"	*48.0*		*91.7*	*72-127*			
Matrix Spike Dup (3I10023-MSD2)					**Source: B3I0093-02**					
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 (PID)	*44.6*		"	*48.0*		*92.9*	*72-127*			
Batch 3I14005: Prepared 09/14/03 Using EPA 5030B (P/T)										
Blank (3I14005-BLK1)										
Benzene	ND	0.500	ug/l							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (PID)	*46.6*		"	*48.0*		*97.1*	*72-127*			
LCS (3I14005-BS1)										
Benzene	6.72	0.500	ug/l	7.38		91.1	80-120			
Toluene	35.0	0.500	"	34.9		100	80-120			
Ethylbenzene	8.65	0.500	"	8.19		106	80-120			
Xylenes (total)	42.1	1.00	"	39.7		106	80-120			
Surrogate: 4-BFB (PID)	*46.9*		"	*48.0*		*97.7*	*72-127*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	09/26/03 17:01

BTEX by EPA Method 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I14005: Prepared 09/14/03 Using EPA 5030B (P/T)										
LCS Dup (3I14005-BSD1)										
Benzene	6.75	0.500	ug/l	7.38		91.5	80-120	0.445	40	
Toluene	35.6	0.500	"	34.9		102	80-120	1.70	40	
Ethylbenzene	8.65	0.500	"	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*		"	*48.0*		*97.3*	*72-127*			
Matrix Spike (3I14005-MS1)					**Source: B3I0079-03**					
Benzene	7.41	0.500	ug/l	7.38	ND	100	70-129			
Toluene	36.3	0.500	"	34.9	0.123	104	73-114			
Ethylbenzene	8.92	0.500	"	8.19	ND	109	82-120			
Xylenes (total)	43.4	1.00	"	39.7	ND	109	74-118			
Surrogate: 4-BFB (PID)	*43.9*		"	*48.0*		*91.5*	*72-127*			
Matrix Spike Dup (3I14005-MSD1)					**Source: B3I0079-03**					
Benzene	7.18	0.500	ug/l	7.38	ND	97.3	70-129	3.15	40	
Toluene	35.4	0.500	"	34.9	0.123	101	73-114	2.51	40	
Ethylbenzene	8.63	0.500	"	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*		"	*48.0*		*90.6*	*72-127*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
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
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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11115 E Montgomery Suite B, Spokane, WA 99206-4776 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7132 503-906-9200 FAX 906-9210
20332 Empire Ave Suite F-1, Bend, OR 99701-5711 541-383-9310 FAX 382-7588
3209 Denali St, Anchorage, AK 99503-4030 907-334-9200 FAX 334-9210

CHAIN OF CUSTODY REPORT

Work Order #: B3I0093

CLIENT: MCS Environmental
REPORT TO: Natalie Morrow
ADDRESS: 5562 Alloy S. Missoula MT 59808
PHONE: 406 728 7755 FAX: 406 728 7367

INVOICE TO: SAME
P.O. NUMBER: 11093.001

PROJECT NAME: Darling Tacoma
PROJECT NUMBER: 11093.001
SAMPLED BY: R Gilmour

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: [X] STD. [7] [5] [4] [3] [2] [1] [<1]
Petroleum Hydrocarbon Analyses: [X] STD. [4] [3] [2] [1] [<1]
[OTHER] Specify:
* Turnaround Requests less than standard may incur Rush Charges

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	NWTPH-Dx	EPH	Total PAH	Dissolved PAH	BETX	MS/MSD BETX	MS/MSD OTHER	NWTPH-Dx Filtered	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
			HCl	HCl						HCl				
			REQUESTED ANALYSES											
1 MFG-1	9/3/03 1525		2	2	2	2	2		10		W		Analysis must	01
2 MFG-2	9/3/03 1332		2	2	2	2	2	4			W		meet MTCA	02
3 MFG-3	9/3/03 1717		2	2	2	2	2				W		and need to	03
4 MFG-4	9/3/03 1844		2	2	2	2	2			2	W		be consistent	04
5					Hold Do Not Analyze								with Previous	
6													Sampling Events	
7													Contact Natalie	
8													[redacted]rrow	
9													406-728-7755	
10														

RELEASED BY: Robert Gilmour DATE: 9/4/03
PRINT NAME: Robert Gilmour FIRM: MCS TIME:
RELEASED BY: Jon Hollen DATE: 9/4/03
PRINT NAME: Jon Hollen FIRM: NCA TIME: 1325

RECEIVED BY: Jon Hollen DATE: 9/4/03
PRINT NAME: Jon Hollen FIRM: NCA TIME: 1330
RECEIVED BY: Cathy Gamble DATE: 9/4/03
PRINT NAME: Cathy Gamble FIRM: NCA TIME: 13:25

ADDITIONAL REMARKS:
COC REV (0): EPH run w/acid silica gel report before & after results. w/QS
TEMP:
PAGE OF

MFG-4 2 extra liters for NWTPH-Dx filtered, run w/acid silica gel report before and after results.

APPENDIX B

DECEMBER 2003 LABORATORY ANALYTICAL RESULTS

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Portland 9405 SW Nimbus Avenue Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 2464 Empire Avenue, Suite 1 Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 A International Airport Road, Suite A10 Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	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.

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B3L0406-01) Water Sampled: 12/09/03 13:10 Received: 12/10/03 17:00									
Diesel Range Hydrocarbons	**1.35**	0.250	mg/l	1	3L12010	12/12/03	12/15/03	NWTPH-Dx	D-06
Heavy Oil Range Hydrocarbons	ND	0.500	"	"	"	"	"	"	
Mineral Oil Range Hydrocarbons	**0.976**	0.500	"	"	"	"	"	"	D-06
Surrogate: 2-FBP	*88.4 %*	*50-121*			"	"	"	"	
Surrogate: Octacosane	*100 %*	*56-123*			"	"	"	"	
MFG-2 (B3L0406-02) Water Sampled: 12/09/03 12:02 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	"	"	"	"	"	"	D-06
Mineral Oil Range Hydrocarbons	**1.13**	0.500	"	"	"	"	"	"	D-06
Surrogate: 2-FBP	*75.1 %*	*50-121*			"	"	"	"	
Surrogate: Octacosane	*114 %*	*56-123*			"	"	"	"	
MFG-3 (B3L0406-03) Water Sampled: 12/09/03 14:40 Received: 12/10/03 17:00									
Diesel Range Hydrocarbons	**1.29**	0.250	mg/l	1	3L12010	12/12/03	12/15/03	NWTPH-Dx	D-06
Heavy Oil Range Hydrocarbons	**1.04**	0.500	"	"	"	"	"	"	D-06
Mineral Oil Range Hydrocarbons	**1.08**	0.500	"	"	"	"	"	"	D-06
Surrogate: 2-FBP	*74.5 %*	*50-121*			"	"	"	"	
Surrogate: Octacosane	*107 %*	*56-123*			"	"	"	"	
MFG-4 (B3L0406-04) Water Sampled: 12/09/03 15:40 Received: 12/10/03 17:00									
Diesel Range Hydrocarbons	**2.22**	0.250	mg/l	1	3L12010	12/12/03	12/15/03	NWTPH-Dx	D-06
Heavy Oil Range Hydrocarbons	**1.04**	0.500	"	"	"	"	"	"	D-06
Mineral Oil Range Hydrocarbons	**1.68**	0.500	"	"	"	"	"	"	D-06
Surrogate: 2-FBP	*75.7 %*	*50-121*			"	"	"	"	
Surrogate: Octacosane	*103 %*	*56-123*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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	Notes
MFG-1 (B3L0406-01) Water Sampled: 12/09/03 13:10 Received: 12/10/03 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	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*63.6 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*90.7 %*	*50-150*			"	"	"	"	
MFG-2 (B3L0406-02) Water Sampled: 12/09/03 12:02 Received: 12/10/03 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	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*64.9 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*96.1 %*	*50-150*			"	"	"	"	
MFG-3 (B3L0406-03) Water Sampled: 12/09/03 14:40 Received: 12/10/03 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	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*63.2 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*89.4 %*	*50-150*			"	"	"	"	
MFG-4 (B3L0406-04) Water Sampled: 12/09/03 15:40 Received: 12/10/03 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	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*63.6 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*86.2 %*	*50-150*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B3L0406-01) Water Sampled: 12/09/03 13:10 Received: 12/10/03 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	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
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 Received: 12/10/03 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	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*72.2 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*80.1 %*	*60-140*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B3L0406-03) Water Sampled: 12/09/03 14:40 Received: 12/10/03 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	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*80.1 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*89.8 %*	*60-140*			"	"	"	"	
MFG-4 (B3L0406-04) Water Sampled: 12/09/03 15:40 Received: 12/10/03 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	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*79.0 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*89.1 %*	*60-140*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B3L0406-01) Water Sampled: 12/09/03 13:10 Received: 12/10/03 17:00									
1-Methylnaphthalene	**0.343**	0.100	ug/l	1	3L16007	12/16/03	12/19/03	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	"	"	"	"	"	"	
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	*88.2 %*	*20-127*			"	"	"	"	
MFG-2 (B3L0406-02) Water Sampled: 12/09/03 12:02 Received: 12/10/03 17:00									
1-Methylnaphthalene	ND	0.100	ug/l	1	3L16007	12/16/03	12/19/03	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	"	"	"	"	"	"	
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	*66.5 %*	*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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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B3L0406-03) Water Sampled: 12/09/03 14:40 Received: 12/10/03 17:00									
1-Methylnaphthalene	ND	0.100	ug/l	1	3L16007	12/16/03	12/19/03	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	"	"	"	"	"	"	
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	*68.0 %*	*20-127*			"	"	"	"	
MFG-4 (B3L0406-04) Water Sampled: 12/09/03 15:40 Received: 12/10/03 17:00									
1-Methylnaphthalene	**0.712**	0.100	ug/l	1	3L16007	12/16/03	12/19/03	8270-SIM	
2-Methylnaphthalene	**0.481**	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	"	"	"	"	"	"	
Naphthalene	**0.173**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*85.8 %*	*20-127*			"	"	"	"	

