Remedial Action Report
Sound Transit Lakewood Station
Lakewood, Washington

September 19, 2008

Submitted To:
Ms. Monica Moravec
KPFF Consulting Engineers
1601 5th Avenue, Suite 1600
Seattle, Washington 98101

By:
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, Washington 98103

21-1-12180-009

EXECUTIVE SUMMARY

Shannon & Wilson, Inc. has completed this report documenting site assessment and cleanup activities conducted at the Sound Transit Lakewood Station. The multi-modal station is located on three parcels, formerly known as the Kwang, Lakeview Auto, and Sweeting properties, in Lakewood, Washington. The facility includes a commuter rail station, a parking garage, and a transit center. During construction of the station, Galloway Environmental, Inc. (GEI), observed remedial excavation activities and collected characterization and confirmation soil samples at the site. Station construction was completed in September 2008.

Prior to and during station design, site assessment activities confirmed the presence of near-surface soil contamination within the station footprint. Contaminants of concern exceeding Model Toxics Control Act (MTCA) Method A industrial criteria included: petroleum hydrocarbons (diesel- and oil-ranges), metals (arsenic, cadmium, and lead), and benzene. To meet the selected criteria, the remedial design for the site included: field screening of soils, shallow excavation of soil (up to 3 feet below ground surface), and analysis of confirmation samples for contaminants of concern. No evidence of deeper soil or groundwater contamination was detected during site assessment activities.

Remedial activities and an evaluation of data by statistical comparison of collected confirmation soil samples to the cleanup levels (as allowed per Washington Administrative Code [WAC] 173-340-740 and WAC 173-340-410), indicate the site meets MTCA Method A unrestricted criteria. Construction of the Lakewood Station resulted in the removal and offsite disposal of approximately 325.13 tons of Washington State Dangerous Waste, 4,667.70 tons of problem waste soil, and two previously unidentified underground storage tanks (USTs). Dangerous Waste soils have been removed from the site. It also resulted in the majority of the station footprint to be either covered with asphalt, pavement, a transit station, or a parking garage. Because source material has been removed to achieve cleanup levels, and the surface infiltration has been effectively minimized, no future impacts to groundwater are expected. The completed cleanup action is protective of human health and the environment. Based on these conditions, we conclude that no further remedial action appears warranted. We recommend that a No Further Action designation be applied to the site.

TABLE OF CONTENTS

LIST OF TABLES

Table No.

LIST OF FIGURES

Figure No.

LIST OF APPENDICES

Appendix

REMEDIAL ACTION REPORT
SOUND TRANSIT LAKEWOOD STATION
LAKEWOOD, WASHINGTON

1.0 INTRODUCTION

This report describes the remedial activities conducted at the Sound Transit Lakewood Station. Specifically, this report documents our review of contractor-completed remedial activities, as well as summarizes the services completed by Shannon & Wilson, Inc. The purpose of this report is to provide final documentation for submittal to the Washington Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP).

The Lakewood Station property is located at the 11500 Block Pacific Highway SW in Lakewood, Washington (Figure 1). The Lakewood Station includes a commuter rail station, a parking garage, and a transit center, and was recently constructed by PCL Construction Services, Inc. (PCL). PCL's excavation subcontractor, McCann Excavating, Inc. (MCE), subcontracted Galloway Environmental, Inc. (GEI) to provide remedial oversight services required during the construction project. Shannon & Wilson, Inc. prepared remediation plans and specifications; observed characterization, removal, and disposal of Washington State Dangerous Waste (Dangerous Waste); and reviewed contractor submittals as directed by KPFF Consulting Engineers (KPFF) on behalf of Sound Transit. URS Corporation (URS) was retained by Sound Transit for construction management of station construction.

This report was prepared in general accordance with our proposal dated October 15, 2007, and our revised cost estimate dated November 26, 2007, which was authorized by Ms. Monica Moravec of KPFF on December 2, 2007.

2.0 BACKGROUND

2.1 Site Description

Prior to acquisition by Sound Transit, the Lakeview Station property consisted of three separate lots, which measure approximately 1,250 feet in the north-south direction, and 120 feet in the east-west direction (Figure 2). The northernmost lot (Sweeting property) was formerly

developed with a roadway and was most recently vacant. Since the late 1960s, the central (Lakeview Auto property) and southernmost (Kwang property) lots were utilized by auto-related businesses. Several structures were present on the Lakeview Auto and Kwang properties. These structures were demolished during station construction.

A 100-foot-wide railroad right-of-way (ROW) with a single set of tracks is located adjacent to the north/northwest of the property. A chain-link fence formerly separated the subject site from the ROW. Properties on the opposite side of the railroad ROW are a mix of commercial, residential, and multi-unit apartment buildings. Pacific Highway SW borders the property to the south/southeast. A BNSF Railway (BNSF) ROW is located to the northeast, and commercial properties are located to the southwest.

2.2 Geologic and Hydrogeologic Setting

Test pits excavated at the station generally encountered about 1 foot of slightly silty to silty, gravelly sand, grading to dense, slightly silty to clean, sandy gravel with occasional to numerous cobbles (Steilacoom Gravel) to about 5 feet below ground surface (bgs) (Shannon & Wilson, Inc., 2006e, 2006f, 2006g). Moderate soil staining was observed in the upper 6 to 18 inches. Site borings generally encountered dense, slightly silty to clean, sandy gravel with occasional to numerous cobbles (Steilacoom Gravel) down to 26 feet bgs (URS, 2003c, 2003d, 2003e).

Groundwater flow directions are typically westward or northwestward toward Puget Sound. However, local variations in groundwater flow direction are common, especially where groundwater pumping has disrupted the natural flow direction. In some cases, the groundwater flow in the upper aquifer has been reported to vary by 360 degrees, depending on the season and the status of nearby groundwater extraction. Previous site borings encountered groundwater between 15 to 21 feet bgs in May and November 2003 (URS, 2003c, 2003d, 2003e; Shannon & Wilson, Inc., 2004).

2.3 Previous Studies

Environmental studies were completed at the three station properties, including Phase I Environmental Site Assessments (ESAs), hazardous building material surveys, and soil sampling studies. For all three properties, recognized environmental conditions (RECs) were discovered during the Phase I ESAs. Follow-up sampling confirmed near-surface soil contamination within

the station footprint. No deeper soil or groundwater contamination was discovered. The results of these previous studies are summarized by property under Section 3.0.

2.4 Site Development

The Lakewood Station will serve as the south terminus of the Sounder Commuter Rail system (KPFF, 2005), and will be multi-modal, serving express bus, train, and local bus service along Pacific Highway SW. The facility includes a structured parking lot at the northern end of the station, which serves as a park-and-ride. The transit center is located at the south end of the site and includes bus and train platforms, as well as a pull-out bus stop along Pacific Highway SW. A pedestrian plaza serves as a transition between the transit center and the parking garage.

Much of the site is paved with sidewalks and thick concrete slabs to support pedestrian and bus traffic. Stormwater infiltration galleries (approximately 7 feet bgs) are located at the northern and southern ends of the property, and are covered by minor landscaping. Limited plantings (trees and shrub beds) are located within the transit platform center.

Station construction generally required demolition of existing buildings, clearing and grubbing (where applicable), and site excavation. Site excavation was limited to minor grading, excavation for garage footings and slabs-on-grade, utility installation, and excavation for the stormwater infiltration galleries.

2.5 Remedial Design

The remedial design was developed based on the type of contaminants and their location (near-surface soil), the absence of contaminants of potential concern in groundwater, and proposed site construction. Briefly, proposed cleanup actions, included:

- Excavation to Model Toxics Control Act (MTCA) Method A Industrial Criteria
- Capping and/or In Situ Remediation of remaining contaminated soil (if needed)
- Groundwater monitoring (if needed)

Further information regarding the background of remedial design development, selection of industrial cleanup criteria, and discussion on application of areawide contamination is presented in site Cleanup Action Plans (CAPs) and construction contingency plan (Shannon & Wilson,

Inc., 2006a, 2006b, 2006c). Specific requirements are outlined in the project plans and specifications (Sound Transit and PCL, 2007a, 2007b).

3.0 2007 SITE ACTIVITIES

The site characterization and cleanup activities conducted at the site in 2007 are described below. Documents reviewed in preparation of this report include: field notes and reports prepared by GEI and provided to Shannon & Wilson by KPFF and URS, Shannon & Wilson-prepared field notes and correspondence, and disposal receipts provided by Sound Transit and the LRI Landfill.

Prior to conducting the cleanup and assessment activities, GEI prepared miscellaneous planning documents, as required by the contract specifications (GEI, 2007b, 2007c, and 2007d; and Sound Transit and PCL, 2007). The plans were reviewed by PCL and Shannon & Wilson prior to implementation of the site activities. The plans were found to be in general conformance with design intent.

Initially site activities began on the former Sweeting property. Remedial work followed on the former Kwang and Lakeview Auto properties. During the course of site excavation, additional areas of contaminated soil and Dangerous Waste levels of cadmium and lead were discovered on the Kwang and Lakeview Auto properties. Site activities and data collected by GEI are summarized in their Chemical Data Final Report (GEI, 2007h). To supplement the data report, a brief description of contractor activities completed at each property is provided below, along with work observed by Shannon & Wilson, Inc.

Analytical laboratory reports for sampling completed by Shannon & Wilson, Inc. are provided in Appendices A and B. Dangerous Waste manifests and LRI Landfill receipts are included in Appendices C and D, respectively.

3.1 Sweeting Property

3.1.1 Pre-construction Data

Near-surface soil samples were collected at the Sweeting property in 2003 to evaluate RECs identified during a Phase I ESA (URS, 2003e, 2003f). One elevated concentration of oil-range hydrocarbons and one elevated concentration of arsenic were detected in two soil piles observed on the property in 2003. During subsequent sampling by Shannon & Wilson in 2005,

the piles were not discernable because of heavy vegetation (Shannon & Wilson, Inc., 2006e). A near-surface soil sample collected by Shannon & Wilson from the southern portion of the property contained 22 milligrams per kilogram (mg/kg) arsenic, which exceeds the MTCA Method A Unrestricted Cleanup Criterion of 20 mg/kg. Based on these results, Shannon & Wilson prepared a construction contingency plan to provide guidance on cleanup, sampling and analysis, and disposal of contaminated soils, if required, during construction of the Lakewood Station (Shannon & Wilson, 2006a).

3.1.2 Near-surface Soil Field Screening

The contract documents required the field screening of the near-surface soil at the Sweeting property (Sound Transit and PCL, 2007a, 2007b). On April 13, 2007, GEI observed the excavation of 19 test pits (Figure 3) about 1 to 2 feet deep across the property (GEI, 2007e). GEI did not observe visual or olfactory evidence of contamination, although pieces of asphalt and other debris were documented in the test pits. Soil samples collected from the test pits were field screened with a photoionization detector (PID), which did not indicate the presence of volatile organic compounds (VOCs). Based on the screening results, no analytical samples were collected from the test pits and no cleanup actions were conducted. However, near-surface soil removed from the property was stockpiled for later characterization and disposal (Paragraph 3.1.3).

3.1.3 Stockpile Sampling

On August 27, 2007, GEI collected seven soil samples (SP-1 through SP-7) from an approximately 750 cubic yard stockpile located on the Sweeting property (GEI, 2007i). The soil stockpile was generated during construction activities, although the exact source could not be determined based upon the available documentation. Stockpile samples were analyzed for petroleum hydrocarbons and Resource Conservation Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). Only one of the seven samples contained analyte concentrations exceeding cleanup criteria. Sample SP-2 contained 2,100 mg/kg lube oil. The laboratory results are summarized in Table 1.

The soil in the vicinity of Sample SP-2 was segregated from the stockpile by MCE to reduce the quantity requiring disposal at a permitted facility. About 20 to 30 cubic yards of material was excavated and placed southwest of the original stockpile. On November 5, 2007,

Shannon & Wilson collected three soil samples from the limits of the excavated material to evaluate the removal of the contaminated portion of the stockpile. The samples were analyzed for diesel-range hydrocarbons and lead. The samples did not contain concentrations of lead or diesel-range hydrocarbons in excess of the MTCA Method A Unrestricted Cleanup Levels. The segregated portion of the stockpile (65.33 tons) was transported to LRI Landfill for disposal. According to URS, the remainder of the stockpile was transported to a local, private site for use as fill. Analytical laboratory reports from the November 5, 2007, sampling event are contained in Appendix A.

3.1.4 Summary of Sweeting Property Activities

Prior to site work, site soils were screened in 19 test pits across the property. No field indication of contamination was observed. A temporary stockpile was created on the property during construction. Characterization sampling of the stockpile found elevated levels of petroleum. The contaminated portion of the pile was disposed of at LRI Landfill and the remainder was taken to a private site for use as fill. Construction of the parking garage is essentially complete and covers a majority of the Sweeting property. No further action appears warranted on this property.

3.2 Lakeview Auto Property

3.2.1 Pre-construction Data

In 2003, soil and groundwater sampling was conducted at the Lakeview Auto property to evaluate RECs identified during a Phase I ESA (URS, 2003b, 2003c). Additional soil sampling was conducted in 2005 to further evaluate site conditions (Shannon & Wilson, 2006f). During these site investigations, concentrations of diesel-range hydrocarbons, oil-range hydrocarbons, arsenic, and lead in excess of the MTCA Unrestricted Cleanup Levels were encountered in the near-surface soil on the northeastern end the property. The contamination appeared to be the result of local surface releases. To address this contamination, the project plans and specifications required the removal and disposal of the top 1 foot of soil in this area with subsequent confirmation sampling by the contractor (Sound Transit and PCL, 2007a, 2007b).

A parts storage building and an auto disassembly shed were formerly located on the Lakeview Auto property (Figure 4). A hazardous building material survey was performed for the two buildings on site (URS, 2003b). Test results indicated that white roof sealant under the

corrugated metal roof on the main building, and silver paint over the black mastic on the garage/shop building roof were asbestos-containing materials (ACM). ACM abatement and demolition of the two structures were completed as part of station construction.

Project documents also required the off-site disposal of an approximately 500-cubic yard impacted soil stockpile, located on the northwestern portion of the property (Figure 4). The stockpile originated from utility work completed along Pacific Highway SW.

The Lakeview Auto property is shown in Figure 4 and a detailed Dangerous Waste excavation plan is included as Figure 5.

3.2.2 Dangerous Waste Discovery and Cleanup

To facilitate disposal of site soils, GEI submitted previous site sampling data to Tacoma Pierce County Health Department (TPCHD) for acceptance to LRI Landfill. These data included two samples collected by URS in 2003, which contained lead at 1,700 and 1,800 mg/kg. Prior to accepting any contaminated soil from the subject property TPCHD required additional sampling in the vicinity of these two samples.

On March 21, 2007, GEI collected four samples each in the vicinity of the two former sample locations (GEI, 2007a). In the eight samples, lead ranged from 150 to 11,000 mg/kg, exceeding the MTCA Method A Unrestricted Cleanup Level of 250 mg/kg. Six of the eight samples were further analyzed for toxicity characteristic leaching procedure (TCLP) lead. Two of the samples (LA-S1-SW and LA-S3-SW) exceeded the Dangerous Waste criterion of 5 milligrams per liter (mg/L) for lead. (Sample LA-S1-SW is located in front of the former disassembly building; sample LA-S3-SW is located near the southwest corner of the former storage container [Figure 4]). As a result, the TPCHD would not allow disposal of any soil from the Lakeview Auto property at the LRI Landfill without removal of the Dangerous Waste. The sample results are summarized in Table 2.

Following demolition of the former auto disassembly building, on May 1, 2007, GEI collected ten additional samples (DW-1 through DW-10) from the vicinity of LA-S1-SW and LA-S3-SW to evaluate the extent of Dangerous Waste. Three samples (DW-7, DW-8, and DW-9) contained concentrations of TCLP lead (5.0 to 85 mg/L) in excess of the Dangerous Waste criterion. Between May 8 and 15, 2007, an additional 40 samples (DW-11 through

DW-50) were collected from this area for further delineation. GEI collected samples on a grid system with approximately 10-foot centers (Figure 5). Nineteen samples were analyzed for total lead and TCLP lead if the samples contained greater than 250 mg/kg total lead. Table 2 summarizes the analytical data.

Based on these results, two areas of Dangerous Waste soil were delineated, excavated, and transported to Chemical Waste Management of the Northwest, Inc. (Chem Waste) of Arlington, Oregon, for disposal (Figure 5). Based on weight receipts provided by Sound Transit, 154.04 tons of Dangerous Waste soil were removed from the Lakeview Auto property. Concrete, wood, and asphalt were encountered within the excavated material.

The grid sample results were used to define the lateral extent of contamination. Following removal of the Dangerous Waste soil, two additional confirmation samples (DW-51 and DW-52) were collected from the base of the excavation. The samples contained a maximum of 30 mg/kg lead, which is less than its unrestricted land use criterion.