Kortland Orr, PM

MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

BTEX by EPA Method 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B3L0406-01) Water Sampled: 12/09/03 13:10 Received: 12/10/03 17:00									**Q-34**
Benzene	ND	0.500	ug/l	1	3L14001	12/14/03	12/14/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*97.3 %*	*72-127*			"	"	"	"	
MFG-2 (B3L0406-02) Water Sampled: 12/09/03 12:02 Received: 12/10/03 17:00									**Q-34**
Benzene	ND	0.500	ug/l	1	3L14001	12/14/03	12/14/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*96.7 %*	*72-127*			"	"	"	"	
MFG-3 (B3L0406-03) Water Sampled: 12/09/03 14:40 Received: 12/10/03 17:00									
Benzene	ND	0.500	ug/l	1	3L14001	12/14/03	12/14/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*95.4 %*	*72-127*			"	"	"	"	
MFG-4 (B3L0406-04) Water Sampled: 12/09/03 15:40 Received: 12/10/03 17:00									**Q-34**
Benzene	ND	0.500	ug/l	1	3L14001	12/14/03	12/14/03	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*96.7 %*	*72-127*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L12010: Prepared 12/12/03 Using EPA 3520C										
Blank (3L12010-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	*0.270*		"	*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: B3L0406-01**					
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)					**Source: B3L0406-01**					
Diesel Range Hydrocarbons	3.16	0.250	mg/l	1.89	1.35	95.8	42-126	7.55	40	
Surrogate: 2-FBP	*0.286*		"	*0.302*		*94.7*	*50-121*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L12010: Prepared 12/12/03 Using EPA 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	"							
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	0.250	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: B3L0406-01**					
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: B3L0406-01**					
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*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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 3L16007: Prepared 12/16/03 Using EPA 3520C										
Blank (3L16007-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	"							
C21-C34 Aliphatics	ND	50.0	"							
C10-C12 Aromatics	ND	50.0	"							
C12-C16 Aromatics	ND	50.0	"							
C16-C21 Aromatics	ND	50.0	"							
C21-C34 Aromatics	ND	50.0	"							
Extractable Petroleum Hydrocarbons	ND	50.0	"							
Surrogate: o-Terphenyl	*347*		"	*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-01
C10-C12 Aliphatics	87.1	50.0	"	100		87.1	70-130			
C12-C16 Aliphatics	180	50.0	"	200		90.0	70-130			
C16-C21 Aliphatics	209	50.0	"	200		104	70-130			
C21-C34 Aliphatics	618	50.0	"	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	"	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/l	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	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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 3L16007: Prepared 12/16/03 Using 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	"	800		76.4	70-130	2.15	25	
Extractable Petroleum Hydrocarbons	2740	50.0	"	3100		88.4	70-130	4.48	25	
Surrogate: o-Terphenyl	*407*		"	*400*		*102*	*60-140*			
Surrogate: 1-Chlorooctadecane	*410*		"	*400*		*102*	*60-140*			
Matrix Spike (3L16007-MS1)					**Source: B3L0406-01**					
C8-C10 Aliphatics	78.4	50.0	ug/l	95.2	11.9	69.9	70-130			Q-01
C10-C12 Aliphatics	109	50.0	"	95.2	10.4	104	70-130			
C12-C16 Aliphatics	169	50.0	"	190	ND	88.9	70-130			
C16-C21 Aliphatics	184	50.0	"	190	ND	96.8	70-130			
C21-C34 Aliphatics	609	50.0	"	667	ND	91.3	70-130			
C10-C12 Aromatics	75.6	50.0	"	95.2	11.8	67.0	70-130			Q-01
C12-C16 Aromatics	235	50.0	"	286	ND	82.2	70-130			
C16-C21 Aromatics	391	50.0	"	476	11.2	79.8	70-130			
C21-C34 Aromatics	476	50.0	"	762	ND	62.5	70-130			Q-01
Extractable Petroleum Hydrocarbons	2400	50.0	"	2950	0.00	81.4	70-130			
Surrogate: o-Terphenyl	*321*		"	*381*		*84.3*	*60-140*			
Surrogate: 1-Chlorooctadecane	*361*		"	*381*		*94.8*	*60-140*			
Matrix Spike Dup (3L16007-MSD1)					**Source: B3L0406-01**					
C8-C10 Aliphatics	74.5	50.0	ug/l	96.2	11.9	65.1	70-130	5.10	25	Q-01
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	
C16-C21 Aliphatics	198	50.0	"	192	ND	103	70-130	7.33	25	
C21-C34 Aliphatics	595	50.0	"	673	ND	88.4	70-130	2.33	25	
C10-C12 Aromatics	69.9	50.0	"	96.2	11.8	60.4	70-130	7.84	25	Q-01
C12-C16 Aromatics	262	50.0	"	288	ND	91.0	70-130	10.9	25	
C16-C21 Aromatics	438	50.0	"	481	11.2	88.7	70-130	11.3	25	
C21-C34 Aromatics	546	50.0	"	769	ND	71.0	70-130	13.7	25	
Extractable Petroleum Hydrocarbons	2560	50.0	"	2980	0.00	85.9	70-130	6.45	25	
Surrogate: o-Terphenyl	*358*		"	*385*		*93.0*	*60-140*			
Surrogate: 1-Chlorooctadecane	*369*		"	*385*		*95.8*	*60-140*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L16007: Prepared 12/16/03 Using EPA 3520C										
Blank (3L16007-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	"							
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	*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		83.6	33-125			
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-cd) 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*			
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	
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	
Naphthalene	7.54	0.100	"	10.0		75.4	38-120	4.66	25	
Surrogate: p-Terphenyl-d14	*5.50*		"	*8.00*		*68.8*	*20-127*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L16007: Prepared 12/16/03 Using EPA 3520C										
Matrix Spike (3L16007-MS2)					**Source: B3L0406-01**					
Benzo (a) anthracene	6.49	0.100	ug/l	9.71	ND	66.8	50-150			
Benzo (a) pyrene	5.26	0.100	"	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-01
Indeno (1,2,3-cd) pyrene	4.08	0.100	"	9.71	ND	42.0	50-150			Q-01
Naphthalene	7.20	0.100	"	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: B3L0406-01**					
Benzo (a) anthracene	6.23	0.100	ug/l	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	"	9.52	ND	65.7	50-150	4.84	25	
Benzo (k) fluoranthene	5.47	0.100	"	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	"	9.52	ND	30.6	50-150	4.57	25	Q-01
Indeno (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	
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	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	12/23/03 17:29

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L14001: Prepared 12/14/03 Using EPA 5030B (P/T)										
Blank (3L14001-BLK1)										
Benzene	ND	0.500	ug/l							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (PID)	*47.2*		"	*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	"	8.19		99.1	80-120			
Xylenes (total)	39.5	1.00	"	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	"	8.19		101	80-120	1.71	40	
Xylenes (total)	39.9	1.00	"	39.7		101	80-120	1.01	40	
Surrogate: 4-BFB (PID)	*44.7*		"	*48.0*		*93.1*	*72-127*			
Matrix Spike (3L14001-MS1)					**Source: B3L0406-01**					
Benzene	7.08	0.500	ug/l	7.38	0.125	94.2	70-129			
Toluene	36.8	0.500	"	34.9	0.174	105	73-114			
Ethylbenzene	9.22	0.500	"	8.19	ND	113	82-120			
Xylenes (total)	45.2	1.00	"	39.7	0.671	112	74-118			
Surrogate: 4-BFB (PID)	*45.9*		"	*48.0*		*95.6*	*72-127*			
Matrix Spike Dup (3L14001-MSD1)					**Source: B3L0406-01**					
Benzene	6.91	0.500	ug/l	7.38	0.125	91.9	70-129	2.43	40	
Toluene	36.8	0.500	"	34.9	0.174	105	73-114	0.00	40	
Ethylbenzene	9.09	0.500	"	8.19	ND	111	82-120	1.42	40	
Xylenes (total)	44.4	1.00	"	39.7	0.671	110	74-118	1.79	40	
Surrogate: 4-BFB (PID)	*46.7*		"	*48.0*		*97.3*	*72-127*			

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541.383.9310 fax 541.382.7588
Anchorage 2000 A International Airport Road, Suite A10 Anchorage, AK 99502-1119
907.561.9200 fax 907.562.9210

MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	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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11115 E Montgomery Suite B, Spokane, WA 99206-4776 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7132 503-906-9200 FAX 906-9210
20332 Empire Ave Suite F-1, Bend, OR 99701-5711 541-383-9310 FAX 382-7588
3209 Denali St, Anchorage, AK 99503-4030 907-334-9200 FAX 334-9210

CHAIN OF CUSTODY REPORT

Work Order #: B3L0406

CLIENT: MCS Environmental

REPORT TO: Natalie Morrow
ADDRESS: 5562 Alloy S
Missoula MT 59808
PHONE: 406-728-7755 FAX: 406 728 7367

INVOICE TO: Same

P.O. NUMBER: 11093.001

PROJECT NAME: Darling Tacoma
PROJECT NUMBER: 11093.001
SAMPLED BY: R. Gilmour

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: [X] STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: 5 STD | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges

#	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	NWTPH-Dx	EPH	BTEX	Dissolved PAHs		BTEX MS/MSD	Dx EPH MS MSD	Dissolved PAHs MS MSD					MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
			HCl	HCL	HCL			HCl	HCl	HCl	SO4								
1	MFG-1	12/9/03 1310		2	2	2	2		4	4	3					W	19	MS/MSD	01
2	MFG-2	12/9/03 1202		2	2	2	2									W	2		02
3	MFG-3	12/9/03 1440		2	2	2	2									W	8		03
4	MFG-4	12/9/03 1540		2	2	2	2									W	8		04
5																		Analyses must meet	
6																		MTCH and needs to be	
7																		consistent with previous	
8																		Sampling events.	
9																			
10																			

RELEASED BY: [signature] DATE: 12/10/03
PRINT NAME: R Gilmour FIRM: MCS TIME: 1415
RECEIVED BY: [signature]
PRINT NAME: Jon Hollers FIRM: NCH DATE: 12/10/03 TIME: 1530

RELEASED BY: [signature] DATE: 12/10/03
PRINT NAME: [signature] FIRM: TIME: 1700
RECEIVED BY: [signature]
PRINT NAME: BRANDY TONEY FIRM: NCA DATE: 12/10/03 TIME: 1700

ADDITIONAL REMARKS: Do not run VOA's on trip blanks.
NwTPH-Dx with acid silica gel cleanup and without acid silica gel cleanup
Dissolved PAH was field filtered.

COC REV 3.01 TEMP: 6.8 PAGE OF

Samples were not @2-6c upon receipt!

APPENDIX C

MARCH 2004 LABORATORY ANALYTICAL RESULTS

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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

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907 563 9200 fax 907 561 5301

MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	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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907.561.5400 fax 907.561.6311

MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

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

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4C0185-01) Water Sampled: 03/04/04 13:22 Received: 03/05/04 12:45									
Diesel Range Hydrocarbons	**3.12**	0.250	mg/l	1	4C09016	03/09/04	03/10/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	**0.666**	0.500	"	"	"	"	"	"	D-10
Mineral Oil Range Hydrocarbons	**2.10**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*115 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*115 %*	*50-150*			"	"	"	"	
MFG-2 (B4C0185-02) Water Sampled: 03/04/04 12:13 Received: 03/05/04 12:45									
Diesel Range Hydrocarbons	**2.00**	0.250	mg/l	1	4C09016	03/09/04	03/10/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	**0.607**	0.500	"	"	"	"	"	"	D-10
Mineral Oil Range Hydrocarbons	**1.39**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*114 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*116 %*	*50-150*			"	"	"	"	
MFG-3 (B4C0185-03) Water Sampled: 03/04/04 15:05 Received: 03/05/04 12:45									
Diesel Range Hydrocarbons	**1.15**	0.250	mg/l	1	4C09016	03/09/04	03/10/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	**0.562**	0.500	"	"	"	"	"	"	D-10
Mineral Oil Range Hydrocarbons	**0.834**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*104 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*109 %*	*50-150*			"	"	"	"	
MFG-4 (B4C0185-04) Water Sampled: 03/04/04 16:04 Received: 03/05/04 12:45									
Diesel Range Hydrocarbons	**3.13**	0.250	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	"	"	"	"	"	"	
Surrogate: 2-FBP	*117 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*119 %*	*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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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	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	Notes
MFG-1 (B4C0185-01) Water Sampled: 03/04/04 13:22 Received: 03/05/04 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	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*76.5 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*84.8 %*	*50-150*			"	"	"	"	
MFG-2 (B4C0185-02) Water Sampled: 03/04/04 12:13 Received: 03/05/04 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	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*67.5 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*78.8 %*	*50-150*			"	"	"	"	
MFG-3 (B4C0185-03) Water Sampled: 03/04/04 15:05 Received: 03/05/04 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	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*62.3 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*74.2 %*	*50-150*			"	"	"	"	
MFG-4 (B4C0185-04) Water Sampled: 03/04/04 16:04 Received: 03/05/04 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	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*70.9 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*82.1 %*	*50-150*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4C0185-01) Water Sampled: 03/04/04 13:22 Received: 03/05/04 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	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*88.3 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*91.7 %*	*60-140*			"	"	"	"	
MFG-2 (B4C0185-02) Water Sampled: 03/04/04 12:13 Received: 03/05/04 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	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*82.6 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*84.4 %*	*60-140*			"	"	"	"	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B4C0185-03) Water	**Sampled: 03/04/04 15:05**	**Received: 03/05/04 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	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*86.7 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*86.7 %*	*60-140*			"	"	"	"	
MFG-4 (B4C0185-04) Water	**Sampled: 03/04/04 16:04**	**Received: 03/05/04 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	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	50.0	"	"	"	"	"	"	
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Extractable Petroleum Hydrocarbons	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*71.4 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*74.0 %*	*60-140*			"	"	"	"	