3.2.3 Underground Storage Tank (UST) Removal

On May 16, 2007, an approximately 300-gallon UST was encountered west of one of the Dangerous Waste soil excavations, building beneath the former auto disassembly shed (GEI, 2007f) (Figure 5). The tank was decommissioned by GEI on May 18, 2007. The tank was empty and the former contents of the tank are unknown. Several holes were noted in the bottom of the tank. The tank was about 3 feet in diameter, 5 feet long, and was located about 2 feet bgs. Following removal of the tank, three analytical samples were collected from the limits of the excavation. The samples were analyzed for Northwest Total Petroleum Hydrocarbon-Hydrocarbon Identification (NWTPH-HCID) with follow-up testing for diesel- and oil-range hydrocarbons by NWTPH as diesel-extended (NWTPH-Dx). The three samples contained a maximum concentration of 190 mg/kg lube oil, which is less than the applicable MTCA Method A Unrestricted Cleanup Level. No additional analytical testing was conducted. Based on the data provided, closure of this tank was completed in general accordance with state regulations.

3.2.4 Stockpile Removal

In August 2006, Shannon & Wilson personnel sampled an approximately 500-cubic yard stockpile located along the western portion of the property (Shannon & Wilson, 2006d) (Figure 4). Soil samples collected from the stockpile contained concentrations of petroleum

hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), and metals at levels below MTCA Method A Unrestricted Cleanup Levels. The contract documents required off-site disposal of the stockpile (Sound Transit and PCL, 2007a, 2007b).

On May 24, 2007, the stockpile was transported to the LRI Landfill for disposal. According to weight receipts, the stockpile consisted of 651.10 tons (about 490 cubic yards) of material. Excavation of the underlying surface soil is discussed in Section 3.2.5.

3.2.5 Problem Waste Cleanup

The excavation of soil impacted with MTCA levels of lead, cadmium, and petroleum began on May 25, 2007, and was completed on June 22, 2007. Initially, an area of about 16,100 square feet (115 feet by 140 feet) was excavated to about 1 foot bgs. Following the excavation activities, nine samples (samples LA-14 through LA-22, Figure 4) were collected from the base and sidewalls of the excavation. The samples were analyzed for petroleum, VOCs, arsenic, cadmium, chromium, and lead. Four samples (LA-16 through LA-19) collected from the base of the excavation contained concentrations of lube oil, lead, and/or cadmium in excess of the MTCA Method A Industrial Cleanup Criteria. Two soil samples, LA-14 and LA-15, contained lead less than the industrial criterion, but just slightly exceeding its unrestricted criterion of 250 mg/kg. The detected lead concentrations were 290 and 270 mg/kg, respectively. The analytical results are summarized in Tables 3, 4, and 5.

To address the concentrations exceeding industrial criteria detected in samples LA-16 through LA-19, an additional area of about 6,600-square feet and an additional 1 foot in depth was excavated (Figure 4). Following the excavation activities, five confirmation samples (LA-25 through LA-30) were collected from the excavation's base and sidewalls. These samples did not contain concentrations in excess of the MTCA Method A Unrestricted Cleanup Levels. Based on LRI Landfill weight receipts, 1,413.04 tons of problem waste soil was removed from the Lakeview Auto property.

The extent of the problem waste excavation is shown in Figure 4.

3.2.6 Summary of Lakeview Auto Property Activities

On the Lakeview Auto property, stockpiled soils and problem waste soils were excavated and disposed of at LRI Landfill. During remedial activities, Dangerous Waste and a UST were

discovered on site. Dangerous Waste soils were disposed of at Chem Waste and the UST was removed in accordance with state regulations. Remedial activities appear to have been completed in accordance with project documents. Thirteen confirmation samples were collected from the property. Soil concentrations in all 13 are below industrial cleanup criteria. Only two of the 13 samples contain concentrations exceeding unrestricted criteria, lead at 290 and 270 mg/kg. Construction of the north half of the transit center and the pedestrian plaza is complete and covers these two areas. No further remedial action appears warranted on the Lakeview Auto property.

3.3 Kwang Property

3.3.1 Pre-construction Data

An automobile repair building and trailer/office building were formerly located on the Kwang property. The trailer was removed by 2005. Two potential ACMs were identified on the repair building – a fire door and tar patch on the roof. ACM abatement and demolition of the auto repair building were completed as part of station construction.

In 2003, soil and groundwater sampling was conducted at the site to evaluate RECs identified during a Phase I ESA (URS, 2003a, 2003d). Additional sampling was conducted by Shannon & Wilson in 2005 to further evaluate the contamination identified in 2003 (Shannon & Wilson, 2006g). During the site investigations, concentrations of oil-range hydrocarbons, benzene, and cadmium in excess of the MTCA Unrestricted Cleanup Levels were encountered in near-surface soil samples on the property. Based on location and distribution, the contamination was likely the result of localized surface releases.

To address this contamination, the project documents required the removal and disposal of the top 1 foot of soil across the property with subsequent confirmation sampling (Sound Transit and PCL, 2007a, 2007b). The project documents also required the removal of an additional 2 feet of soil from an approximately 30- by 40-foot area located near the central portion of the property to address an area of petroleum contamination.

The Kwang property is shown in Figure 6 and a detailed excavation plan is included as Figure 7.

3.3.2 Initial Problem Waste Cleanup

Between April 16 and 18, 2007, MCE excavated the areas outlined in the project documents. According to LRI Landfill weight receipts, 2,048.42 tons were excavated from the property. During excavation, two potential areas of concern, a "burn pit" and an area exhibiting an oil odor, were uncovered during the required excavation activities. The possible "burn pit" was observed near the west corner of the property, and an oil odor was observed near the central portion of the property. On April 18, 2007, following removal of the near-surface soil, GEI collected 13 samples (LA-1 through LA-13, Figure 6) from the base and sidewalls of the excavation to confirm removal. The samples were analyzed for petroleum hydrocarbons, PAHs, VOCs, arsenic, cadmium, and lead. With the exception of samples LA-1 and LA-4, the samples did not contain contaminants in excess of unrestricted cleanup levels. The analytical results are summarized in Tables 6, 7, and 8.

Sample LA-1 was collected from the "burn pit" and contained concentrations of arsenic (22 mg/kg), cadmium (72 mg/kg), and lead (3,600 mg/kg) in excess of the MTCA Method A Unrestricted Cleanup Standards. The sample also contained 12 mg/L TCLP lead, which classified the material as a Dangerous Waste. Cleanup of Dangerous Waste soil in this area is discussed in Paragraph 3.3.3. Sample LA-4, collected on April 18, 2007, contained 19,000 mg/kg lube oil. Cleanup of this exceedance is summarized in Paragraph 3.3.4.

3.3.3 Dangerous Waste Discovery and Cleanup

Sample LA-1 was collected from the "burn pit" and contained leachable lead at a concentration of 12 mg/L, which classified the soil as a Dangerous Waste. To further characterize this area for disposal purposes, samples KDW-1 through KDW-7 were collected by GEI on May 1, 2007. The samples contained concentrations of cadmium and/or lead in excess of the cleanup levels. In addition, three of the samples contained concentrations of TCLP lead (17 to 46 mg/L) in excess of the Dangerous Waste criterion of 5 mg/L. The analytical results are summarized in Tables 6 and 9, and shown in Figure 7.

On May 1, 2007, GEI collected samples KBP-1 through KBP-7 from a second "burn pit" area observed southwest of the first pit. Concentrations of lube oil, cadmium, and lead above the regulatory limits were detected in these samples. Sample KBP-5 also contained 87 mg/L TCLP

lead. On May 8, 2007, two additional samples (KBP-8 and KBP-9) were collected from the vicinity of KBP-5 to further evaluate the elevated lead and cadmium detections.

Based on this discovery, between May 16 and June 21, 2007, GEI conducted grid sampling to define the lateral extent of Dangerous Waste. Samples were collected and selectively analyzed for petroleum, arsenic, cadmium, lead, TCLP lead, or TCLP cadmium. Results are presented in Table 9.

Between May 23 and 31, 2007, 171.09 tons of Dangerous Waste were excavated and transported to Chem Waste for disposal. A majority of the area that required excavation was located behind the former office trailer, outside of the (property) fence line, and within the adjacent railroad ROW (Figure 7). Metal, glass, and burned materials were encountered in the vicinity of the Dangerous Waste, suggesting that the elevated metal concentrations were the result of the burning activities. The debris and burned material was located about 1 to 1.5 feet bgs and was about 1 to 1.5 feet thick.

3.3.4 Additional Problem Waste Cleanup

On June 21, 2007, following removal of Dangerous Waste, an area about 20 feet by 20 feet and an additional 2 feet deep was excavated from the oil release area. GEI collected five confirmation samples (KDW-96 through KDW-100, Figure 7) from the excavation limits. The samples were analyzed for diesel and lube oil. Sample KDW-98 collected from the base of the excavation contained 2,000 mg/kg lube oil, which equals the MTCA Method A Unrestricted Cleanup Criterion. The other four samples did not contain contaminant concentrations in excess of the applicable cleanup levels. On June 28, 2007, an additional 10-foot by 10-foot area was excavated an additional 1 foot in depth from the central portion of the excavation where sample KDW-98 was obtained. Four analytical samples (KDW-101 through KDW-105, Figure 7) were collected from the excavation limits. The samples did not contain concentrations of diesel or lube oil in excess of the applicable cleanup criteria. The analytical results are summarized in Tables 3 and 4. A total of approximately 467.7 tons of problem waste were disposed of at LRI Landfill.

3.3.5 Underground Storage Tank (UST) Removal

On July 3, 2007, an approximately 750-gallon UST was encountered south of the Dangerous Waste and problem waste excavations (GEI, 2007g) (Figure 6). The tank was located

near the southern end of the property. GEI decommissioned the tank on July 5, 2007. The tank was located about 2 feet bgs and measured about 4 feet in diameter and 8 feet in length. According to GEI, no residual fuel was present in the tank. Following removal of the tank, three analytical samples were collected from the excavation. Gasoline, diesel, and lube oil were not detected in the three samples. Soil generated while removing the tank was stockpiled adjacent to the tank excavation. GEI collected three analytical samples from the stockpile. The stockpile samples contained lube oil at concentrations ranging from 460 to 1,100 mg/kg, which is less than the MTCA Method A Unrestricted Cleanup Level. Since concentrations were below cleanup criteria, the less than two cubic yard stockpile was re-used on site. Closure of the tank appears to have been completed per state regulations.

3.3.6 Light Standard Excavation

In late August or early September 2007, MCE encountered an apparent concrete sump and stained soil while excavating for a light standard on the southeast portion of the Kwang property (Figure 6). The sump was about 4 feet square and 3 feet tall and sludge was observed in the sump. Piping was not observed associated with the sump. MCE excavated the visibly stained material and placed the soil on a liner north of the excavation.

Additional excavation activities occurred on September 6, 2007. A representative of Shannon & Wilson collected three samples from the excavation and one sample from the stockpile. The samples were selectively analyzed for gasoline-, diesel-, and lube oil-range hydrocarbons, VOCs, MTCA metals (arsenic, cadmium, chromium, lead, and mercury), PAHs, polychlorinated biphenyls (PCBs), and TCLP lead. Concentrations of diesel (2,100 mg/kg) and lube oil (2,400 to 3,000 mg/kg) in excess of the MTCA Method A Unrestricted Cleanup Levels were detected in the excavation samples. The stockpile also contained concentrations of diesel (3,000 mg/kg), lube oil (15,000 mg/kg), and cadmium (4.6 mg/kg) which exceeded cleanup criteria. The analytical results are summarized in Tables 7, 8, 10, and 11.

Following receipt of the analytical results, additional excavation activities were conducted on September 17, 2007. The final excavation measured about 7.5 deep and a maximum of 8 feet wide and 5 feet in length. The excavation was limited to the north by a natural gas line, and newly constructed site features, including utilities and concrete parking/walkways, to the east, west, and south. The excavated material was added to the

stockpile. Starting at about 4 feet bgs, the base and sidewalls of the excavation exhibited a petroleum odor.

Two soil samples were collected from the limits of the excavation. The samples were selectively analyzed for gasoline-, diesel-, and lube oil-range hydrocarbons, VOCs, PCBs, volatile petroleum hydrocarbons (VPH), and extractable petroleum hydrocarbons (EPH). The sample collected from the base of the excavation (S-4) contained 2,300 mg/kg lube oil, slightly above its cleanup criterion of 2,000 mg/kg. The remaining analytes did not exceed the MTCA Method A Unrestricted Cleanup Criteria.

No VPH were detected. EPH results are summarized in Table 11. Analytical laboratory reports are contained in Appendix B. A discussion of the evaluation of these data is provided in Section 4.0.

The stockpiled problem waste (21.12 tons) was transported to the LRI Landfill on September 26, 2007.

3.3.7 Summary of Kwang Property Activities

On the Kwang property, problem waste soils were excavated and disposed of at LRI Landfill. During remedial activities, Dangerous Waste and a UST were discovered on site. Dangerous Waste soils were disposed of at Chem Waste and the UST was removed in accordance with state regulations. Confirmation sampling indicates that soil concentrations are below industrial criteria. Remedial activities appear to have been completed in accordance with project documents.

Data further indicates that soil concentrations are less than unrestricted cleanup criteria with the exception of one location, the light standard excavation. Construction of the transit center is essentially complete and covers the area of concern. No further remedial action appears warranted on the property.

4.0 REVIEW OF DATA EXCEEDING UNRESTRICTED CRITERIA

Eighty-six confirmation samples were collected from the Lakewood Station site. Of these 86 samples, all are less than state industrial criteria. Four samples, however, exceed unrestricted criteria. This section summarizes our evaluation of whether site data complies with unrestricted

cleanup criteria. A data summary is provided in Table 12. Our supporting calculations are contained within Appendix E.

4.1 Data Compliance

Per WAC 173-340-740, the three requirements listed below must be met when evaluating site cleanup using a statistical approach. These requirements are often referred to as the "3-part statistical rule":

- No single sample concentration shall be greater than two times the soil cleanup level.
- Less than 10 percent of the sample concentrations shall exceed the soil cleanup level.
- The upper confidence level shall be less than the soil cleanup level.

4.2 Lead

Forty-four confirmation samples were submitted for lead analysis. Lead was detected slightly above its unrestricted criterion of 250 mg/kg in three of the samples, or less than seven percent of the total submitted for lead testing. Lead was found at 260, 290, and 270 mg/kg in samples KDW-69, LA-14, and LA-15, respectively. The upper limit of the true mean soil concentration calculated with a 95 percent confidence interval using MTCAStat 97 is 140 mg/kg, which is less than 250 mg/kg. The confirmation soil sampling for lead shows the site meets cleanup levels according to the 3-part statistical rule.

4.3 Lube Oil

Lube oil was detected slightly above unrestricted criteria in one of 31 samples at 2,300 mg/kg (sample S-4), which is about three percent of the number of confirmation samples submitted for lube oil. The upper limit of the true mean soil concentration with a 95 percent confidence interval was calculated using two methods. It was calculated twice to account for variation of the practical quantitation limit for samples that were "non-detect" (not detected above method detection limits). The results were 781 and 516 mg/kg, both of which are less than the cleanup level of 2,000 mg/kg.

Although statistically, the site meets the Method A cleanup level, sample S-4 was also submitted for laboratory EPH-VPH analysis, and the results assessed using MTCATPH11.1. This assessment showed the soil did not pose significant inhalation or leaching hazard, which is the assumed result due to the low mobility and volatility of lube oil. MTCATPH11.1 calculated a

MTCA Method B soil cleanup value based on the EPH-VPH fractionation data for this contaminant as 10,224 mg/kg (a very lenient cleanup level) for protection during direct contact.

5.0 CONCLUSIONS

Statistical review of the analytical data shows that remedial actions conducted at the Lakewood Station have achieved the MTCA Method A cleanup levels for unrestricted land use. The upper limit of the true mean soil concentrations is below cleanup levels when calculated with the 95 percent confidence interval. The statistical review meets the requirements set forth in WAC 173-340-410 and WAC 173-340-740, often referred to as the "3-part statistical rule."

In addition to statistically meeting the cleanup levels, these elevated concentrations, as with most of the station site, are "capped" with pavement or station structures. Therefore, the four areas containing lube oil or lead slightly above unrestricted criteria are inaccessible and not expected to pose a threat to human health or the environment. Capping of the property with asphalt and concrete limits the amount of infiltration by surface water, which is expected to reduce the potential to mobilize the remaining contamination. Site use is also not expected to change in the foreseeable future.

Prior to construction, no impacts to deeper soil or groundwater were detected. This empirical evidence shows that even when soil contaminant concentrations were elevated (pre-cleanup action), and the cap and structures were not in place, there was no substantial contaminant migration to groundwater. Because the source material has been removed to achieve cleanup levels, and the surface infiltration has been effectively minimized, no future impacts to groundwater are expected.