North Creek Analytical - Bothell

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	03/09/04	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	"	"	"	"	"	"	
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	*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	03/10/04	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	"	"	"	"	"	"	
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	*42.8 %*	*20-127*			"	"	"	"	

North Creek Analytical - Bothell

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907.561.9200 fax 907.561.9210

MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B4C0185-03) Water Sampled: 03/04/04 15:05 Received: 03/05/04 12:45									
1-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	"	"	"	"	"	"	
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	*41.1 %*	*20-127*			"	"	"	"	
MFG-4 (B4C0185-04) Water Sampled: 03/04/04 16:04 Received: 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	"	"	"	"	"	"	
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	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*34.7 %*	*20-127*			"	"	"	"	

North Creek Analytical - Bothell

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

BTEX by EPA Method 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4C0185-01) Water Sampled: 03/04/04 13:22 Received: 03/05/04 12:45									
Benzene	ND	0.500	ug/l	1	4C09002	03/09/04	03/09/04	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*96.9 %*	*72-127*			"	"	"	"	
MFG-2 (B4C0185-02) Water Sampled: 03/04/04 12:13 Received: 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	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*102 %*	*72-127*			"	"	"	"	
MFG-3 (B4C0185-03) Water Sampled: 03/04/04 15:05 Received: 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	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*107 %*	*72-127*			"	"	"	"	
MFG-4 (B4C0185-04) Water Sampled: 03/04/04 16:04 Received: 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	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*105 %*	*72-127*			"	"	"	"	

North Creek Analytical - Bothell

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C09016: Prepared 03/09/04 Using EPA 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*		"	*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*			
Matrix Spike (4C09016-MS1)					**Source: B4C0185-01**					
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*			
Matrix Spike Dup (4C09016-MSD1)					**Source: B4C0185-01**					
Diesel Range Hydrocarbons	4.95	0.250	mg/l	2.00	3.12	91.5	25-149	5.61	40	
Surrogate: 2-FBP	*0.347*		"	*0.320*		*108*	*50-150*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C10013: Prepared 03/09/04 Using EPA 3520C										
Blank (4C10013-BLK1)										
Diesel Range (SGCU)	ND	0.250	mg/l							
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*		"	*0.320*		*62.8*	*50-150*			
Matrix Spike (4C10013-MS1)					**Source: B4C0185-01**					
Diesel Range (SGCU)	1.70	0.250	mg/l	1.89	0.188	80.0	50-150			
Surrogate: 2-FBP (SGCU)	*0.263*		"	*0.302*		*87.1*	*50-150*			
Matrix Spike Dup (4C10013-MSD1)					**Source: B4C0185-01**					
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*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

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 4C11014: Prepared 03/11/04 Using 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	"							
C21-C34 Aliphatics	ND	50.0	"							
C10-C12 Aromatics	ND	50.0	"							
C12-C16 Aromatics	ND	50.0	"							
C16-C21 Aromatics	ND	50.0	"							
C21-C34 Aromatics	ND	50.0	"							
Extractable Petroleum Hydrocarbons	ND	50.0	"							
Surrogate: o-Terphenyl	*353*		"	*400*		*88.2*	*60-140*			
Surrogate: 1-Chlorooctadecane	*347*		"	*400*		*86.8*	*60-140*			
LCS (4C11014-BS1)										
C8-C10 Aliphatics	63.7	50.0	ug/l	100		63.7	70-130			Q-01
C10-C12 Aliphatics	89.8	50.0	"	100		89.8	70-130			
C12-C16 Aliphatics	178	50.0	"	200		89.0	70-130			
C16-C21 Aliphatics	196	50.0	"	200		98.0	70-130			
C21-C34 Aliphatics	646	50.0	"	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*		"	*400*		*96.2*	*60-140*			
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-01
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	

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

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 4C11014: Prepared 03/11/04 Using EPA 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*		"	*400*		*95.0*	*60-140*			
Surrogate: 1-Chlorooctadecane	*354*		"	*400*		*88.5*	*60-140*			
Matrix Spike (4C11014-MS1)					**Source: B4C0185-01**					
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	"	96.2	6.93	93.4	70-130			
C12-C16 Aliphatics	171	50.0	"	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	"	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	"	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*		"	*385*		*95.3*	*60-140*			
Surrogate: 1-Chlorooctadecane	*354*		"	*385*		*91.9*	*60-140*			
Matrix Spike Dup (4C11014-MSD1)					**Source: B4C0185-01**					
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	"	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	"	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	"	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*			
Surrogate: 1-Chlorooctadecane	*361*		"	*381*		*94.8*	*60-140*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C08009: Prepared 03/08/04 Using 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	"							
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*		"	*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	"	10.0		72.6	35-133			
Benzo (k) fluoranthene	6.26	0.100	"	10.0		62.6	28-127			
Chrysene	7.82	0.100	"	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	"	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	"	10.0		74.0	28-127	16.7	25	
Chrysene	7.64	0.100	"	10.0		76.4	41-120	2.33	25	
Dibenz (a,h) anthracene	6.08	0.100	"	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*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C08009: Prepared 03/08/04 Using EPA 3520C										
Matrix Spike (4C08009-MS1)					**Source: B4C0185-01**					
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-02
Benzo (b) fluoranthene	4.32	0.100	"	9.43	ND	45.8	50-150			Q-02
Benzo (k) fluoranthene	3.64	0.100	"	9.43	ND	38.6	50-150			Q-02
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: B4C0185-01**					
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	"	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	"	9.52	ND	23.0	50-150	8.08	25	Q-02
Indeno (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*			

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	03/19/04 14:45

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C09002: Prepared 03/09/04 Using EPA 5030B (P/T)										
Blank (4C09002-BLK1)										
Benzene	ND	0.500	ug/l							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (PID)	*43.6*		"	*48.0*		*90.8*	*72-127*			
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	"	8.20		101	80-120			
Xylenes (total)	39.6	1.00	"	39.6		100	80-120			
Surrogate: 4-BFB (PID)	*46.7*		"	*48.0*		*97.3*	*72-127*			
LCS Dup (4C09002-BSD1)										
Benzene	6.06	0.500	ug/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*		"	*48.0*		*100*	*72-127*			
Matrix Spike (4C09002-MS1)					**Source: B4C0185-01**					
Benzene	6.01	0.500	ug/l	7.35	0.118	80.2	70-129			
Toluene	31.3	0.500	"	34.8	0.106	89.6	73-114			
Ethylbenzene	8.35	0.500	"	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 (4C09002-MSD1)					**Source: B4C0185-01**					
Benzene	6.23	0.500	ug/l	7.35	0.118	83.2	70-129	3.59	40	
Toluene	32.3	0.500	"	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)	*47.5*		"	*48.0*		*99.0*	*72-127*			

North Creek Analytical - Bothell

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Kortland Orr, PM

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MCS Environmental	Project: Darling-Tacoma UST	
5562 Alloy Street	Project Number: 11093.001	**Reported:**
Missoula, MT/USA 59808	Project Manager: Natalie Morrow	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

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20332 Empire Ave Suite F-1, Bend, OR 99701-5711 541-383-9310 FAX 382-7588
3209 Denali St, Anchorage, AK 99503-4030 907-334-9200 FAX 334-9210