Based on site conditions and review of site data, we conclude that no further remedial action appears warranted. We recommend that a No Further Action designation be applied to the site.

6.0 LIMITATIONS

Within the limitations of scope, schedule, and budget, Shannon & Wilson has prepared this report in a professional manner, using that level of skill and care normally exercised for similar projects under similar conditions by reputable and competent environmental consultants currently practicing in this area.

This report was prepared for the exclusive use of our clients and their representatives in the study of this site. The findings we have presented within this report are based on a limited review of the information provided to us by KPFF and Sound Transit and on the sampling and analysis that others conducted at this site. The summary and discussion presented in this letter are based on field notes, correspondence, and laboratory reports collected by others and Shannon & Wilson, Inc. during the site activities. The discussions in this report should not be construed as a definite conclusion regarding the soils and groundwater at this site.

Shannon & Wilson is not responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the report was prepared. We also note that the facts and conditions referenced in this report may change over time, and that the conclusions and recommendations set forth here are applicable to the facts and conditions as described only at the time of this report. We believe that the conclusions stated here are factual, but no guarantee is made or implied.

This report was prepared for the exclusive use of KPFF and their representatives, and in no way guarantees that any agency or its staff will reach the same conclusions as Shannon & Wilson. To help you and others in understanding the limitations of our report, Shannon & Wilson has prepared Appendix E, "Important Information About Your Geotechnical/ Environmental Report."

SHANNON & WILSON, INC.

Agnes C. Tirao, P.E.
Principal Engineer

Scott W. Gauke, P.E., L.H.G.
Vice President

JMD:ACT:SWG/act

7.0 REFERENCES

Galloway Environmental, Inc. (GEI), 2007a, Focused environmental site assessment letter, Lakewood Station – contaminated soil characterization and disposal: Report prepared by Galloway Environmental, Inc., Sammamish, Wash., for McCann Construction Enterprises, Inc., Renton, Wash., March 30.

GEI, 2007b, Sound Transit Commuter Rail, Lakewood Station, construction contingency plan: Report prepared by Galloway Environmental, Inc., Sammamish, Wash., for McCann Construction Enterprises, Inc., Renton, Wash., April.

GEI, 2007c, Sound Transit Commuter Rail, Lakewood Station, excavation and handling work plan: Report prepared by Galloway Environmental, Inc., Sammamish, Wash., for McCann Construction Enterprises, Inc., Renton, Wash., April.

GEI, 2007d, Sound Transit Commuter Rail, Lakewood Station, sampling and analysis plan: Report prepared by Galloway Environmental, Inc., Sammamish, Wash., for McCann Construction Enterprises, Inc., Renton, Wash., April.

GEI, 2007e, Sound Transit Commuter Rail - Lakewood Station, field screening at the Sweeting property letter report, 11500 Block of Pacific Highway SW in Lakewood, Washington: Report prepared by Galloway Environmental, Inc., Sammamish, Wash., for McCann Construction Enterprises, Inc., Renton, Wash., April 13.

GEI, 2007f, Sound Transit – Lakewood Station, Lakeview Auto property, underground storage tank decommissioning report: Report prepared by Galloway Environmental, Inc., Sammamish, Wash., for Central Puget Sound Regional Transit Authority, Seattle, Wash., June 14.

GEI, 2007g, Sound Transit – Lakewood Station, UST decommissioning report, site: Kwang Auto property, 11528 Pacific Hwy SW, Lakewood, WA: Report prepared by Galloway Environmental, Inc., Sammamish, Wash., for Central Puget Sound Regional Transit Authority, Seattle, Wash., July 26.

GEI, 2007h, Sound Transit Commuter Rail, Lakewood Station, contract no. RTA/CP 0020-06, chemical final report: Report prepared by Galloway Environmental, Inc., Sammamish, Wash., for McCann Construction Enterprises, Inc., Renton, Wash., September.

GEI, 2007i, Sound Transit Commuter Rail, Lakewood Station, soil sampling – environmental characterization for disposal letter report, 11500 Block of Pacific Highway SW in Lakewood, Washington: Report prepared by Galloway Environmental, Inc., Sammamish, Wash., for McCann Construction Enterprises, Inc., Renton, Wash., October 24.

KPFF Consulting Engineers (KPFF), 2005, Lakewood Station, 30% basis of design: Report prepared by The KPFF Team, for Sound Transit, Seattle, Wash., project no. 104622, August 23.

Shannon & Wilson, Inc., 2004, Limited Phase II environmental site assessment, South Tacoma segment – initial phase, Sound Transit Commuter Rail, Tacoma through Lakewood, Washington: Report prepared by The Shannon & Wilson Team, for Sound Transit Real Estate Division, Seattle, Wash., project no. 21-1-16409-200, August 20.

Shannon & Wilson, Inc., 2006a, Construction contingency plan, Sweeting property, Lakewood Station, Lakewood, Washington: Report prepared by Shannon & Wilson, Inc., Seattle, Wash., for KPFF, Seattle, Wash., project no. 21-1-12180-007, January 24.

Shannon & Wilson, Inc., 2006b, Cleanup action plan, Kwang property, Lakewood Station, Lakewood, Washington: Report prepared by Shannon & Wilson, Inc., Seattle, Wash., for KPFF, Seattle, Wash., project no. 21-1-12180-007, January 24.

Shannon & Wilson, Inc., 2006c, Cleanup action plan, Lakeview Auto property, Lakewood Station, Lakewood, Washington: Report prepared by Shannon & Wilson, Inc., Seattle, Wash., for KPFF, Seattle, Wash., project no. 21-1-12180-007, January 24.

Shannon & Wilson, Inc., 2006d, Stockpile sampling, Lakeview Auto property, Lakewood Station, Lakewood, Washington: Report prepared by Shannon & Wilson, Inc., Seattle, Wash., for KPFF, Seattle, Wash., project no. 21-1-12180-007, September 20.

Shannon & Wilson, Inc., 2006e, Environmental report, Sweeting property, Lakewood Station, Lakewood, Washington: Report prepared by Shannon & Wilson, Inc., Seattle, Wash., for KPFF, Seattle, Wash., project no. 21-1-12180-007, January 24.

Shannon & Wilson, Inc., 2006f, Environmental report, Lakeview Auto property, Lakewood Station, Lakewood, Washington: Report prepared by Shannon & Wilson, Inc., Seattle, Wash., for KPFF, Seattle, Wash., project no. 21-1-12180-007, January 24.

Shannon & Wilson, Inc., 2006g, Environmental report, Kwang property, Lakewood Station, Lakewood, Washington: Report prepared by Shannon & Wilson, Inc., Seattle, Wash., for KPFF, Seattle, Wash., project no. 21-1-12180-007, January 24.

Sound Transit and PCL Construction Services, Inc. (ST & PCL), 2007a, Construction of the Lakewood commuter rail station, addendum no. 2 and contract specifications, contract no. RTA/CP 20-06, volume 2 of 4, February.

Sound Transit and PCL Construction Services, Inc. (ST & PCL), 2007b, Construction of the Lakewood commuter rail station, addendum no. 2 and original IFB contract drawings, contract no. RTA/CP 20-06, volume 3 of 4, February.

URS Corporation (URS), 2003a, Phase I environmental site assessment, Kwang/Auto Unlimited property, 11536 and 11538 Pacific Highway SW, Lakewood, Washington: Report prepared by URS, Seattle, Wash., for Central Puget Sound Regional Transit Authority, Seattle, Wash., project no. 33755401, May 19.

URS, 2003b, Phase I environmental site assessment, Lakeview Auto Wrecking property, 11528 Pacific Highway SW, Lakewood, Washington: Report prepared by URS, Seattle, Wash., for Central Puget Sound Regional Transit Authority, Seattle, Wash., project no. 33755401, May 19.

URS, 2003c, Limited phase II environmental site investigation report, Lakeview Auto Wrecking property, 11528 Pacific Highway SW, Lakewood, Washington: Report prepared by URS, Seattle, Wash., for Central Puget Sound Regional Transit Authority, Seattle, Wash., project no. 33755401, August 5.

URS, 2003d, Limited phase II environmental site investigation report, Kwang/Auto Unlimited property, 11536 and 11538 Pacific Highway SW, Lakewood, Washington: Report prepared by URS, Seattle, Wash., for Central Puget Sound Regional Transit Authority, Seattle, Wash., project no. 33755401, August 25.

URS, 2003e, Limited phase II environmental site investigation report, Sweeting property, 11500 Block Pacific Highway SW, Lakewood, Washington: Report prepared by URS, Seattle, Wash., for Central Puget Sound Regional Transit Authority, Seattle, Wash., project no. 33755401, August 27.

URS, 2003f, Phase I environmental site assessment, Sweeting property, 11500 block Pacific Highway SW, Lakewood, Washington: Report prepared by URS, Seattle, Wash., for Central Puget Sound Regional Transit Authority, Seattle, Wash., project no. 33755401, May 19.

Washington State Department of Ecology, 2001, Model Toxics Control Act cleanup regulation, chapter 173-340 Washington Administration Code (WAC): Olympia, Wash., Washington State Department of Ecology, publication No. 94-06, amended February 12.

TABLE 1
ANALYTICAL RESULTS
SWEETING PROPERTY STOCKPILE

Sample Number	Date Collected	Petroleum		Metals^				Units	Notes
		Diesel	Lube Oil	Barium	Cadmium	Chromium	Lead		
Samples collected by Galloway Environmental, Inc.									
SP-1	8/27/2007	--	--	**52**	ND	**17**	**6.9**	mg/kg	--
SP-2	8/27/2007	ND	**2,100**	**94**	**1.1**	**24**	**160**	mg/kg	Portion of stockpile disposed of at LRI
SP-3	8/27/2007	ND	**74**	**71**	ND	**15**	**31**	mg/kg	--
SP-4	8/27/2007	ND	**270**	**75**	ND	**15**	**22**	mg/kg	--
SP-5	8/27/2007	--	--	**53**	ND	**20**	**6.5**	mg/kg	--
SP-6	8/27/2007	ND	**280**	**76**	ND	**21**	**35**	mg/kg	--
SP-7	8/27/2007	ND	**530**	**71**	ND	**19**	**38**	mg/kg	--
Samples collected by Shannon & Wilson, Inc.									
SP1-S1	11/5/2007	ND	**160**	--	--	--	**61**	mg/kg	Confirmed removal of SP-2
SP1-S4	11/5/2007	ND	**870**	--	--	--	**93**	mg/kg	Confirmed removal of SP-2
SP1-S5	11/5/2007	ND	**300**	--	--	--	**41**	mg/kg	Confirmed removal of SP-2
MTCA Method A (unrestricted use)		2,000	2,000	*	2	2,000[1]	250	mg/kg	--
MTCA Method A (industrial use)		2,000	2,000	*	2	2,000[1]	1,000	mg/kg	--

Notes:

[1] Cleanup criterion for chromium III.

* No MTCA Method A cleanup criterion is established for this analyte.

-- = not tested

^ = only detected metals are summarized on this table

mg/kg = milligrams per kilogram

MTCA = Washington Model Toxics Control Act

ND = not detected

Bold text indicates a detected analyte.

Shaded text indicates concentration exceeds state cleanup criterion.

TABLE 2
LEAD ANALYTICAL RESULTS
LAKEVIEW AUTO PROPERTY

Sample Number	Date Collected	Total Lead	Units	TCLP Lead	Units	Notes
LA-S1-1	3/21/2007	340	mg/kg	3.5	mg/L	Initial characterization sample for Tacoma Pierce County Health Department (TPCHD); Removed
LA-S1-SE	3/21/2007	290	mg/kg	2.3	mg/L	Initial characterization sample for TPCHD; Removed
LA-S1-NE	3/21/2007	340	mg/kg	2.0	mg/L	Initial characterization sample for TPCHD; Removed
LA-S1-SW	3/21/2007	11,000	mg/kg	79	mg/L	Initial characterization sample for TPCHD; Removed
LA-S3-1	3/21/2007	150	mg/kg	--	mg/L	Initial characterization sample for TPCHD; Removed
LA-S3-SE	3/21/2007	320	mg/kg	0.75	mg/L	Initial characterization sample for TPCHD; Removed
LA-S3-NW	3/21/2007	210	mg/kg	--	mg/L	Initial characterization sample for TPCHD; Removed
LA-S3-SW	3/21/2007	800	mg/kg	7.7	mg/L	Initial characterization sample for TPCHD; Removed
DW-1	5/1/2007	480	mg/kg	1.3	mg/L	In-place dangerous waste (DW) characterization; Removed
DW-2	5/1/2007	530	mg/kg	2.1	mg/L	In-place DW characterization sample; Removed
DW-3	5/1/2007	29	mg/kg	--	mg/L	In-place DW characterization sample; Removed
DW-4	5/1/2007	360	mg/kg	1.0	mg/L	In-place DW characterization sample; Removed
DW-5	5/1/2007	830	mg/kg	1.5	mg/L	In-place DW characterization sample; Removed
DW-6	5/1/2007	700	mg/kg	4.6	mg/L	In-place DW characterization sample; Removed
DW-7	5/1/2007	2,200	mg/kg	85	mg/L	In-place DW characterization sample; Removed
DW-8	5/1/2007	980	mg/kg	5.0	mg/L	In-place DW characterization sample; Removed
DW-9	5/1/2007	4,000	mg/kg	7.5	mg/L	In-place DW characterization sample; Removed
DW-10	5/1/2007	740	mg/kg	3.5	mg/L	In-place DW characterization sample; Removed
DW-11	5/8/2007	1,500	mg/kg	7.7	mg/L	In-place DW characterization sample; Removed
DW-12	5/8/2007	1,500	mg/kg	7.6	mg/L	In-place DW characterization sample; Removed
DW-13	5/8/2007	770	mg/kg	4.7	mg/L	In-place DW characterization sample; Removed
DW-14	5/8/2007	590	mg/kg	8.4	mg/L	In-place DW characterization sample; Removed
DW-15	5/8/2007	540	mg/kg	1.4	mg/L	In-place DW characterization sample; Removed
DW-16	5/8/2007	760	mg/kg	4.6	mg/L	In-place DW characterization sample; Removed
DW-17	5/8/2007	1,500	mg/kg	19	mg/L	In-place DW characterization sample; Removed
DW-18	5/8/2007	410	mg/kg	--	mg/L	In-place DW characterization sample; Removed
DW-19	5/8/2007	630	mg/kg	4.5	mg/L	In-place DW characterization sample; Removed
DW-20	5/8/2007	410	mg/kg	1.1	mg/L	In-place DW characterization sample; Removed
DW-21	5/15/2007	--	--	--	--	--
DW-22	5/15/2007	500	mg/kg	1.5	mg/L	In-place DW characterization sample; Removed
DW-23	5/15/2007	--	--	--	--	--
DW-24	5/15/2007	--	--	--	--	--
DW-25	5/15/2007	--	--	--	--	--

TABLE 2
LEAD ANALYTICAL RESULTS
LAKEVIEW AUTO PROPERTY

Sample Number	Date Collected	Total Lead	Units	TCLP Lead	Units	Notes
DW-26	5/15/2007	**85**	mg/kg	--	mg/L	In-place DW characterization sample; Removed
DW-27	5/15/2007	**680**	mg/kg	**5.0**	mg/L	In-place DW characterization sample; Removed
DW-28	5/15/2007	**200**	mg/kg	--	mg/L	In-place DW characterization sample; Removed
DW-29	5/15/2007	--	--	--	--	--
DW-30	5/15/2007	--	--	--	--	--
DW-31	5/15/2007	**170**	mg/kg	--	mg/L	In-place DW characterization sample; Removed
DW-32	5/15/2007	--	--	--	--	--
DW-33	5/15/2007	**440**	mg/kg	**3.2**	mg/L	In-place DW characterization sample; Removed
DW-34	5/15/2007	**820**	mg/kg	**1.3**	mg/L	In-place DW characterization sample; Removed, part of problem waste excavation
DW-35	5/15/2007	**220**	mg/kg	--	mg/L	In-place DW characterization sample; Removed, part of problem waste excavation
DW-36	5/15/2007	--	--	--	--	--
DW-37	5/15/2007	**230**	mg/kg	--	mg/L	In-place DW characterization sample; Removed, part of problem waste excavation
DW-38	5/15/2007	--	--	--	--	--
DW-39	5/15/2007	--	--	--	--	--
DW-40	5/15/2007	--	--	--	--	--
DW-41	5/15/2007	--	--	--	--	--
DW-42	5/15/2007	--	--	--	--	--
DW-43	5/15/2007	--	--	--	--	--
DW-44	5/15/2007	--	--	--	--	--
DW-45	5/15/2007	--	--	--	--	--
DW-46	5/15/2007	--	--	--	--	--
DW-47	5/15/2007	--	--	--	--	--
DW-48	5/15/2007	--	--	--	--	--
DW-49	5/15/2007	--	--	--	--	--
DW-50	5/15/2007	--	--	--	--	--
DW-51	5/22/2007	ND	mg/kg	--	mg/L	Confirmation sample
DW-52	5/22/2007	**30**	mg/kg	--	mg/L	Confirmation sample
MTCA Method A (unrestricted use)		250	mg/kg	5[1]	mg/L	--
MTCA Method A (industrial use)		1,000	mg/kg	5[1]	mg/L	--

TABLE 2
LEAD ANALYTICAL RESULTS
LAKEVIEW AUTO PROPERTY

Notes:
[1] Dangerous Waste criteria.
-- = not tested
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
ND = not detected
MTCA = Washington Model Toxics Control Act
TCLP = Toxicity Characteristic Leaching Procedure
Bold text indicates a detected analyte.
Shaded text indicates concentration exceeds cleanup criterion.
Sample locations are shown in Figure 5.