CHAIN OF CUSTODY REPORT

Work Order #: B4C0185

CLIENT: MCS Environmental

INVOICE TO: Same

REPORT TO: Natalie Morrow
ADDRESS: 5562 Alloy S
Missoula MT 59808
PHONE (406) 728 7755 FAX: (406) 728 7367

P.O. NUMBER: 11093.001

PROJECT NAME: Darling Tacoma

PROJECT NUMBER: 11093.001

SAMPLED BY: R. Gilmour

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [X] STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	NWTPH Dx	EPH	BTEX	Dissolved PAHs		BTEX MS/MSD	DsEPH MS/MSD	Dissolved PAH MS/MSD						MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
				HCl	HCl	HCl			HCl	HCl										
			REQUESTED ANALYSES																	
1	MFG-1	3/4/04 1322		2	2	2	2		4	4	3						W	19	MS/MSD	-01
2	MFG-2	3/4/04 1213		2	2	2	2										W	8		-02
3	MFG-3	3/4/04 1505		2	2	2	2										W	8		-03
4	MFG-4	3/4/04 1604		2	2	2	2										W	8		-04
5	Trip Blank	3/4/04		-	-	-	-										W	2		-05
6																			Analysis must meet MTCA and be consistent with Previous sampling events	
7																				
8																				
9																				
10																				

Revised Chain of Custody

RELEASED BY: Rob Gilmour DATE: 3/5/04
PRINT NAME: Rob Gilmour FIRM: MCS TIME: 0915
RECEIVED BY: Jon Rollins
PRINT NAME: Jon Rollins FIRM: NCA DATE: 3/5/04 TIME: 1203

RELEASED BY: Jon Rollins DATE: 3/5/04
PRINT NAME: Jon Rollins FIRM: TIME: 1245
RECEIVED BY: Robin Heckman
PRINT NAME: Robin Heckman FIRM: NCA DATE: 3.5.04 TIME: 12:45

ADDITIONAL REMARKS: Do not do VOAs on Trip Blanks. NWTPH-Dx with acid silica gel cleanup and without acid silica gel cleanup. Dissolved PAHs Field Filtered

TEMP: 10.9

COC REV 1.01 PAGE OF

Samples were not @2-6c upon receipt! WTS

APPENDIX D

JUNE 2004 LABORATORY ANALYTICAL RESULTS

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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

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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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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
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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

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

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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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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4F0271-01) Water Sampled: 06/08/04 09:45 Received: 06/08/04 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	"	"	"	"	"	"	
Mineral Oil Range Hydrocarbons	**0.852**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*94.9 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*94.6 %*	*50-150*			"	"	"	"	
MFG-2 (B4F0271-02) Water Sampled: 06/08/04 11:10 Received: 06/08/04 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	"	"	"	"	"	"	
Mineral Oil Range Hydrocarbons	**0.615**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*81.6 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*90.8 %*	*50-150*			"	"	"	"	
MFG-3 (B4F0271-03) Water Sampled: 06/08/04 12:15 Received: 06/08/04 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	"	"	"	"	"	"	
Mineral Oil Range Hydrocarbons	**0.859**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*88.2 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*93.5 %*	*50-150*			"	"	"	"	
MFG-4 (B4F0271-04) Water Sampled: 06/08/04 13:40 Received: 06/08/04 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	"	"	"	"	"	"	
Mineral Oil Range Hydrocarbons	**0.769**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*105 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*97.8 %*	*50-150*			"	"	"	"	

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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 with Acid/Silica Gel Clean-up

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4F0271-01) Water Sampled: 06/08/04 09:45 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	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*98.4 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*93.5 %*	*50-150*			"	"	"	"	
MFG-2 (B4F0271-02) Water Sampled: 06/08/04 11:10 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	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*82.0 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*90.8 %*	*50-150*			"	"	"	"	
MFG-3 (B4F0271-03) Water Sampled: 06/08/04 12:15 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	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*87.8 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*90.8 %*	*50-150*			"	"	"	"	
MFG-4 (B4F0271-04) Water Sampled: 06/08/04 13:40 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	"	"	"	"	"	"	
Lube Oil Range (SGCU)	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP (SGCU)	*102 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane (SGCU)	*101 %*	*50-150*			"	"	"	"	

North Creek Analytical - Bothell

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Amar Gill, Project Manager

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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

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4F0271-01) Water Sampled: 06/08/04 09:45 Received: 06/08/04 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	"	"	4F11011	"	"	"	X
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	"	"	"	"	"	"	X
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	X
C12-C16 Aromatics	**58.6**	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*60.7 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*66.0 %*	*60-140*			"	"	"	"	
MFG-2 (B4F0271-02) Water Sampled: 06/08/04 11:10 Received: 06/08/04 15:40									
Extractable Petroleum Hydrocarbons	ND	500	ug/l	1	[CALC]	06/11/04	07/01/04	WA MTCA-EPH	
C8-C10 Aliphatics	ND	50.0	"	"	4F11011	"	06/25/04	"	X
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	"	"	"	"	07/01/04	"	X
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	X
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*67.1 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*72.9 %*	*60-140*			"	"	*06/25/04*	"	

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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

Extractable Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B4F0271-03) Water Sampled: 06/08/04 12:15 Received: 06/08/04 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	"	"	4F11011	"	"	"	X
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	"	"	"	"	"	"	X
C10-C12 Aromatics	ND	50.0	"	"	"	"	"	"	X
C12-C16 Aromatics	ND	50.0	"	"	"	"	"	"	
C16-C21 Aromatics	ND	50.0	"	"	"	"	"	"	
C21-C34 Aromatics	ND	50.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*63.0 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*75.2 %*	*60-140*			"	"	"	"	
MFG-4 (B4F0271-04) Water Sampled: 06/08/04 13:40 Received: 06/08/04 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	"	"	4F11011	"	"	"	X
C10-C12 Aliphatics	ND	59.5	"	"	"	"	"	"	
C12-C16 Aliphatics	ND	59.5	"	"	"	"	"	"	
C16-C21 Aliphatics	ND	59.5	"	"	"	"	"	"	
C21-C34 Aliphatics	ND	59.5	"	"	"	"	"	"	
C8-C10 Aromatics	ND	59.5	"	"	"	"	"	"	X
C10-C12 Aromatics	ND	59.5	"	"	"	"	"	"	X
C12-C16 Aromatics	ND	59.5	"	"	"	"	"	"	
C16-C21 Aromatics	ND	59.5	"	"	"	"	"	"	
C21-C34 Aromatics	ND	59.5	"	"	"	"	"	"	
Surrogate: o-Terphenyl	*72.3 %*	*60-140*			"	"	"	"	
Surrogate: 1-Chlorooctadecane	*73.3 %*	*60-140*			"	"	"	"	

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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

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4F0271-01RE1) Water Sampled: 06/08/04 09:45 Received: 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	"	"	"	"	"	"	
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	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*24.1 %*	*20-127*			"	"	"	"	
MFG-2 (B4F0271-02RE1) Water Sampled: 06/08/04 11:10 Received: 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	"	"	"	"	"	"	
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	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*25.7 %*	*20-127*			"	"	"	"	

North Creek Analytical - Bothell

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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

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-3 (B4F0271-03RE1) Water Sampled: 06/08/04 12:15 Received: 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	"	"	"	"	"	"	
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	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*31.1 %*	*20-127*			"	"	"	"	
MFG-4 (B4F0271-04RE1) Water Sampled: 06/08/04 13:40 Received: 06/08/04 15:40									
1-Methylnaphthalene	ND	0.100	ug/l	1	4F15044	06/15/04	06/17/04	8270-SIM	
2-Methylnaphthalene	**0.254**	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	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*22.7 %*	*20-127*			"	"	"	"	

North Creek Analytical - Bothell

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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