TABLE 3
ANALYTICAL RESULTS
LAKEVIEW AUTO PROPERTY

Sample Number	Date Collected	Petroleum			VOCs^		Metals			Units	TCLP Lead	Units	Notes
		Gasoline	Diesel	Lube Oil	Chloroform	1,2,4-Trimethyl-benzene	Arsenic	Cadmium	Lead				
Lakeview Auto Property													
LA-14	5/29/2007	ND	ND	**320**	ND	ND	**12**	**0.86**	**290**	mg/kg	--	mg/L	Confirmation sample
LA-15	5/29/2007	ND	ND	**1,400**	ND	ND	ND	**1.4**	**270**	mg/kg	--	mg/L	Confirmation sample
LA-16	5/29/2007	ND	ND	**3,400**	ND	**0.0011**	ND	**2.4**	**930**	mg/kg	**2.1**	mg/L	Removed with subsequent excavation
LA-17	5/29/2007	ND	ND	**2,800**	ND	ND	ND	**1.4**	**140**	mg/kg	--	mg/L	Removed with subsequent excavation
LA-18	5/29/2007	ND	ND	**3,700**	ND	ND	ND	**1.2**	**120**	mg/kg	--	mg/L	Removed with subsequent excavation
LA-19	5/29/2007	ND	ND	**160**	ND	ND	ND	**1.5**	**1,100**	mg/kg	ND	mg/L	Removed with subsequent excavation
LA-20	5/29/2007	ND	ND	ND	ND	ND	ND	**ND**	**7.9**	mg/kg	--	mg/L	Confirmation sample
LA-21	5/29/2007	ND	ND	**550**	ND	ND	ND	**ND**	**ND**	mg/kg	--	mg/L	Confirmation sample
LA-22	5/29/2007	ND	ND	**100**	**0.0014**	ND	ND	**ND**	**24**	mg/kg	--	mg/L	Confirmation sample
LA-23***	5/29/2007	ND	ND	**90**	ND	ND	ND	**ND**	**51**	mg/kg	--	mg/L	--
LA-24****	5/29/2007	ND	ND	**570**	ND	ND	ND	**0.83**	**240**	mg/kg	--	mg/L	--
LA-25	6/22/2007	--	ND	ND	--	--	--	ND	ND	mg/kg	--	mg/L	Confirmation sample
LA-26	6/22/2007	--	**160**	**1,100**	--	--	--	**0.85**	**220**	mg/kg	--	mg/L	Confirmation sample
LA-27	6/22/2007	--	ND	**370**	--	--	--	ND	**15**	mg/kg	--	mg/L	Confirmation sample
LA-28	6/22/2007	--	**48**	**380**	--	--	--	ND	**19**	mg/kg	--	mg/L	Confirmation sample
LA-29	6/22/2007	--	ND	**340**	--	--	--	**0.69**	**150**	mg/kg	--	mg/L	Confirmation sample
LA-30	6/22/2007	--	ND	**460**	--	--	--	**0.95**	**120**	mg/kg	--	mg/L	Confirmation sample
MTCA Method A (unrestricted use)		100	2,000	2,000	*	*	20	2	250	mg/kg	5[1]	mg/L	--
MTCA Method A (industrial use)		100	2,000	2,000	*	*	20	2	1,000	mg/kg	5[1]	mg/L	--

Notes:

[1] Dangerous Waste criteria.
* No MTCA Method A cleanup criterion is established for this analyte.
*** = Duplicate of Sample LA-14
**** = Duplicate of Sample LA-21
-- = not tested
^ = only detected VOCs are summarized on this table
Sample locations are shown in Figure 4.
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
MTCA = Washington Model Toxics Control Act
ND = not detected
TCLP = Toxicity Characteristic Leaching Procedure
VOCs = volatile organic compounds
Bold text indicates a detected analyte.
Shaded text indicates concentration exceeds cleanup criterion.

TABLE 4
POLYCYCLIC AROMATIC HYDROCARBON ANALYTICAL RESULTS
LAKEVIEW AUTO PROPERTY

Sample Number	LA-14	LA-15	LA-16	LA-17	LA-18	LA-19	LA-20	LA-21	LA-22	LA-23 (Dup of LA-14)	LA-24 (Dup of LA-21)
Polycyclic Aromatic Hydrocarbons (PAHs)[1] - mg/kg											
Naphthalene[2]	ND	ND	**0.019**	ND	**0.0092**	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene[2]	ND	**0.014**	**0.030**	ND	**0.023**	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene[2]	ND	ND	**0.019**	ND	**0.012**	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	**0.020**	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	**0.017**	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	**0.0080**	**0.026**	**0.12**	ND	**0.015**	ND	ND	ND	**0.018**	**0.0085**	ND
Anthracene	ND	**0.0091**	**0.030**	ND	**0.011**	ND	ND	ND	ND	ND	ND
Fluoranthene	**0.014**	**0.042**	**0.13**	**0.0085**	**0.025**	**0.0090**	ND	ND	**0.040**	**0.014**	**0.0092**
Pyrene	**0.014**	**0.050**	**0.18**	**0.017**	**0.034**	**0.014**	ND	ND	**0.063**	**0.015**	**0.010**
Benzo[g,h,i]perylene	**0.011**	**0.084**	**0.12**	**0.036**	**0.30**	ND	ND	**0.010**	**0.020**	**0.0098**	ND
Carcinogenic PAHs (cPAHs) - mg/kg											
Benzo[a]anthracene	ND	**0.024**	**0.061**	ND	**0.019**	ND	ND	ND	**0.028**	ND	ND
Chrysene	**0.014**	**0.040**	**0.091**	**0.0095**	**0.044**	**0.016**	ND	ND	**0.033**	**0.013**	ND
Benzo[b]fluoranthene	**0.011**	**0.034**	**0.069**	**0.011**	**0.033**	**0.0081**	ND	ND	**0.020**	**0.011**	ND
Benzo[k]fluoranthene	**0.0087**	**0.028**	**0.045**	ND	**0.013**	ND	ND	ND	**0.023**	**0.010**	ND
Benzo[a]pyrene	**0.0080**	**0.037**	**0.072**	**0.0084**	**0.021**	ND	ND	ND	**0.032**	ND	ND
Indeno[1,2,3-c,d]pyrene	ND	**0.037**	**0.054**	**0.0091**	**0.068**	ND	ND	ND	**0.016**	ND	ND
Dibenz[a,h]anthracene	ND	**0.015**	**0.016**	ND	**0.0094**	ND	ND	ND	ND	ND	ND
TEF[3] for cPAHs - mg/kg (See Table 5)	0.015	0.056	0.10 [4]	0.015	0.039	0.014	0.013	0.014	0.044	0.015	0.014
MTCA Method A (unrestricted use)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MTCA Method A (industrial use)	2	2	2	2	2	2	2	2	2	2	2

Notes:

[1] There are no MTCA Method A cleanup criteria for PAHs with the exception of total naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and cPAHs.

[2] MTCA Method A cleanup level for total naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene is 5 mg/kg.

[3] Sum of the toxic equivalency factor (TEF) for each cPAH.

[4] This detection at the unrestricted criterion was removed by subsequent excavation.

mg/kg = milligrams per kilogram

MTCA = Washington Model Toxics Control Act

ND = not detected

Bold text indicates a detected analyte.

Sample locstions are shown in Figure 4.

TABLE 5
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
LAKEVIEW AUTO PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-14

Analyte	Result for Sample LA-14 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0079	0.1	0.00079
Chrysene	0.014	0.0079	0.01	0.00014
Benzo[b]fluoranthene	0.011	0.0079	0.1	0.0011
Benzo[k]fluoranthene	0.0087	0.0079	0.1	0.00087
Benzo[a]pyrene	0.0080	0.0079	1	0.008
Indeno[1,2,3-c,d]pyrene	ND	0.0079	0.1	0.00079
Dibenz[a,h]anthracene	ND	0.0079	0.4	0.00316
Sum[2]				**0.015**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-15

Analyte	Result for Sample LA-15 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	0.024	0.0076	0.1	0.0024
Chrysene	0.040	0.0076	0.01	0.0004
Benzo[b]fluoranthene	0.034	0.0076	0.1	0.0034
Benzo[k]fluoranthene	0.028	0.0076	0.1	0.0028
Benzo[a]pyrene	0.037	0.0076	1	0.037
Indeno[1,2,3-c,d]pyrene	0.037	0.0076	0.1	0.0037
Dibenz[a,h]anthracene	0.015	0.0076	0.4	0.006
Sum[2]				**0.056**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-16

Analyte	Result for Sample LA-16 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	0.061	0.0077	0.1	0.0061
Chrysene	0.091	0.0077	0.01	0.00091
Benzo[b]fluoranthene	0.069	0.0077	0.1	0.0069
Benzo[k]fluoranthene	0.045	0.0077	0.1	0.0045
Benzo[a]pyrene	0.072	0.0077	1	0.072
Indeno[1,2,3-c,d]pyrene	0.054	0.0077	0.1	0.0054
Dibenz[a,h]anthracene	0.016	0.0077	0.4	0.0064
Sum[2]				**0.10**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

TABLE 5
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
LAKEVIEW AUTO PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-17

Analyte	Result for Sample LA-17 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0080	0.1	0.0008
Chrysene	0.0095	0.0080	0.01	0.000095
Benzo[b]fluoranthene	0.011	0.0080	0.1	0.0011
Benzo[k]fluoranthene	ND	0.0080	0.1	0.0008
Benzo[a]pyrene	0.0084	0.0080	1	0.0084
Indeno[1,2,3-c,d]pyrene	0.0091	0.0080	0.1	0.00091
Dibenz[a,h]anthracene	ND	0.0080	0.4	0.0032
Sum[2]				**0.015**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-18

Analyte	Result for Sample LA-18 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	0.019	0.0072	0.1	0.0019
Chrysene	0.044	0.0072	0.01	0.00044
Benzo[b]fluoranthene	0.033	0.0072	0.1	0.0033
Benzo[k]fluoranthene	0.013	0.0072	0.1	0.0013
Benzo[a]pyrene	0.021	0.0072	1	0.021
Indeno[1,2,3-c,d]pyrene	0.068	0.0072	0.1	0.0068
Dibenz[a,h]anthracene	0.0094	0.0072	0.4	0.00376
Sum[2]				**0.039**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-19

Analyte	Result for Sample LA-19 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0077	0.1	0.00077
Chrysene	0.016	0.0077	0.01	0.00016
Benzo[b]fluoranthene	0.0081	0.0077	0.1	0.00081
Benzo[k]fluoranthene	ND	0.0077	0.1	0.00077
Benzo[a]pyrene	ND	0.0077	1	0.0077
Indeno[1,2,3-c,d]pyrene	ND	0.0077	0.1	0.00077
Dibenz[a,h]anthracene	ND	0.0077	0.4	0.00308
Sum[2]				**0.014**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

TABLE 5
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
LAKEVIEW AUTO PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-20

Analyte	Result for Sample LA-20 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0070	0.1	0.0007
Chrysene	ND	0.0070	0.01	0.00007
Benzo[b]fluoranthene	ND	0.0070	0.1	0.0007
Benzo[k]fluoranthene	ND	0.0070	0.1	0.0007
Benzo[a]pyrene	ND	0.0070	1	0.007
Indeno[1,2,3-c,d]pyrene	ND	0.0070	0.1	0.0007
Dibenz[a,h]anthracene	ND	0.0070	0.4	0.0028
Sum[2]				**0.013**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-21

Analyte	Result for Sample LA-21 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0078	0.1	0.00078
Chrysene	ND	0.0078	0.01	0.000078
Benzo[b]fluoranthene	ND	0.0078	0.1	0.00078
Benzo[k]fluoranthene	ND	0.0078	0.1	0.00078
Benzo[a]pyrene	ND	0.0078	1	0.0078
Indeno[1,2,3-c,d]pyrene	ND	0.0078	0.1	0.00078
Dibenz[a,h]anthracene	ND	0.0078	0.4	0.00312
Sum[2]				**0.014**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-22

Analyte	Result for Sample LA-22 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	0.028	0.0082	0.1	0.0028
Chrysene	0.033	0.0082	0.01	0.00033
Benzo[b]fluoranthene	0.020	0.0082	0.1	0.002
Benzo[k]fluoranthene	0.023	0.0082	0.1	0.0023
Benzo[a]pyrene	0.032	0.0082	1	0.032
Indeno[1,2,3-c,d]pyrene	0.016	0.0082	0.1	0.0016
Dibenz[a,h]anthracene	ND	0.0082	0.4	0.00328
Sum[2]				**0.044**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

TABLE 5
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
LAKEVIEW AUTO PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-23

Analyte	Result for Sample LA-23 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0082	0.1	0.00082
Chrysene	0.013	0.0082	0.01	0.00013
Benzo[b]fluoranthene	0.011	0.0082	0.1	0.0011
Benzo[k]fluoranthene	0.010	0.0082	0.1	0.001
Benzo[a]pyrene	ND	0.0082	1	0.0082
Indeno[1,2,3-c,d]pyrene	ND	0.0082	0.1	0.00082
Dibenz[a,h]anthracene	ND	0.0082	0.4	0.00328
Sum[2]				**0.015**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-24

Analyte	Result for Sample LA-24 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0078	0.1	0.00078
Chrysene	ND	0.0078	0.01	0.000078
Benzo[b]fluoranthene	ND	0.0078	0.1	0.00078
Benzo[k]fluoranthene	ND	0.0078	0.1	0.00078
Benzo[a]pyrene	ND	0.0078	1	0.0078
Indeno[1,2,3-c,d]pyrene	ND	0.0078	0.1	0.00078
Dibenz[a,h]anthracene	ND	0.0078	0.4	0.00312
Sum[2]				**0.014**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

Notes:

[1] Calculated as the detected concentration times the toxic equivalency factor (TEF), or as half the method detection limit (if analyte is not detected) times the TEF.

[2] Sum of the TEF for each carcinogenic polycyclic aromatic hydrocarbon.

cPAHs = carcinogenic polycyclic aromatic hydrocarbons

mg/kg = milligrams per kilogram

MTCA = Washington Model Toxics Control Act

ND = not detected

TABLE 6
ANALYTICAL RESULTS - APRIL 2007
KWANG PROPERTY

Sample Number	Date Collected	Petroleum	VOCs^		Metals			Units	TCLP Lead	Units	Notes
		Lube Oil	Toluene	1,2,4-Trimethyl-benzene	Arsenic	Cadmium	Lead				
Kwang Property											
LA-1/KDW-5	4/18/2007	**960**	ND	ND	**22**	**72**	**3,600**	mg/kg	**12**	mg/L	Removed with subsequent excavation
LA-2	4/18/2007	ND	ND	**0.0016**	ND	**1.0**	**110**	mg/kg	--	mg/L	Removed with subsequent excavation
LA-3	4/18/2007	ND	ND	**0.0019**	ND	**0.98**	**61**	mg/kg	--	mg/L	Confirmation sample
LA-4	4/18/2007	**19,000**	**0.0011**	**0.0011**	ND	ND	ND	mg/kg	--	mg/L	Removed with subsequent excavation
LA-5	4/18/2007	120	**0.0017**	ND	ND	**0.67**	**42**	mg/kg	--	mg/L	Confirmation sample
LA-6	4/18/2007	ND	ND	**0.0013**	ND	ND	ND	mg/kg	--	mg/L	Confirmation sample
LA-7	4/18/2007	ND	**0.0015**	ND	ND	ND	ND	mg/kg	--	mg/L	Confirmation sample
LA-8	4/18/2007	ND	**0.0013**	ND	ND	**1.1**	**72**	mg/kg	--	mg/L	Confirmation sample
LA-9	4/18/2007	ND	ND	ND	ND	ND	**7.5**	mg/kg	--	mg/L	Confirmation sample
LA-10	4/18/2007	**74**	ND	ND	ND	**0.70**	**72**	mg/kg	--	mg/L	Confirmation sample
LA-11	4/18/2007	ND	**0.0012**	ND	ND	**1.6**	**34**	mg/kg	--	mg/L	Confirmation sample
LA-12	4/18/2007	**150**	**0.0016**	**0.0015**	ND	ND	**6.9**	mg/kg	--	mg/L	Confirmation sample
LA-13	4/18/2007	**140**	**0.0013**	ND	ND	**0.58**	**120**	mg/kg	--	mg/L	Confirmation sample
LA-14**	4/18/2007	ND	ND	ND	ND	ND	ND	mg/kg	--	mg/L	Confirmation sample
MTCA Method A (unrestricted use)		2,000	7	*	20	2	250	mg/kg	5[1]	mg/L	--
MTCA Method A (industrial use)		2,000	7	*	20	2	1,000	mg/kg	5[1]	mg/L	--

Notes:

[1] Dangerous Waste criteria.
* No MTCA Method A cleanup criterion is established for this analyte.
** = Duplicate of Sample LA-5
-- = not tested
^ = only detected VOCs are summarized on this table
No gasoline or diesel range hydrocarbons were detected
Sample locations are shown in Figure 6.
mg/kg = milligrams per kilogram
mg/L = milligrams per liter

MTCA = Washington Model Toxics Control Act
ND = not detected
TCLP = Toxicity Characteristic Leaching Procedure
VOCs = volatile organic compounds
Bold text indicates a detected analyte.
Shaded text indicates concentration exceeds cleanup criterion.

TABLE 7
POLYCYCLIC AROMATIC HYDROCARBON ANALYTICAL RESULTS
KWANG PROPERTY

Sample Number	LA-1	LA-2	LA-3	LA-4	LA-5	LA-6	LA-7	LA-8	LA-9	LA-10	LA-11	LA-12	LA-13	LA-14 (Dup of LA-5)	KBP-5	Light Standard Excavation			
																Stockpile	S-1	S-2	S-3
Polycyclic Aromatic Hydrocarbons (PAHs)[1] - mg/kg																			
Naphthalene[2]	**0.030**	**0.014**	ND	**0.022**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.034**	**0.87**	ND	ND	ND
2-Methylnaphthalene[2]	**0.048**	**0.031**	ND	**0.039**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.058**	**2.2**	ND	**0.012**	ND
1-Methylnaphthalene[2]	**0.028**	**0.011**	ND	**0.024**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.022**	**1.2**	ND	ND	ND
Acenaphthylene	ND	ND	ND	**0.016**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.013**	**0.087**	**0.017**	**0.011**	ND
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.072**	**0.015**	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.38**	ND	ND	ND
Phenanthrene	**0.028**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.016**	ND	**0.043**	**1.2**	ND	**0.013**	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.014**	**0.062**	**0.047**	**0.012**	ND
Fluoranthene	**0.034**	ND	**0.0094**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.049**	ND	**0.069**	**0.17**	ND	ND	ND
Pyrene	**0.054**	ND	**0.0096**	ND	ND	ND	ND	ND	ND	**0.0088**	ND	ND	**0.045**	ND	**0.11**	**0.37**	**0.052**	ND	**0.0077**
Benzo[g,h,i]perylene	**0.11**	**0.0097**	**0.015**	ND	ND	ND	ND	ND	ND	**0.0094**	ND	ND	**0.031**	ND	**0.15**	**0.130**	**0.14**	**0.070**	**0.050**
Carcinogenic PAHs (cPAHs) - mg/kg																			
Benzo[a]anthracene	**0.021**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.022**	ND	**0.047**	**0.13**	ND	ND	ND
Chrysene	**0.053**	**0.0080**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.030**	ND	**0.095**	**0.48**	ND	ND	ND
Benzo[b]fluoranthene	**0.053**	**0.011**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.045**	ND	**0.10**	**0.21**	ND	ND	ND
Benzo[k]fluoranthene	**0.013**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.016**	ND	**0.029**	**0.040**	**0.044**	ND	ND
Benzo[a]pyrene	**0.039**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.029**	ND	**0.074**	**0.073**	**0.069**	ND	ND
Indeno[1,2,3-c,d]pyrene	**0.044**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.024**	ND	**0.076**	**0.059**	ND	ND	ND
Dibenz[a,h]anthracene	**0.014**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.020**	ND	ND	ND	ND
TEF[3] for cPAHs - mg/kg (See Table 8)	0.058	0.015	0.016	0.015	0.014	0.013	0.013	0.013	0.014	0.014	0.015	0.015	0.043	0.013	0.11 [4]	0.14 [4]	0.10 [4]	0.014	0.067
MTCA Method A (unrestricted use)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MTCA Method A (industrial use)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Notes:
[1] There are no MTCA Method A cleanup criteria for PAHs with the exception of total naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and cPAHs.
[2] MTCA Method A cleanup level for total naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene is 5 mg/kg.
[3] Sum of the toxic equivalency factor (TEF) for each cPAH.
[4] This exceedance of unrestricted criteria was removed by subsequent excavation.
mg/kg = milligrams per kilogram
MTCA = Washington Model Toxics Control Act
ND = not detected
Bold text indicates a detected analyte.
Sample locations are shown in Figure 6.

TABLE 8
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
KWANG PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-1

Analyte	Result for Sample LA-1 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	0.021	0.0089	0.1	0.0021
Chrysene	0.053	0.0089	0.01	0.00053
Benzo[b]fluoranthene	0.053	0.0089	0.1	0.0053
Benzo[k]fluoranthene	0.013	0.0089	0.1	0.0013
Benzo[a]pyrene	0.039	0.0089	1	0.039
Indeno[1,2,3-c,d]pyrene	0.044	0.0089	0.1	0.0044
Dibenz[a,h]anthracene	0.014	0.0089	0.4	0.0056
Sum[2]				**0.058**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-2

Analyte	Result for Sample LA-2 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0079	0.1	0.00079
Chrysene	0.0080	0.0079	0.01	0.00008
Benzo[b]fluoranthene	0.011	0.0079	0.1	0.0011
Benzo[k]fluoranthene	ND	0.0079	0.1	0.00079
Benzo[a]pyrene	ND	0.0079	1	0.0079
Indeno[1,2,3-c,d]pyrene	ND	0.0079	0.1	0.00079
Dibenz[a,h]anthracene	ND	0.0079	0.4	0.0032
Sum[2]				**0.015**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-3

Analyte	Result for Sample LA-3 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0087	0.1	0.00087
Chrysene	ND	0.0087	0.01	0.000087
Benzo[b]fluoranthene	ND	0.0087	0.1	0.00087
Benzo[k]fluoranthene	ND	0.0087	0.1	0.00087
Benzo[a]pyrene	ND	0.0087	1	0.0087
Indeno[1,2,3-c,d]pyrene	ND	0.0087	0.1	0.00087
Dibenz[a,h]anthracene	ND	0.0087	0.4	0.0035
Sum[2]				**0.016**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

TABLE 8
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
KWANG PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-4

Analyte	Result for Sample LA-4 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0085	0.1	0.00085
Chrysene	ND	0.0085	0.01	0.000085
Benzo[b]fluoranthene	ND	0.0085	0.1	0.00085
Benzo[k]fluoranthene	ND	0.0085	0.1	0.00085
Benzo[a]pyrene	ND	0.0085	1	0.0085
Indeno[1,2,3-c,d]pyrene	ND	0.0085	0.1	0.00085
Dibenz[a,h]anthracene	ND	0.0085	0.4	0.0034
Sum[2]				**0.015**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-5

Analyte	Result for Sample LA-5 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0076	0.1	0.00076
Chrysene	ND	0.0076	0.01	0.000076
Benzo[b]fluoranthene	ND	0.0076	0.1	0.00076
Benzo[k]fluoranthene	ND	0.0076	0.1	0.00076
Benzo[a]pyrene	ND	0.0076	1	0.0076
Indeno[1,2,3-c,d]pyrene	ND	0.0076	0.1	0.00076
Dibenz[a,h]anthracene	ND	0.0076	0.4	0.0030
Sum[2]				**0.014**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-6

Analyte	Result for Sample LA-6 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0073	0.1	0.00073
Chrysene	ND	0.0073	0.01	0.000073
Benzo[b]fluoranthene	ND	0.0073	0.1	0.00073
Benzo[k]fluoranthene	ND	0.0073	0.1	0.00073
Benzo[a]pyrene	ND	0.0073	1	0.0073
Indeno[1,2,3-c,d]pyrene	ND	0.0073	0.1	0.00073
Dibenz[a,h]anthracene	ND	0.0073	0.4	0.0029
Sum[2]				**0.013**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

TABLE 8
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
KWANG PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-7

Analyte	Result for Sample LA-7 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0073	0.1	0.00073
Chrysene	ND	0.0073	0.01	0.000073
Benzo[b]fluoranthene	ND	0.0073	0.1	0.00073
Benzo[k]fluoranthene	ND	0.0073	0.1	0.00073
Benzo[a]pyrene	ND	0.0073	1	0.0073
Indeno[1,2,3-c,d]pyrene	ND	0.0073	0.1	0.00073
Dibenz[a,h]anthracene	ND	0.0073	0.4	0.0029
Sum[2]				**0.013**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-8

Analyte	Result for Sample LA-8 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0074	0.1	0.00074
Chrysene	ND	0.0074	0.01	0.000074
Benzo[b]fluoranthene	ND	0.0074	0.1	0.00074
Benzo[k]fluoranthene	ND	0.0074	0.1	0.00074
Benzo[a]pyrene	ND	0.0074	1	0.0074
Indeno[1,2,3-c,d]pyrene	ND	0.0074	0.1	0.00074
Dibenz[a,h]anthracene	ND	0.0074	0.4	0.0030
Sum[2]				**0.013**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-9

Analyte	Result for Sample LA-9 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0080	0.1	0.00080
Chrysene	ND	0.0080	0.01	0.000080
Benzo[b]fluoranthene	ND	0.0080	0.1	0.00080
Benzo[k]fluoranthene	ND	0.0080	0.1	0.00080
Benzo[a]pyrene	ND	0.0080	1	0.0080
Indeno[1,2,3-c,d]pyrene	ND	0.0080	0.1	0.00080
Dibenz[a,h]anthracene	ND	0.0080	0.4	0.0032
Sum[2]				**0.014**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

TABLE 8
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
KWANG PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-10

Analyte	Result for Sample LA-10 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0080	0.1	0.00080
Chrysene	ND	0.0080	0.01	0.000080
Benzo[b]fluoranthene	ND	0.0080	0.1	0.00080
Benzo[k]fluoranthene	ND	0.0080	0.1	0.00080
Benzo[a]pyrene	ND	0.0080	1	0.0080
Indeno[1,2,3-c,d]pyrene	ND	0.0080	0.1	0.00080
Dibenz[a,h]anthracene	ND	0.0080	0.4	0.0032
Sum[2]				**0.014**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-11

Analyte	Result for Sample LA-11 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0083	0.1	0.00083
Chrysene	ND	0.0083	0.01	0.000083
Benzo[b]fluoranthene	ND	0.0083	0.1	0.00083
Benzo[k]fluoranthene	ND	0.0083	0.1	0.00083
Benzo[a]pyrene	ND	0.0083	1	0.0083
Indeno[1,2,3-c,d]pyrene	ND	0.0083	0.1	0.00083
Dibenz[a,h]anthracene	ND	0.0083	0.4	0.0033
Sum[2]				**0.015**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-12

Analyte	Result for Sample LA-12 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0085	0.1	0.00085
Chrysene	ND	0.0085	0.01	0.000085
Benzo[b]fluoranthene	ND	0.0085	0.1	0.00085
Benzo[k]fluoranthene	ND	0.0085	0.1	0.0009
Benzo[a]pyrene	ND	0.0085	1	0.009
Indeno[1,2,3-c,d]pyrene	ND	0.0085	0.1	0.00085
Dibenz[a,h]anthracene	ND	0.0085	0.4	0.0034
Sum[2]				**0.015**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

TABLE 8
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
KWANG PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-13

Analyte	Result for Sample LA-13 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	0.022	0.0073	0.1	0.0022
Chrysene	0.030	0.0073	0.01	0.0003
Benzo[b]fluoranthene	0.045	0.0073	0.1	0.0045
Benzo[k]fluoranthene	0.016	0.0073	0.1	0.0016
Benzo[a]pyrene	0.029	0.0073	1	0.029
Indeno[1,2,3-c,d]pyrene	0.024	0.0073	0.1	0.0024
Dibenz[a,h]anthracene	ND	0.0073	0.4	0.0029
Sum[2]				**0.043**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE LA-14

Analyte	Result for Sample LA-14 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0072	0.1	0.00072
Chrysene	ND	0.0072	0.01	0.000072
Benzo[b]fluoranthene	ND	0.0072	0.1	0.00072
Benzo[k]fluoranthene	ND	0.0072	0.1	0.00072
Benzo[a]pyrene	ND	0.0072	1	0.0072
Indeno[1,2,3-c,d]pyrene	ND	0.0072	0.1	0.00072
Dibenz[a,h]anthracene	ND	0.0072	0.4	0.0029
Sum[2]				**0.013**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE KBP-5

Analyte	Result for Sample KBP-5 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	0.047	0.0078	0.1	0.0047
Chrysene	0.095	0.0078	0.01	0.00095
Benzo[b]fluoranthene	0.10	0.0078	0.1	0.01
Benzo[k]fluoranthene	0.029	0.0078	0.1	0.0029
Benzo[a]pyrene	0.074	0.0078	1	0.074
Indeno[1,2,3-c,d]pyrene	0.076	0.0078	0.1	0.0076
Dibenz[a,h]anthracene	0.020	0.0078	0.4	0.0080
Sum[2]				**0.11**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

TABLE 8
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
KWANG PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE STOCKPILE

Analyte	Result for Sample Stockpile (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	0.13	0.039	0.1	0.013
Chrysene	0.48	0.039	0.01	0.0048
Benzo[b]fluoranthene	0.21	0.039	0.1	0.021
Benzo[k]fluoranthene	0.040	0.039	0.1	0.004
Benzo[a]pyrene	0.073	0.039	1	0.073
Indeno[1,2,3-c,d]pyrene	0.059	0.039	0.1	0.0059
Dibenz[a,h]anthracene	ND	0.039	0.4	0.0156
Sum[2]				**0.14**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE S-1

Analyte	Result for Sample S-1 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.041	0.1	0.0041
Chrysene	ND	0.041	0.01	0.00041
Benzo[b]fluoranthene	ND	0.041	0.1	0.0041
Benzo[k]fluoranthene	0.044	0.041	0.1	0.0044
Benzo[a]pyrene	0.069	0.041	1	0.069
Indeno[1,2,3-c,d]pyrene	ND	0.041	0.1	0.0041
Dibenz[a,h]anthracene	ND	0.041	0.4	0.016
Sum[2]				**0.10**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

ADJUSTED TEF CONCENTRATION FOR SAMPLE S-2

Analyte	Result for Sample S-2 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[1] (mg/kg)
Benzo[a]anthracene	ND	0.0078	0.1	0.00078
Chrysene	ND	0.0078	0.01	0.000078
Benzo[b]fluoranthene	ND	0.0078	0.1	0.00078
Benzo[k]fluoranthene	ND	0.0078	0.1	0.00078
Benzo[a]pyrene	ND	0.0078	1	0.0078
Indeno[1,2,3-c,d]pyrene	ND	0.0078	0.1	0.00078
Dibenz[a,h]anthracene	ND	0.0078	0.4	0.0031
Sum[2]				**0.014**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

TABLE 8
TOXICITY EQUIVALENCY FACTOR-ADJUSTED cPAH CONCENTRATIONS
KWANG PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE S-3

Analyte	Result for Sample S-3 (mg/kg)	Method Detection Limit (mg/kg)	Toxic Equivalency Factor	Adjusted Concentration[(1)] (mg/kg)
Benzo[a]anthracene	ND	0.037	0.1	0.0037
Chrysene	ND	0.037	0.01	0.00037
Benzo[b]fluoranthene	ND	0.037	0.1	0.0037
Benzo[k]fluoranthene	ND	0.037	0.1	0.0037
Benzo[a]pyrene	ND	0.037	1	0.037
Indeno[1,2,3-c,d]pyrene	ND	0.037	0.1	0.0037
Dibenz[a,h]anthracene	ND	0.037	0.4	0.0148
Sum[(2)]				**0.067**
MTCA Method A Cleanup Level for Unrestricted Land Use				0.10
MTCA Method A Cleanup Level for Industrial Land Use				2

Notes:

[(1)] Calculated as the detected concentration times the toxic equivalency factor (TEF), or as the method detection limit (if analyte is not detected) times the TEF.