BTEX by EPA Method 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MFG-1 (B4F0271-01) Water Sampled: 06/08/04 09:45 Received: 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	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	**1.08**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*68-140*				"	"	"	
MFG-2 (B4F0271-02) Water Sampled: 06/08/04 11:10 Received: 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	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*68-140*				"	"	"	
MFG-3 (B4F0271-03) Water Sampled: 06/08/04 12:15 Received: 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	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*102 %*	*68-140*				"	"	"	
MFG-4 (B4F0271-04) Water Sampled: 06/08/04 13:40 Received: 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	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*68-140*				"	"	"	

North Creek Analytical - Bothell

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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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F15014: Prepared 06/15/04 Using EPA 3520C										
Blank (4F15014-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	*0.213*		"	*0.270*		*78.9*	*50-150*			
Surrogate: Octacosane	*0.161*		"	*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*		"	*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*		"	*0.270*		*81.9*	*50-150*			
Matrix Spike (4F15014-MS1)					**Source: B4F0271-01**					
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)					**Source: B4F0271-01**					
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*			

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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 with Acid/Silica Gel Clean-up - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F17018: Prepared 06/15/04 Using EPA 3520C										
Blank (4F17018-BLK1)										
Mineral Oil Range Hydrocarbons	ND	0.500	mg/l							X
Diesel Range (SGCU)	ND	0.250	"							
Lube Oil Range (SGCU)	ND	0.500	"							
Surrogate: 2-FBP (SGCU)	*0.216*		"	*0.270*		*80.0*	*50-150*			
Surrogate: Octacosane (SGCU)	*0.174*		"	*0.195*		*89.2*	*50-150*			
LCS (4F17018-BS1)										
Diesel Range (SGCU)	1.38	0.250	mg/l	2.00		69.0	45-105			
Surrogate: 2-FBP (SGCU)	*0.202*		"	*0.270*		*74.8*	*50-150*			
LCS Dup (4F17018-BSD1)										
Diesel Range (SGCU)	1.62	0.250	mg/l	2.00		81.0	45-105	16.0	50	
Surrogate: 2-FBP (SGCU)	*0.245*		"	*0.270*		*90.7*	*50-150*			

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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

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 EPA 3520C										
Blank (4F11011-BLK1)										
C8-C10 Aliphatics	ND	50.0	ug/l							X
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	"							
C10-C12 Aromatics	ND	50.0	"							
C12-C16 Aromatics	ND	50.0	"							
C16-C21 Aromatics	ND	50.0	"							
C21-C34 Aromatics	ND	50.0	"							
Surrogate: o-Terphenyl	*267*		"	*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	"	100		85.4	70-130			
C12-C16 Aliphatics	145	50.0	"	200		72.5	70-130			
C16-C21 Aliphatics	163	50.0	"	200		81.5	70-130			
C21-C34 Aliphatics	672	50.0	"	700		96.0	70-130			
C8-C10 Aromatics	ND	50.0	"	100			70-130			X
C10-C12 Aromatics	66.1	50.0	"	100		66.1	70-130			X
C12-C16 Aromatics	344	50.0	"	300		115	70-130			
C16-C21 Aromatics	404	50.0	"	500		80.8	70-130			
C21-C34 Aromatics	678	50.0	"	800		84.8	70-130			
Surrogate: o-Terphenyl	*322*		"	*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	
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		25	X

North Creek Analytical - Bothell

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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

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 EPA 3520C										
LCS Dup (4F11011-BSD1)										
C10-C12 Aromatics	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	*387*		"	*400*		*96.8*	*60-140*			
Surrogate: 1-Chlorooctadecane	*332*		"	*400*		*83.0*	*60-140*			
Matrix Spike (4F11011-MS1)					**Source: B4F0271-01**					
C8-C10 Aliphatics	71.3	50.0	ug/l	94.3	36.0	37.4	70-130			X
C10-C12 Aliphatics	102	50.0	"	94.3	31.9	74.3	70-130			
C12-C16 Aliphatics	166	50.0	"	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			
C8-C10 Aromatics	22.2	50.0	"	94.3	ND	23.5	70-130			X
C10-C12 Aromatics	96.9	50.0	"	94.3	20.7	80.8	70-130			
C12-C16 Aromatics	338	50.0	"	283	58.6	98.7	70-130			
C16-C21 Aromatics	363	50.0	"	472	37.7	68.9	70-130			Q-02
C21-C34 Aromatics	432	50.0	"	755	ND	57.2	70-130			Q-02
Surrogate: o-Terphenyl	*268*		"	*377*		*71.1*	*60-140*			
Surrogate: 1-Chlorooctadecane	*336*		"	*377*		*89.1*	*60-140*			
Matrix Spike Dup (4F11011-MSD1)					**Source: B4F0271-01**					
C8-C10 Aliphatics	79.4	50.0	ug/l	94.3	36.0	46.0	70-130	10.7	25	X
C10-C12 Aliphatics	93.8	50.0	"	94.3	31.9	65.6	70-130	8.38	25	Q-02
C12-C16 Aliphatics	141	50.0	"	189	ND	74.6	70-130	16.3	25	
C16-C21 Aliphatics	156	50.0	"	189	23.3	70.2	70-130	16.5	25	
C21-C34 Aliphatics	623	50.0	"	660	ND	94.4	70-130	15.8	25	
C8-C10 Aromatics	ND	50.0	"	94.3	ND		70-130	NA	25	X
C10-C12 Aromatics	90.3	50.0	"	94.3	20.7	73.8	70-130	7.05	25	
C12-C16 Aromatics	327	50.0	"	283	58.6	94.8	70-130	3.31	25	
C16-C21 Aromatics	377	50.0	"	472	37.7	71.9	70-130	3.78	25	
C21-C34 Aromatics	475	50.0	"	755	ND	62.9	70-130	9.48	25	Q-02
Surrogate: o-Terphenyl	*283*		"	*377*		*75.1*	*60-140*			
Surrogate: 1-Chlorooctadecane	*285*		"	*377*		*75.6*	*60-140*			

North Creek Analytical - Bothell

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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

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F15044: Prepared 06/15/04 Using EPA 3520C										
Blank (4F15044-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	"							
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	*45.9*		"	*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	"	10.0		103	35-133			
Benzo (k) fluoranthene	8.60	0.100	"	10.0		86.0	28-127			
Chrysene	10.0	0.100	"	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	"	10.0		84.6	26-122			
Naphthalene	8.28	0.100	"	10.0		82.8	38-120			
Surrogate: p-Terphenyl-d14	*22.2*		"	*50.0*		*44.4*	*20-127*			
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	"	10.0		85.8	33-125	3.56	25	
Benzo (b) fluoranthene	11.5	0.100	"	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	25	
Indeno (1,2,3-cd) pyrene	9.25	0.100	"	10.0		92.5	26-122	8.92	25	
Naphthalene	7.61	0.100	"	10.0		76.1	38-120	8.43	25	
Surrogate: p-Terphenyl-d14	*22.8*		"	*50.0*		*45.6*	*20-127*			

North Creek Analytical - Bothell

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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

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F15006: Prepared 06/15/04 Using EPA 5030B (P/T)										
Blank (4F15006-BLK1)										
Benzene	ND	0.500	ug/l							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (PID)	*48.6*		"	*48.0*		*101*	*68-140*			
LCS (4F15006-BS1)										
Benzene	6.85	0.500	ug/l	6.20		110	80-120			
Toluene	34.2	0.500	"	34.8		98.3	80-120			
Ethylbenzene	8.31	0.500	"	8.35		99.5	80-120			
Xylenes (total)	40.7	1.00	"	40.5		100	80-120			
Surrogate: 4-BFB (PID)	*50.2*		"	*48.0*		*105*	*68-140*			
LCS Dup (4F15006-BSD1)										
Benzene	7.25	0.500	ug/l	6.20		117	80-120	5.67	25	
Toluene	36.0	0.500	"	34.8		103	80-120	5.13	25	
Ethylbenzene	8.78	0.500	"	8.35		105	80-120	5.50	25	
Xylenes (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 (4F15006-MS1)					**Source: B4F0271-01**					
Benzene	7.25	0.500	ug/l	6.20	0.187	114	46-130			
Toluene	35.5	0.500	"	34.8	0.481	101	60-124			
Ethylbenzene	8.65	0.500	"	8.35	0.212	101	56-141			
Xylenes (total)	42.3	1.00	"	40.5	1.08	102	66-132			
Surrogate: 4-BFB (PID)	*49.0*		"	*48.0*		*102*	*68-140*			
Matrix Spike Dup (4F15006-MSD1)					**Source: B4F0271-01**					
Benzene	7.33	0.500	ug/l	6.20	0.187	115	46-130	1.10	40	
Toluene	35.5	0.500	"	34.8	0.481	101	60-124	0.00	40	
Ethylbenzene	8.65	0.500	"	8.35	0.212	101	56-141	0.00	40	
Xylenes (total)	42.0	1.00	"	40.5	1.08	101	66-132	0.712	40	
Surrogate: 4-BFB (PID)	*48.6*		"	*48.0*		*101*	*68-140*			