[(2)] Sum of the TEF for each carcinogenic polycyclic aromatic hydrocarbon.

cPAHs = carcinogenic polycyclic aromatic hydrocarbons

mg/kg = milligrams per kilogram

MTCA = Washington Model Toxics Control Act

ND = not detected

TABLE 9
ANALYTICAL RESULTS - MAY/JUNE 2007
KWANG PROPERTY

Sample Number	Date Collected	Petroleum		Total Metals			Units	TCLP Metals		Units	Notes
		Diesel	Lube Oil	Arsenic	Cadmium	Lead		Cadmium	Lead		
Kwang 'Burn Pit' Excavation											
KBP-1	5/1/2007	--	--	--	**9.8**	--	mg/kg	--	--	mg/L	Removed by subsequent excavation
KBP-2	5/1/2007	--	--	ND	**22**	**980**	mg/kg	**0.13**	**1.1**	mg/L	Removed by subsequent excavation
KBP-3	5/1/2007	--	--	--	**0.87**	--	mg/kg	--	--	--	Confirmation sample
KBP-4	5/1/2007	--	--	ND	ND	ND	mg/kg	--	--	--	Confirmation sample
KBP-5	5/1/2007	ND	**3,800**	**14**	**46**	**3,000**	mg/kg	--	**87**	mg/L	Removed by subsequent excavation
KBP-6	5/1/2007	--	--	ND	ND	**10**	mg/kg	--	--	--	Confirmation sample
KBP-7	5/1/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KBP-8	5/8/2007	--	--	--	ND	**42**	mg/kg	--	--	--	Confirmation sample
KBP-9	5/8/2007	--	--	--	**0.84**	**57**	mg/kg	--	--	--	Confirmation sample
Kwang 'Dangerous Waste' Excavation											
KDW-1	5/1/2007	--	--	ND	**1.7**	**150**	mg/kg	--	--	--	Removed by subsequent excavation
KDW-2	5/1/2007	--	--	**17**	**41**	**5,900**	mg/kg	--	**17**	mg/L	Removed by subsequent excavation
KDW-3	5/1/2007	--	--	ND	**17**	**930**	mg/kg	--	**1.9**	mg/L	Removed by subsequent excavation
KDW-4	5/1/2007	--	--	**12**	**16**	**3,000**	mg/kg	--	**4.1**	mg/L	Removed by subsequent excavation
KDW-5/LA-1	5/1/2007	--	--	**22**	**72**	**3,600**	mg/kg	--	**12**	mg/L	Removed by subsequent excavation
KDW-6	5/1/2007	--	--	**15**	**18**	**2,700**	mg/kg	--	**46**	mg/L	Removed by subsequent excavation
KDW-7	5/1/2007	--	--	ND	**12**	**5,000**	mg/kg	--	**22**	mg/L	Removed by subsequent excavation
KDW-8	5/8/2007	--	--	--	**25**	**2,400**	mg/kg	--	**39**	mg/L	Removed by subsequent excavation
KDW-9	5/8/2007	--	--	--	**8.3**	**1,100**	mg/kg	--	**1.9**	mg/L	Removed by subsequent excavation
KDW-10	5/8/2007	--	--	--	**0.70**	**17**	mg/kg	--	--	--	Confirmation sample
KDW-11	5/8/2007	--	--	--	ND	**13**	mg/kg	--	--	--	Confirmation sample
KDW-12	5/8/2007	--	--	--	**3.2**	**530**	mg/kg	--	**0.33**	mg/L	Removed by subsequent excavation
KDW-13	5/8/2007	--	--	--	**0.94**	**47**	mg/kg	--	--	--	Confirmation sample
KDW-14	5/8/2007	--	--	--	**4.5**	**26**	mg/kg	--	--	--	Removed by subsequent excavation
KDW-15	5/8/2007	--	--	--	ND	**20**	mg/kg	--	--	--	Confirmation sample
KDW-16	5/8/2007	--	--	--	**16**	**1,100**	mg/kg	--	**4.9**	mg/L	Removed by subsequent excavation
KDW-17	5/8/2007	--	--	--	**44**	**2,600**	mg/kg	--	**27**	mg/L	Removed by subsequent excavation
KDW-18	5/8/2007	--	--	--	**24**	**1,300**	mg/kg	--	**14**	mg/L	Removed by subsequent excavation
KDW-19	5/16/2007	--	--	--	ND	**49**	mg/kg	--	ND	mg/L	Confirmation sample
KDW-20	5/16/2007	--	--	--	ND	**28**	mg/kg	--	--	--	Confirmation sample
KDW-21	5/16/2007	--	--	--	ND	**7.2**	mg/kg	--	--	--	Confirmation sample

TABLE 9
ANALYTICAL RESULTS - MAY/JUNE 2007
KWANG PROPERTY

Sample Number	Date Collected	Petroleum		Total Metals			Units	TCLP Metals		Units	Notes
		Diesel	Lube Oil	Arsenic	Cadmium	Lead		Cadmium	Lead		
Kwang 'Dangerous Waste' Excavation											
KDW-22	5/16/2007	--	--	--	**12**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-23	5/16/2007	--	--	--	**11**	**820**	mg/kg	--	**0.69**	mg/L	Removed by subsequent excavation
KDW-24	5/16/2007	--	--	--	**17**	**1,400**	mg/kg	--	**6.7**	mg/L	Removed by subsequent excavation
KDW-25	5/16/2007	--	--	--	**21**	**1,600**	mg/kg	**0.093**	**2.6**	mg/L	Removed by subsequent excavation
KDW-26	5/16/2007	--	--	--	**14**	**260**	mg/kg	--	--	--	Removed by subsequent excavation
KDW-27	5/16/2007	--	--	--	**6.3**	**230**	mg/kg	--	--	--	Removed by subsequent excavation
KDW-28	5/16/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-29	5/16/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-30	5/16/2007	--	--	--	--	--	--	--	--	--	--
KDW-31	5/16/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-32	5/16/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-33	5/16/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-34	5/16/2007	--	--	--	**12**	**920**	mg/kg	--	**1.4**	mg/L	Removed by subsequent excavation
KDW-35	5/16/2007	--	--	--	**23**	**2,300**	mg/kg	**0.14**	**1.9**	mg/L	Removed by subsequent excavation
KDW-36	5/16/2007	--	--	--	**39**	**5,000**	mg/kg	--	**22**	mg/L	Removed by subsequent excavation
KDW-37	5/16/2007	--	--	--	**3.9**	**280**	mg/kg	--	ND	mg/L	Removed by subsequent excavation
KDW-38	5/16/2007	--	--	--	**4.8**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-39	5/16/2007	--	--	--	**1.5**	--	mg/kg	--	--	--	Confirmation sample
KDW-40	5/16/2007	--	--	--	**4.3**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-41	5/16/2007	--	--	--	**3.0**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-42	5/16/2007	--	--	--	**3.0**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-43	5/16/2007	--	--	--	**11**	**840**	mg/kg	--	**1.0**	mg/L	Removed by subsequent excavation
KDW-44	5/16/2007	--	--	--	**10**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-45	5/16/2007	--	--	--	**5.3**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-46	5/16/2007	--	--	--	**4.6**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-47	5/16/2007	--	--	--	**7.3**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-48	5/16/2007	--	--	--	**1.1**	**1,200**	mg/kg	--	**0.78**	mg/L	Removed by subsequent excavation
KDW-49	5/16/2007	--	--	--	**0.91**	**99**	mg/kg	--	--	--	Confirmation sample
KDW-50	5/16/2007	--	--	--	**2.5**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-51	5/16/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-52	5/16/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample

TABLE 9
ANALYTICAL RESULTS - MAY/JUNE 2007
KWANG PROPERTY

Sample Number	Date Collected	Petroleum		Total Metals			Units	TCLP Metals		Units	Notes
		Diesel	Lube Oil	Arsenic	Cadmium	Lead		Cadmium	Lead		
Kwang 'Dangerous Waste' Excavation											
KDW-53	5/16/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-54	5/16/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-55	5/18/2007	--	--	--	**9.2**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-56	5/18/2007	--	--	--	**6.6**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-57	5/18/2007	--	--	--	**7.7**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-58	5/18/2007	--	--	--	**3.5**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-59	5/23/2007	--	--	--	**1.1**	--	mg/kg	--	--	--	Confirmation sample
KDW-60	5/23/2007	--	--	--	**0.81**	--	mg/kg	--	--	--	Confirmation sample
KDW-61	5/23/2007	--	--	--	**3.0**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-62	5/23/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-63	5/25/2007	--	--	--	**8.8**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-64	5/25/2007	--	--	--	**16**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-65	5/25/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-66	5/25/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-67	5/25/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-68	5/25/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-69	5/29/2007	--	--	--	--	**260**	mg/kg	--	--	--	Confirmation sample
KDW-70	5/31/2007	--	--	--	**1.7**	--	mg/kg	--	--	--	Confirmation sample
KDW-71	5/31/2007	--	--	--	**4.5**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-72	5/31/2007	--	--	--	**3.9**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-73	5/31/2007	--	--	--	**6.6**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-74	5/31/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-75	6/7/2007	--	--	--	**1.3**	--	mg/kg	--	--	--	Confirmation sample
KDW-76	6/7/2007	--	--	--	**16**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-77	6/7/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-78	6/7/2007	--	--	--	**0.90**	--	mg/kg	--	--	--	Confirmation sample
KDW-79	6/7/2007	--	--	--	**4.9**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-80	6/7/2007	--	--	--	**0.98**	--	mg/kg	--	--	--	Confirmation sample
KDW-81	6/7/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-82	6/7/2007	--	--	--	--	--	mg/kg	--	--	--	--
KDW-83	6/12/2007	--	--	--	**13**	--	mg/kg	--	--	--	Removed by subsequent excavation

TABLE 9
ANALYTICAL RESULTS - MAY/JUNE 2007
KWANG PROPERTY

Sample Number	Date Collected	Petroleum		Total Metals			Units	TCLP Metals		Units	Notes
		Diesel	Lube Oil	Arsenic	Cadmium	Lead		Cadmium	Lead		
Kwang 'Dangerous Waste' Excavation											
KDW-84	6/12/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-85	6/12/2007	--	--	--	**2.0**	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-86	6/12/2007	--	--	--	**1.8**	**130**	mg/kg	--	--	--	Confirmation sample
KDW-87	6/12/2007	--	--	--	**1.7**	**130**	mg/kg	--	--	--	Confirmation sample
KDW-88	6/12/2007	--	--	--	ND	**9.7**	mg/kg	--	--	--	Confirmation sample
KDW-89	6/12/2007	--	--	--	**1.4**	--	mg/kg	--	--	--	Confirmation sample
KDW-90	6/21/2007	--	--	--	**5.2**	**470**	mg/kg	--	--	--	Removed by subsequent excavation
KDW-91	6/21/2007	--	--	--	**1.3**	**100**	mg/kg	--	--	--	Confirmation sample
KDW-92	6/21/2007	--	--	--	**1.1**	**88**	mg/kg	--	--	--	Confirmation sample
KDW-93	6/21/2007	--	--	--	**0.63**	**60**	mg/kg	--	--	--	Confirmation sample
KDW-94	6/21/2007	--	--	--	**0.65**	**26**	mg/kg	--	--	--	Confirmation sample
KDW-95	6/21/2007	--	--	--	ND	**9.2**	mg/kg	--	--	--	Confirmation sample
KDW-96	6/21/2007	ND	**700**	--	--	--	mg/kg	--	--	--	Confirmation sample
KDW-97	6/21/2007	ND	**770**	--	--	--	mg/kg	--	--	--	Confirmation sample
KDW-98	6/21/2007	ND	**2,000**	--	--	--	mg/kg	--	--	--	Removed by subsequent excavation
KDW-99	6/21/2007	ND	**300**	--	--	--	mg/kg	--	--	--	Confirmation sample
KDW-100	6/21/2007	ND	**390**	--	--	--	mg/kg	--	--	--	Confirmation sample
KDW-101	6/28/2007	ND	**410**	--	--	--	mg/kg	--	--	--	Confirmation sample
KDW-102	6/28/2007	ND	**70**	--	--	--	mg/kg	--	--	--	Confirmation sample
KDW-103	6/28/2007	ND	**89**	--	--	--	mg/kg	--	--	--	Confirmation sample
KDW-104	6/28/2007	ND	**150**	--	--	--	mg/kg	--	--	--	Confirmation sample
KDW-105	6/28/2007	ND	**91**	--	--	--	mg/kg	--	--	--	Confirmation sample
KDW-106	6/28/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-107	6/28/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
KDW-108	6/28/2007	--	--	--	ND	--	mg/kg	--	--	--	Confirmation sample
MTCA Method A (unrestricted use)		2,000	2,000	20	2	250	mg/kg	1[1]	5[1]	mg/L	--
MTCA Method A (industrial use)		2,000	2,000	20	2	1,000	mg/kg	1[1]	5[1]	mg/L	--

TABLE 9
ANALYTICAL RESULTS - MAY/JUNE 2007
KWANG PROPERTY

Notes:

[1] Dangerous Waste criterion
-- = not tested
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
MTCA = Washington Model Toxics Control Act
ND = not detected
TCLP = Toxicity Characteristic Leaching Procedure
Bold text indicates a detected analyte.
Shaded text indicates concentration exceeds cleanup criterion.
Samples are shown in Figure 7.

TABLE 10
ANALYTICAL RESULTS
KWANG PROPERTY - LIGHT STANDARD EXCAVATION

Sample Number	Date Collected	Petroleum			Xylenes	Metals^			PCBs	Units	TCLP Lead	Units	Notes
		Gasoline	Diesel	Lube Oil		Cadmium	Chromium	Lead					
Stockpile	9/6/2007	ND	**3,000**	**15,000**	**1.1**	**4.6**	**23**	**770**	**0.38**	mg/kg	**3.3**	mg/L	--
S-1	9/6/2007	--	**2,100**	**8,400**	--	1.1	--	**150**	--	mg/kg	--	--	Removed by subsequent excavation
S-2	9/6/2007	--	**320**	**3,000**	--	ND	--	**150**	--	mg/kg	--	--	Removed by subsequent excavation
S-3	9/6/2007	--	**240**	**2,400**	--	ND	--	**27**	--	mg/kg	--	--	Removed by subsequent excavation
S-1A	9/17/2007	ND	--	--	--	--	--	--	**0.41**	mg/kg	--	--	--
S-4	9/17/2007	--	**350**	**2,300**	--	--	--	--	--	mg/kg	--	--	--
MTCA Method A (unrestricted use)		100	2,000	2,000	9	2	2,000[1]	250	1	mg/kg	5[2]	mg/L	--
MTCA Method A (industrial use)		100	2,000	2,000	9	2	2,000[1]	1000	10	mg/kg	5[2]	mg/L	--

Notes:

[1] Cleanup criterion for chromium III.

[2] Dangerous Waste criterion

* No MTCA Method A cleanup criterion is established for this analyte.

-- = not tested

^ = Only detected metals are summarized on this table

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

MTCA = Washington Model Toxics Control Act

ND = not detected

PCBs = polychlorinated biphenyls

TCLP = Toxicity Characteristic Leaching Procedure

Bold text indicates a detected analyte.

Shaded text indicates concentration exceeds state cleanup criterion.

TABLE 11
EXTRACTABLE PETROLEUM HYDROCARBON ANALYTICAL RESULTS
KWANG PROPERTY

Range	S-4	Units
C8-C10 Aliphatics	ND	mg/kg
C10-C12 Aliphatics	ND	mg/kg
C12-C16 Aliphatics	**5.7**	mg/kg
C16-C21 Aliphatics	**130**	mg/kg
C21-C34 Aliphatics	**750**	mg/kg
C8-C10 Aromatics	ND	mg/kg
C8-C10 Aromatics	ND	mg/kg
C8-C10 Aromatics	ND	mg/kg
C8-C10 Aromatics	**19**	mg/kg
C8-C10 Aromatics	**140**	mg/kg

Notes:
No Volatile Petroleum Hydrocarbons were detected by Method VPH.
mg/kg = milligrams per kilogram
MTCA = Washington Model Toxics Control Act
ND = not detected
Bold text indicates a detected analyte.

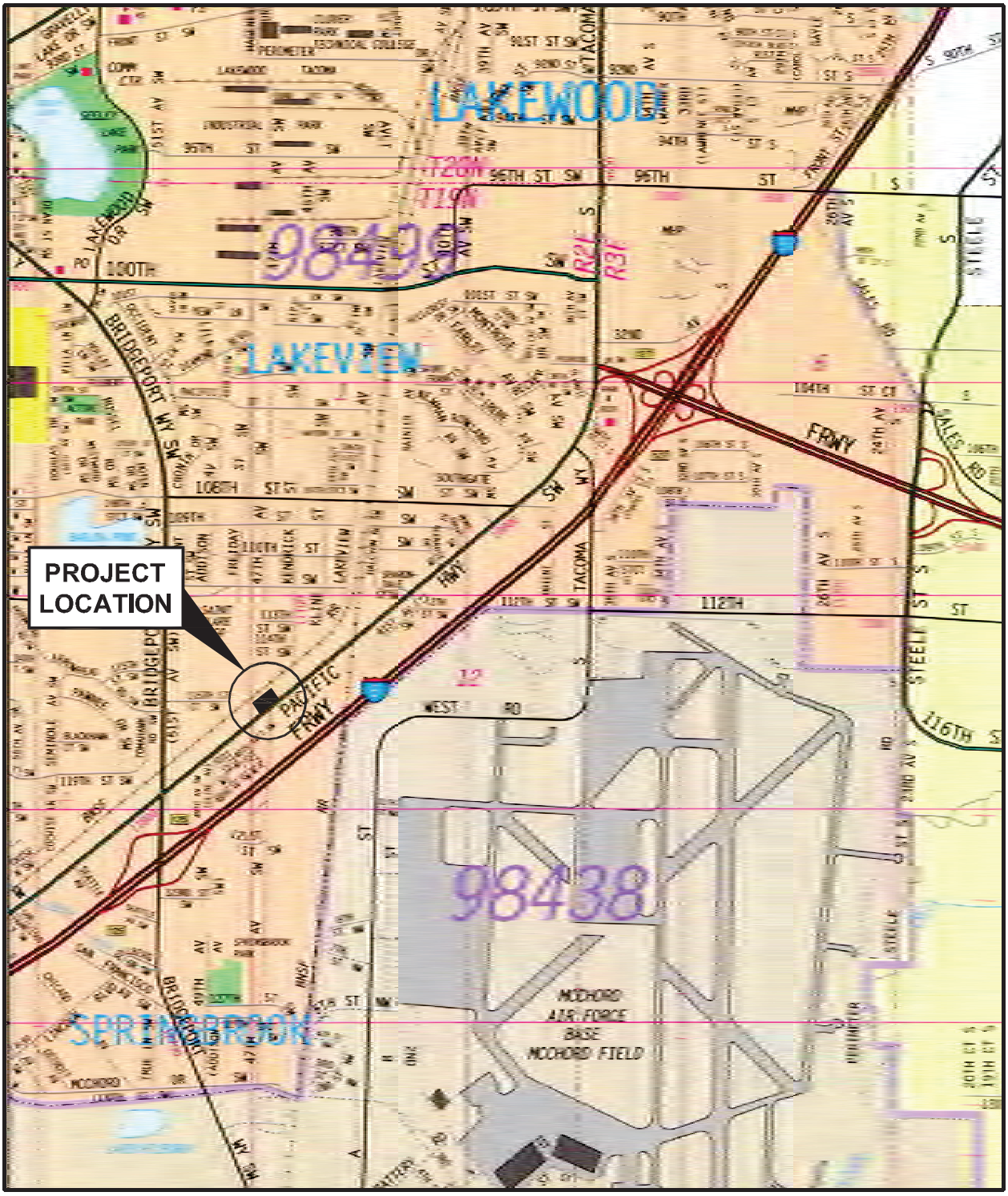
TABLE 12
DATA EVALUATION

Confirmation Sample	Lube Oil	Lead	Units
DW-51	--	< 5.5	mg/kg
DW-52	--	**30**	mg/kg
KBP-4	--	< 5.5	mg/kg
KBP-6	--	**10**	mg/kg
KBP-8	--	**42**	mg/kg
KBP-9	--	**57**	mg/kg
KDW-10	--	**17**	mg/kg
KDW-11	--	**13**	mg/kg
KDW-13	--	**47**	mg/kg
KDW-15	--	**20**	mg/kg
KDW-19	--	**49**	mg/kg
KDW-20	--	**28**	mg/kg
KDW-21	--	**7.2**	mg/kg
KDW-49	--	**99**	mg/kg
KDW-69	--	**260**	mg/kg
KDW-86	--	**130**	mg/kg
KDW-87	--	**130**	mg/kg
KDW-88	--	**9.7**	mg/kg
KDW-91	--	**100**	mg/kg
KDW-92	--	**88**	mg/kg
KDW-93	--	**60**	mg/kg
KDW-94	--	**26**	mg/kg
KDW-95	--	**9.2**	mg/kg
KDW-96	**700**	--	mg/kg
KDW-97	**770**	--	mg/kg
KDW-99	**300**	--	mg/kg
KDW-100	**390**	--	mg/kg
KDW-101	**410**	--	mg/kg
KDW-102	**70**	--	mg/kg
KDW-103	**89**	--	mg/kg
KDW-104	**150**	--	mg/kg
KDW-105	**91**	--	mg/kg
LA-14	**320**	**290**	mg/kg
LA-15	**1,400**	**270**	mg/kg
LA-20	< 53	**7.9**	mg/kg
LA-21	**550**	< 5.9	mg/kg
LA-22	**100**	**24**	mg/kg
LA-25	< 56	< 5.6	mg/kg
LA-26	**1,100**	**220**	mg/kg
LA-27	**370**	**15**	mg/kg
LA-28	**380**	**19**	mg/kg
LA-29	**340**	**150**	mg/kg
LA-30	**460**	**120**	mg/kg
LA-3	< 65	**61**	mg/kg
LA-5	120	**42**	mg/kg
LA-6	< 55	< 5.5	mg/kg
LA-7	< 55	< 5.5	mg/kg
LA-8	< 56	**72**	mg/kg

TABLE 12
DATA EVALUATION

Confirmation Sample	Lube Oil	Lead	Units
LA-9	< 60	**7.5**	mg/kg
LA-10	**74**	**72**	mg/kg
LA-11	< 63	**34**	mg/kg
LA-12	**150**	**6.9**	mg/kg
LA-13	**140**	**120**	mg/kg
S-1A		--	mg/kg
S-4	**2,300**	--	mg/kg
MTCA Unrestricted Criteria	2,000	250	mg/kg

Highest remaining concentration?	2300	290	
Greater than twice cleanup criterion?	NO	NO	**Criteria 1 met!**
Number of samples analyzed?	31	44	
How many exceed unrestricted criteria?	1	3	
Percent exceeding?	3.2%	6.8%	
Less than 10 percent?	YES	YES	**Criteria 2 met!**
Upper Confidence Level	517	140	
Less than soil cleanup level?	YES	YES	**Criteria 3 met!**
(See Appendix E for supporting calculations)			



0 1/4 1/2 1

Scale in Miles

NOTE

Lakewood Station
11500 Block Pacific Hwy SW
Lakewood, Washington

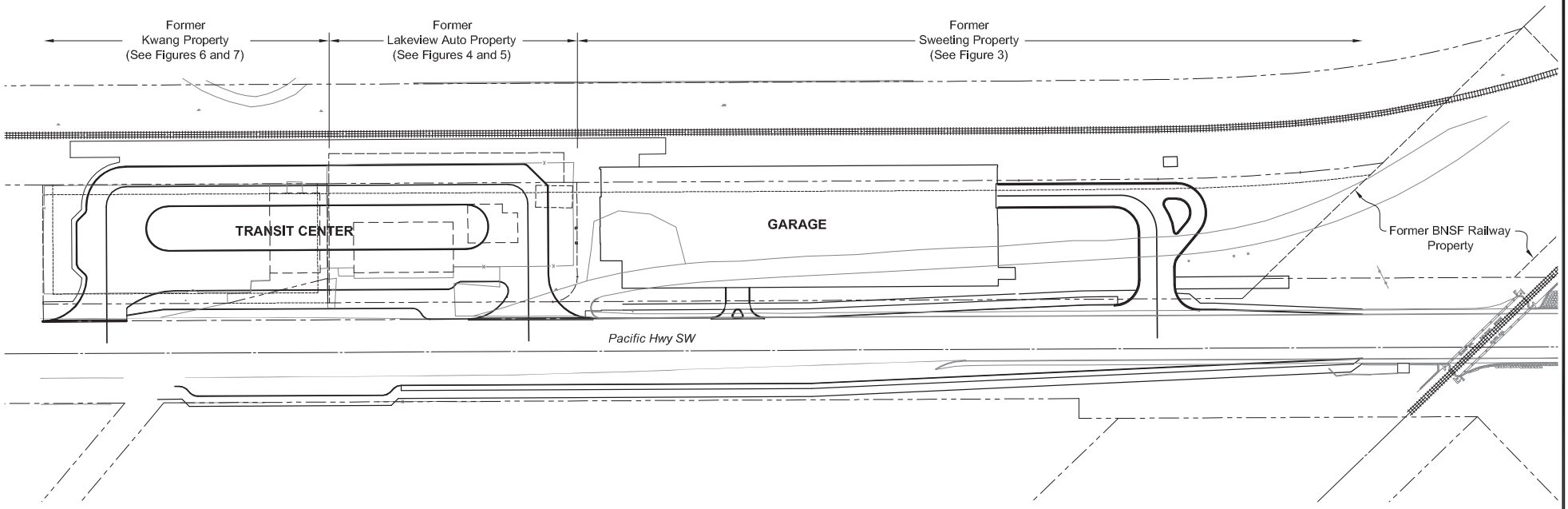
VICINITY MAP

September 2008 21-1-12180-009

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 1

File: J:\21\12180-009\21-1-12180-009 fig 1.dwg Date: 09-15-2008 Author: cnt



N

LEGEND

Property Line

0 100 200

Scale In Feet

Lakewood Station
11500 Block Pacific Hwy SW
Lakewood, Washington

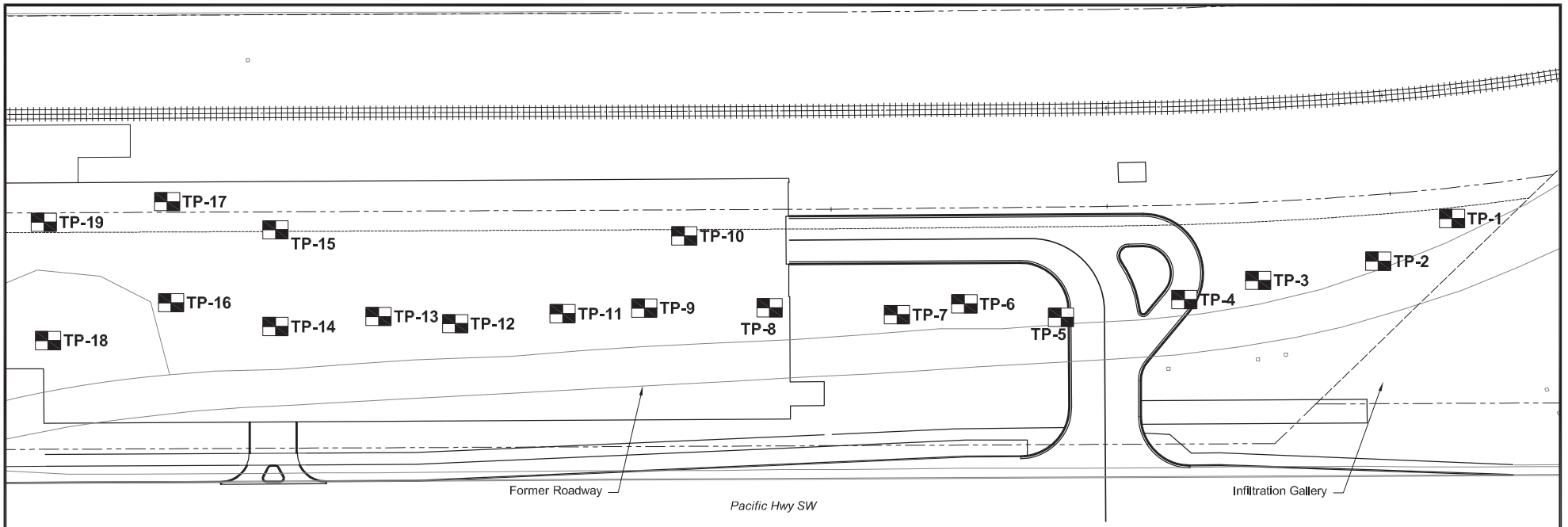
STATION MAP

September 2008 21-1-12180-009

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 2

Filename: J:\21\1\12180-009\21-1-12180-009 fig 2-7.dwg Date: 09-15-2008 Login: cnt



0 50 100

Scale In Feet

LEGEND

TP-1 Test Pit Designation and Approximate Location (Galloway Environmental, Inc., 2007e)

Lakewood Station
11500 Block Pacific Hwy SW
Lakewood, Washington

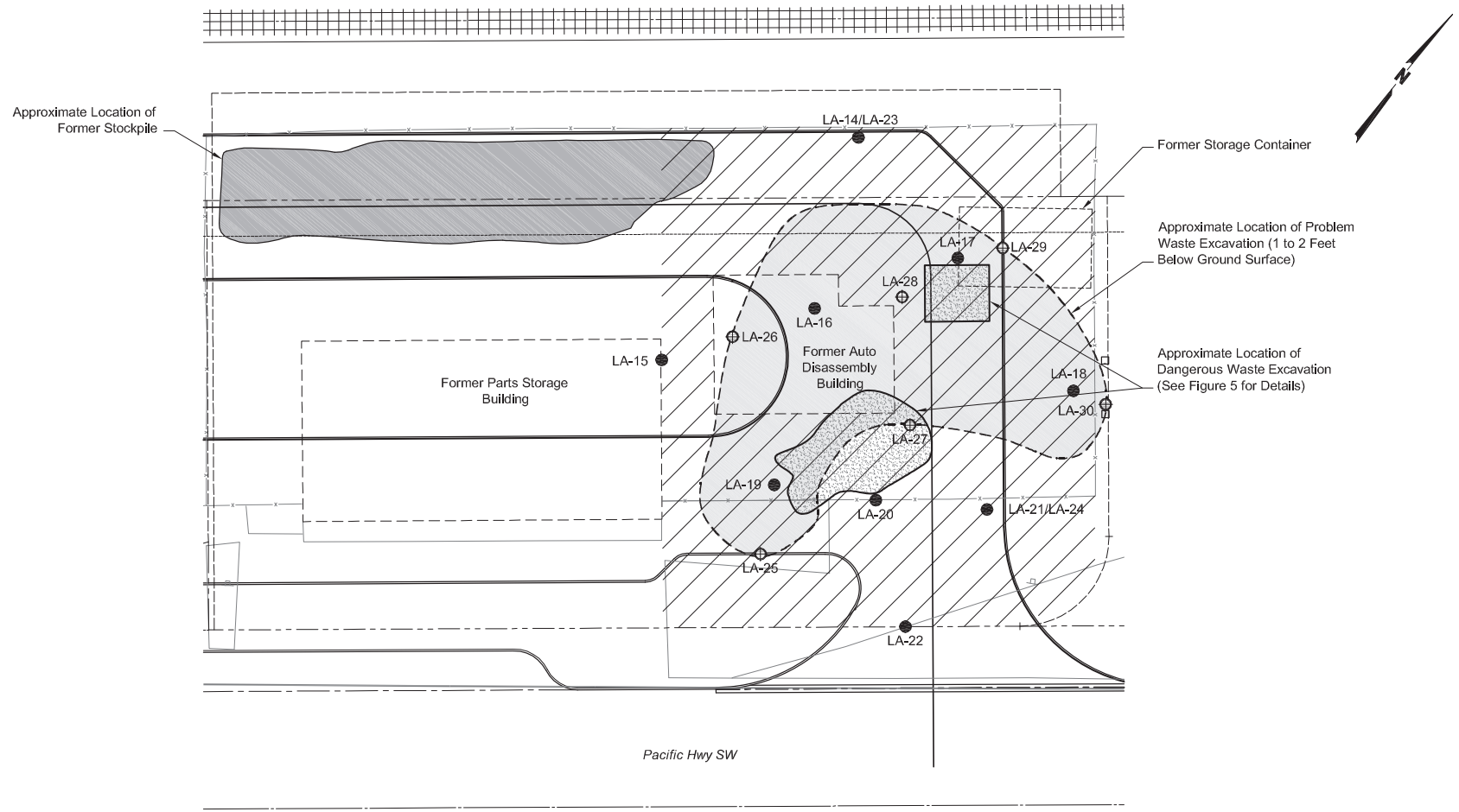
SWEETING PROPERTY
SITE PLAN

September 2008 21-1-12180-009

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 3

Filename: J:\21\1\12180-009\21-1-12180-009 fig 2-7.dwg Date: 09-15-2008 Login: cnt



LEGEND

Excavated to 1 Foot and Disposed of Off-site

Soil Stockpile Disposed of Off-site

Soil Sample Designation and Approximate Location (Galloway Environmental, Inc., 2007h)

LA-1 ● Sample collected following removal of top 1 foot of soil.

LA-25 ⊕ Sample collected from approximately 2 feet below ground surface.

0 30 60

Scale in Feet

NOTES

1. Excavation details based on figures prepared by Galloway Environmental, Inc. and should be considered approximate.
2. Sample results are shown in Tables 3, 4, and 5.