North Creek Analytical - Bothell

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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

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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3209 Denali St, Anchorage, AK 99503-4030 907-334-9200 FAX 334-9210

CHAIN OF CUSTODY REPORT

Work Order #: BF40271

CLIENT: Maxim Technologies
REPORT TO: Natalie Morrow
ADDRESS: 2436 Dixon
PHONE: 406-543-3045 FAX:
PROJECT NAME:
PROJECT NUMBER:
SAMPLED BY:

INVOICE TO: SAME
P.O. NUMBER:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: ~~10~~ STD. 7 5 4 3 2 1 <1
Petroleum Hydrocarbon Analyses: 5 STD. 4 3 2 1 <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges

PRESERVATIVE / REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NWTPH-Dx	NWTPH-Dx with Acid Silica gel cleanup	EPH	Dissolved PAHs	BTEX		MS/MSD							MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	MFG-1	6/8/04 0945	X	X	X	X	X		+						-01			See AMRR Re:	
2	MFG-2	110	X	X	X	X	X								.02			Dissolved PAHs volume	
3	MFG-3	1215	X	X	X	X	X								.03			Note: date on MFG-1 bottles have 6/7/04 date - should be 6/8/04	
4	MFG-4	1340	X	X	X	X	X								-04				
5																			
6																			
7																		All analytes, reporting limits, etc	
8																		Must meet MTCA & Be	
9																		Consistent with prior	
10																		Sampling quarters for 2003-2004	

RELEASED BY: Natalie Morrow
PRINT NAME: [signature]
FIRM: MAXIM
DATE: 6/8/04
TIME: 1540
RECEIVED BY: Cathy Gamble
PRINT NAME: Cathy Gamble
FIRM: NCA
DATE: 6/8/04
TIME: 15:40

RELEASED BY:
PRINT NAME:
FIRM:
DATE:
TIME:
RECEIVED BY:
PRINT NAME:
FIRM:
DATE:
TIME:

ADDITIONAL REMARKS:

COC REV 1/01

TEMP: 0.1°

PAGE OF

Samples were not @2-6c upon receipt!

w/o

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

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.
b. Check columns at left for Pass/Fail detail.

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters				Toxicity Parameters		Current Condition			Adjusted Condition			
		ABI	AF	ABS_d	GI	RfD_o	CPF_o	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm^2-day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction														
AL_EC >5-6	0	1	0.2	0.03	0.8	5.7					0.00E+00			
AL_EC >6-8	0	1	0.2	0.03	0.8	5.7					0.00E+00			
AL_EC >8-10	0	1	0.2	0.03	0.8	0.03					0.00E+00			
AL_EC >10-12	23.2	1	0.2	0.03	0.8	0.03		5.32E-04			9.90E+00	2.27E-04		
AL_EC >12-16	26.9	1	0.2	0.1	0.5	0.03		1.35E-03			1.15E+01	5.74E-04		
AL_EC >16-21	22.9	1	0.2	0.1	0.5	2		1.72E-05			9.77E+00	7.33E-06		
AL_EC >21-34	8.48	1	0.2	0.1	0.5	2		6.36E-06			3.62E+00	2.71E-06		
AR_EC >8-10	0	1	0.2	0.03	0.8	0.05					0.00E+00			
AR_EC >10-12	0	1	0.2	0.03	0.8	0.05					0.00E+00			
AR_EC >12-16	0	1	0.2	0.1	0.5	0.05					0.00E+00			
AR_EC >16-21	37.7	1	0.2	0.1	0.5	0.03		1.89E-03			1.61E+01	8.04E-04		
AR_EC >21-34	159	1	0.2	0.1	0.5	0.03		7.95E-03			6.78E+01	3.39E-03		
Benzene	0	1	0.2	0.0005	0.95	0.003	0.055		0.00E+00		0.00E+00		0.00E+00	
Toluene	0	1	0.2	0.03	1	0.2					0.00E+00			
Ethylbenzene	0	1	0.2	0.03	0.92	0.1					0.00E+00			
Total Xylenes	0	1	0.2	0.03	0.9	2					0.00E+00			
Total Naphthalenes	0.21	1	0.2	0.13	0.89	0.02		1.29E-05			8.96E-02	5.51E-06		
n-Hexane	0	1	0.2	0.03	0.8	0.06					0.00E+00	0.00E+00		
MTBE	0										0.00E+00			
Ethylene Dibromide (EDB)	0	1	0.2	0.03	0.8	0.000057	85		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0	1	0.2	0.03	0.8	0.03	0.091		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0.27	1	0.2	0.13	0.89		0.73		6.47E-08		1.15E-01		2.76E-08	
Benzo(b)fluoranthene	0.64	1	0.2	0.13	0.89		0.73		1.53E-07		2.73E-01		6.54E-08	
Benzo(k)fluoranthene	0.18	1	0.2	0.13	0.89		0.73		4.31E-08		7.68E-02		1.84E-08	
Benzo(a)pyrene	0.51	1	0.2	0.13	0.89		7.3		1.22E-06		2.18E-01		5.21E-07	
Chrysene	0.34	1	0.2	0.13	0.89		0.073		8.14E-09		1.45E-01		3.47E-09	
Dibenzo(a,h)anthracene	0.56	1	0.2	0.13	0.89		2.92		5.36E-07		2.39E-01		2.29E-07	
Indeno(1,2,3-cd)pyrene	0.39	1	0.2	0.13	0.89		0.73		9.34E-08		1.66E-01		3.98E-08	
Sum	**281.28**							1.17E-02	2.12E-06		1.20E+02	5.01E-03	9.05E-07	

Current Condition

TPH, mg/kg= 281.280
HI= 1.175E-02
Cancer RISK= 2.121E-06
Pass or Fail? Pass

Adjusted Condition

TPH, mg/kg= 120.000
HI= 5.012E-03
Cancer RISK= 9.047E-07
Pass or Fail? Pass

Exposure Parameters		
for Non-carcinogens		Units
Average Body Weight, ABW	70	kg
Averaging Time, AT	20	yr
Exposure Frequency, EF	0.7	unitless
Exposure Duration, ED	20	year
Soil Ingestion Rate, SIR	50	mg/day
Dermal Surface Area, SA	2500	cm^2
for Carcinogens		
Parameters for Carcinogens		unit
Averaging time, AT_C	75	yr

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

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.
b. Check columns at left for Pass/Fail detail.

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters				Toxicity Parameters		Current Condition			Adjusted Condition			
		AB1	AF	ABS_d	GI	RfD_o	CPF_o	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm²-day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction														
AL_EC >5-6	0	1	0.2	0.03	0.8	5.7					0.00E+00			
AL_EC >6-8	0	1	0.2	0.03	0.8	5.7					0.00E+00			
AL_EC >8-10	0	1	0.2	0.03	0.8	0.03					0.00E+00			
AL_EC >10-12	23.2	1	0.2	0.03	0.8	0.03		5.32E-04			1.88E+03	4.30E-02		
AL_EC >12-16	26.9	1	0.2	0.1	0.5	0.03		1.35E-03			2.18E+03	1.09E-01		
AL_EC >16-21	100	1	0.2	0.1	0.5	2		7.50E-05			8.09E+03	6.07E-03		
AL_EC >21-34	369	1	0.2	0.1	0.5	2		2.77E-04			2.98E+04	2.24E-02		
AR_EC >8-10	0	1	0.2	0.03	0.8	0.05					0.00E+00			
AR_EC >10-12	0	1	0.2	0.03	0.8	0.05					0.00E+00			
AR_EC >12-16	0	1	0.2	0.1	0.5	0.05					0.00E+00			
AR_EC >16-21	52.4	1	0.2	0.1	0.5	0.03		2.62E-03			4.24E+03	2.12E-01		
AR_EC >21-34	204	1	0.2	0.1	0.5	0.03		1.02E-02			1.65E+04	8.25E-01		
Benzene	0	1	0.2	0.0005	0.95	0.003	0.055		0.00E+00		0.00E+00		0.00E+00	
Toluene	0	1	0.2	0.03	1	0.2					0.00E+00			
Ethylbenzene	0	1	0.2	0.03	0.92	0.1					0.00E+00			
Total Xylenes	0	1	0.2	0.03	0.9	2					0.00E+00			
Total Naphthalenes	0.7	1	0.2	0.13	0.89	0.02		4.31E-05			5.66E+01	3.48E-03		
n-Hexane	0	1	0.2	0.03	0.8	0.06					0.00E+00	0.00E+00		
MTBE	0										0.00E+00			
Ethylene Dibromide (EDB)	0	1	0.2	0.03	0.8	0.000057	85		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0	1	0.2	0.03	0.8	0.03	0.091		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	4.2	1	0.2	0.13	0.89		0.73		1.01E-06		3.40E+02		8.14E-05	
Benzo(b)fluoranthene	4.4	1	0.2	0.13	0.89		0.73		1.05E-06		3.56E+02		8.52E-05	
Benzo(k)fluoranthene	1.3	1	0.2	0.13	0.89		0.73		3.11E-07		1.05E+02		2.52E-05	
Benzo(a)pyrene	4.9	1	0.2	0.13	0.89		7.3		1.17E-05		3.96E+02		9.49E-04	
Chrysene	4.4	1	0.2	0.13	0.89		0.073		1.05E-07		3.56E+02		8.52E-06	
Dibenzo(a,h)anthracene	0.56	1	0.2	0.13	0.89		2.92		5.36E-07		4.53E+01		4.34E-05	
Indeno(1,2,3-cd)pyrene	2.7	1	0.2	0.13	0.89		0.73		6.47E-07		2.18E+02		5.23E-05	
Sum	**798.66**							1.51E-02	1.54E-05	Fail	6.46E+04	1.22E+00	1.25E-03	Fail

Current Condition

TPH, mg/kg= 798.660
HI= 1.509E-02
Cancer RISK= 1.540E-05
Pass or Fail? Fail

Adjusted Condition

TPH, mg/kg= 64592.864
HI= 1.221E+00
Cancer RISK= 1.245E-03
Pass or Fail? Fail

Exposure Parameters		
for Non-carcinogens		Units
Average Body Weight, ABW	70	kg
Averaging Time, AT	20	yr
Exposure Frequency, EF	0.7	unitless
Exposure Duration, ED	20	year
Soil Ingestion Rate, SIR	50	mg/day
Dermal Surface Area, SA	2500	cm²
for Carcinogens		
Parameters for Carcinogens		unit
Averaging time, AT_C	75	yr

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 adjusted condition at a specified TPH concentration.
b. Check columns at left for Pass/Fail detail.

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters				Toxicity Parameters		Current Condition			Adjusted Condition			
		ABI	AF	ABS_d	GI	RfD_o	CPF_o	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm²-day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction														
AL_EC >5-6	0	1	0.2	0.03	0.8	5.7					0.00E+00			
AL_EC >6-8	0	1	0.2	0.03	0.8	5.7					0.00E+00			
AL_EC >8-10	0	1	0.2	0.03	0.8	0.03					0.00E+00			
AL_EC >10-12	7.01	1	0.2	0.03	0.8	0.03		1.61E-04			3.22E+00	7.37E-05		
AL_EC >12-16	8.41	1	0.2	0.1	0.5	0.03		4.21E-04			3.86E+00	1.93E-04		
AL_EC >16-21	26.6	1	0.2	0.1	0.5	2		2.00E-05			1.22E+01	9.16E-06		
AL_EC >21-34	119	1	0.2	0.1	0.5	2		8.93E-05			5.46E+01	4.10E-05		
AR_EC >8-10	0	1	0.2	0.03	0.8	0.05					0.00E+00			
AR_EC >10-12	0	1	0.2	0.03	0.8	0.05					0.00E+00			
AR_EC >12-16	0	1	0.2	0.1	0.5	0.05					0.00E+00			
AR_EC >16-21	20.5	1	0.2	0.1	0.5	0.03		1.03E-03			9.41E+00	4.71E-04		
AR_EC >21-34	74.7	1	0.2	0.1	0.5	0.03		3.74E-03			3.43E+01	1.71E-03		
Benzene	0	1	0.2	0.0005	0.95	0.003	0.055		0.00E+00		0.00E+00		0.00E+00	
Toluene	0	1	0.2	0.03	1	0.2					0.00E+00			
Ethylbenzene	0	1	0.2	0.03	0.92	0.1					0.00E+00			
Total Xylenes	0	1	0.2	0.03	0.9	2					0.00E+00			
Total Naphthalenes	0.194	1	0.2	0.13	0.89	0.02		1.19E-05			8.91E-02	5.48E-06		
n-Hexane	0	1	0.2	0.03	0.8	0.06					0.00E+00	0.00E+00		
MTBE	0										0.00E+00			
Ethylene Dibromide (EDB)	0	1	0.2	0.03	0.8	0.000057	85		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0	1	0.2	0.03	0.8	0.03	0.091		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0.9	1	0.2	0.13	0.89		0.73		2.16E-07		4.13E-01		9.90E-08	
Benzo(b)fluoranthene	1	1	0.2	0.13	0.89		0.73		2.40E-07		4.59E-01		1.10E-07	
Benzo(k)fluoranthene	0.3	1	0.2	0.13	0.89		0.73		7.19E-08		1.38E-01		3.30E-08	
Benzo(a)pyrene	1.1	1	0.2	0.13	0.89		7.3		2.63E-06		5.05E-01		1.21E-06	
Chrysene	0.95	1	0.2	0.13	0.89		0.073		2.28E-08		4.36E-01		1.04E-08	
Dibenzo(a,h)anthracene	0.12	1	0.2	0.13	0.89		2.92		1.15E-07		5.51E-02		5.28E-08	
Indeno(1,2,3-cd)pyrene	0.62	1	0.2	0.13	0.89		0.73		1.48E-07		2.85E-01		6.82E-08	
Sum	**261.404**							5.46E-03	3.45E-06		1.20E+02	2.51E-03	1.58E-06	

Current Condition

TPH, mg/kg= 261.404
HI= 5.462E-03
Cancer RISK= 3.448E-06
Pass or Fail? Pass

Adjusted Condition

TPH, mg/kg= 120.000
HI= 2.508E-03
Cancer RISK= 1.583E-06
Pass or Fail? Pass

Exposure Parameters for Non-carcinogens		Units
Average Body Weight, ABW	70	kg
Averaging Time, AT	20	yr
Exposure Frequency, EF	0.7	unitless
Exposure Duration, ED	20	year
Soil Ingestion Rate, SIR	50	mg/day
Dermal Surface Area, SA	2500	cm²
for Carcinogens		
Parameters for Carcinogens		unit
Averaging time, AT_C	75	yr