Lakewood Station
11500 Block Pacific Hwy SW
Lakewood, Washington

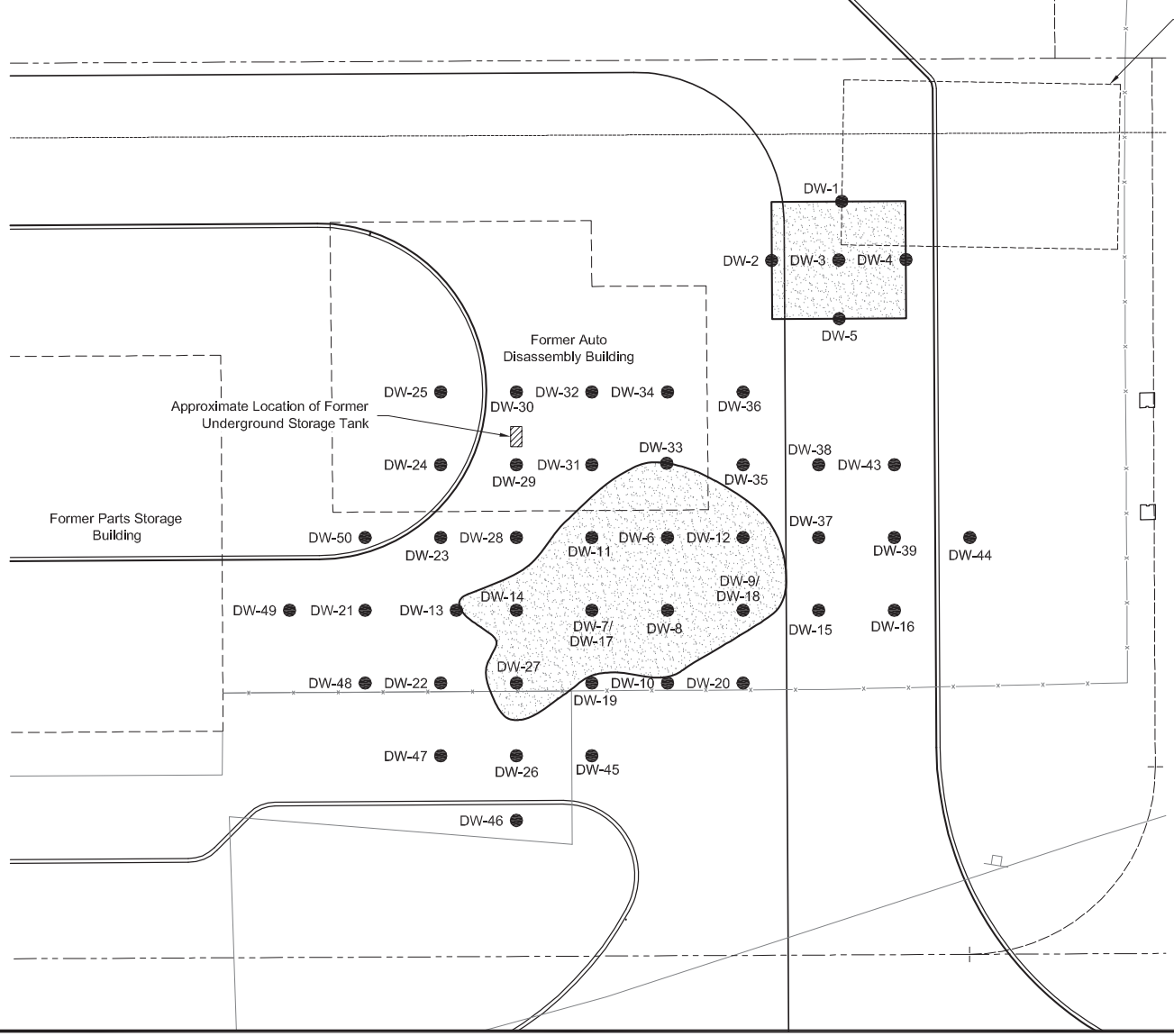
LAKEVIEW AUTO PROPERTY SITE PLAN

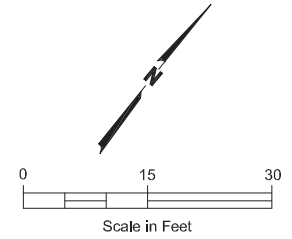
September 2008 21-1-12180-009

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 4

Filename: J:\21\1\12180-009\21-1-12180-009 fig 2-7.dwg Date: 09-15-2008 Login: cnt





LEGEND

DW-1 ● Soil Sample Designation and Approximate Location (Galloway Environmental, Inc., 2007a, 2007f, 2007h)

Dangerous Waste Excavation

NOTES

1. Excavation details based on figures prepared by Galloway Environmental, Inc. and should be considered approximate.
2. Not all samples collected were analyzed. See Table 2.
3. Sample locations for DW-40 through DW-42, DW-51, and DW-52 are not known.

Lakewood Station
11500 Block Pacific Hwy SW
Lakewood, Washington

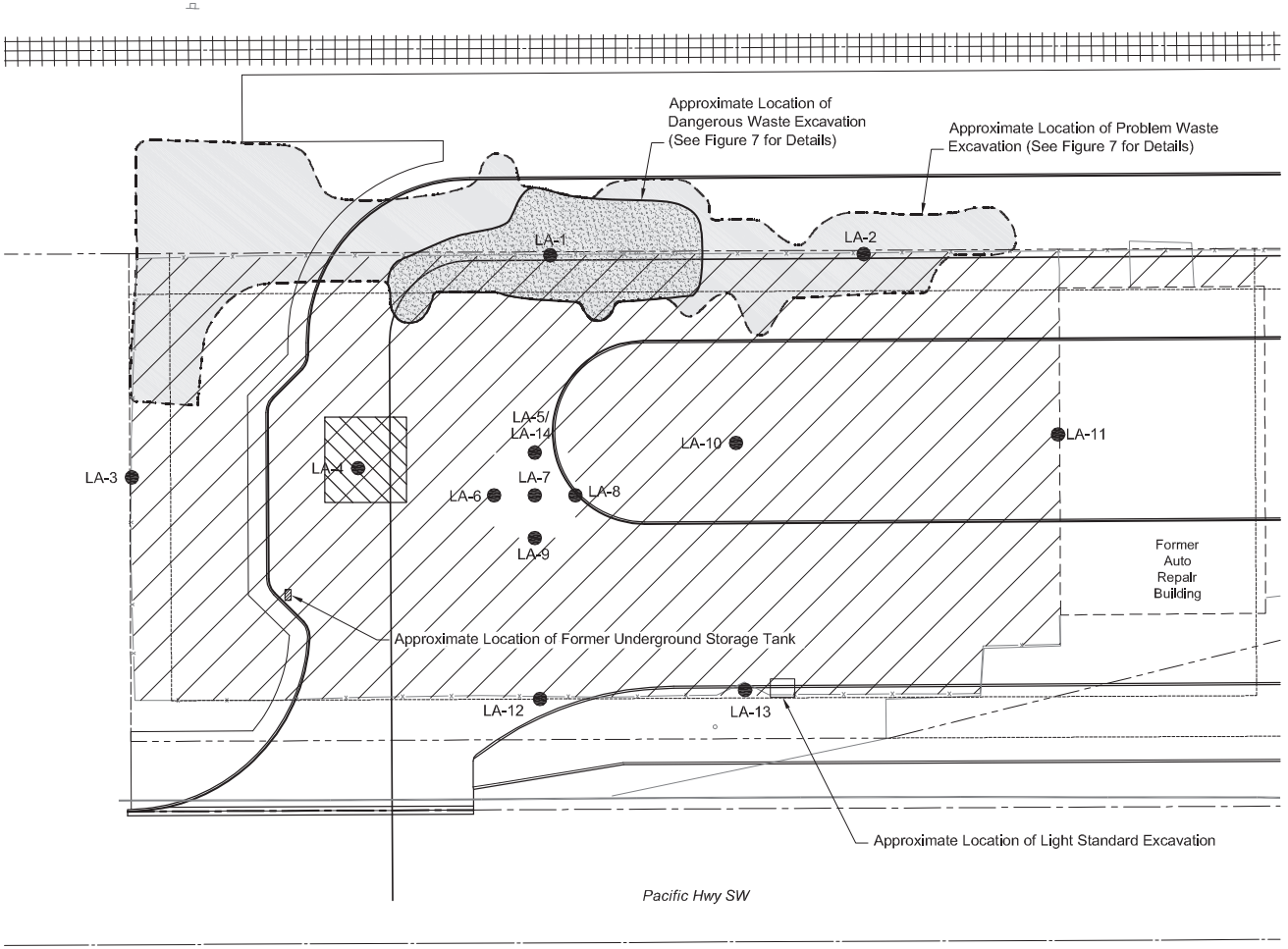
LAKEVIEW AUTO PROPERTY
EXCAVATION SAMPLING PLAN

September 2008 21-1-12180-009

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 5

Filename: J:\21\1\12180-009\21-1-12180-009 fig 2-7.dwg Date: 09-15-2008 Login: cnt



LEGEND

- Excavated to 3 Feet and Disposed of Offsite (See Figure 7)
- Excavated to 1 Foot and Disposed of Off-site
- Soil Stockpile Disposed of Off-site
- Soil Sample Designation and Approximate Location (Galloway Environmental, Inc., 2007g, 2007h)
- LA-1 ● Sample collected following removal of top 1 foot of soil.

0 30 60

Scale in Feet

NOTES

1. Excavation details based on figures prepared by Galloway Environmental, Inc. and should be considered approximate.
2. Sample results are shown in Tables 6, 7, 8, and 10.

Lakewood Station
11500 Block Pacific Hwy SW
Lakewood, Washington

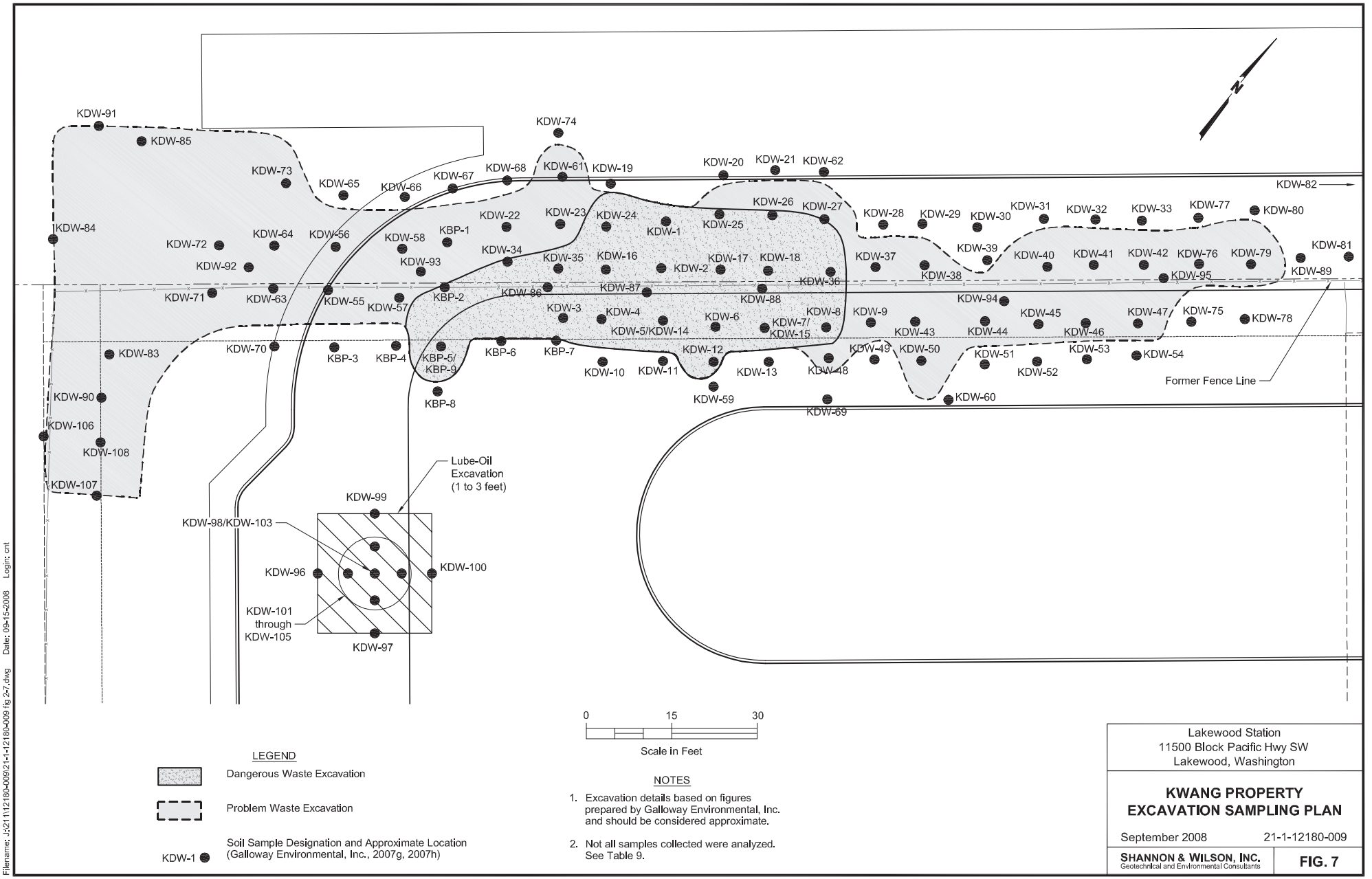
KWANG PROPERTY
SITE PLAN

September 2008 21-1-12180-009

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 6

Filename: J:\21\1\12180-009\21-1-12180-009 fig 2-7.dwg Date: 09-15-2008 Login: cnt


KDW-91
KDW-85
KDW-74
KDW-73
KDW-65
KDW-66
KDW-67
KDW-68
KDW-61
KDW-19
KDW-20
KDW-21
KDW-62
KDW-82
KDW-84
KDW-72
KDW-64
KDW-56
KDW-58
KBP-1
KDW-22
KDW-23
KDW-24
KDW-1
KDW-25
KDW-26
KDW-27
KDW-28
KDW-29
KDW-30
KDW-31
KDW-32
KDW-33
KDW-77
KDW-80
KDW-92
KDW-93
KDW-34
KDW-35
KDW-16
KDW-2
KDW-17
KDW-18
KDW-37
KDW-39
KDW-40
KDW-41
KDW-42
KDW-76
KDW-79
KDW-81
KDW-71
KDW-63
KDW-55
KDW-57
KBP-2
KDW-86
KDW-87
KDW-36
KDW-38
KDW-95
KDW-89
KDW-3
KDW-4
KDW-6
KDW-88
KDW-8
KDW-9
KDW-94
KDW-45
KDW-47
KDW-75
KDW-78
KDW-5/KDW-14
KDW-7/
KDW-15
KDW-43
KDW-44
KDW-46
KDW-83
KDW-70
KBP-3
KBP-4
KBP-5/
KBP-9
KBP-6
KBP-7
KDW-12
KDW-49
KDW-50
KDW-51
KDW-53
KDW-54
KDW-10
KDW-11
KDW-13
KDW-48
KDW-52
Former Fence Line
KDW-90
KDW-106
KDW-108
KDW-107
KBP-8
KDW-59
KDW-69
KDW-60
Lube-Oil
Excavation
(1 to 3 feet)
KDW-99
KDW-98/KDW-103
KDW-96
KDW-100
KDW-101
through
KDW-105
KDW-97
0
15
30
Scale in Feet
LEGEND
Dangerous Waste Excavation
Problem Waste Excavation
KDW-1
Soil Sample Designation and Approximate Location
(Galloway Environmental, Inc., 2007g, 2007h)
NOTES
1. Excavation details based on figures prepared by Galloway Environmental, Inc. and should be considered approximate.
2. Not all samples collected were analyzed. See Table 9.
Lakewood Station
11500 Block Pacific Hwy SW
Lakewood, Washington
KWANG PROPERTY
EXCAVATION SAMPLING PLAN
September 2008
21-1-12180-009
SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants
FIG. 7
Filename: J:\21\1\12180-009\21-1-12180-009 fig 2-7.dwg Date: 09-15-2008 Login: cnt

APPENDIX A

SWEETING PROPERTY STOCKPILE ANALYTICAL LABORATORY REPORTS

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

November 9, 2007

Dan McMahon
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, WA 98103

Re: Analytical Data for Project 21-1-12180-009
Laboratory Reference No. 0711-030

Dear Dan:

Enclosed are the analytical results and associated quality control data for samples submitted on November 6, 2007.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: November 9, 2007
Samples Submitted: November 6, 2007
Laboratory Reference: 0711-030
Project: 21-1-12180-009

Case Narrative

Samples were collected on November 5, 2007 and received by the laboratory on November 6, 2007. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: November 9, 2007
Samples Submitted: November 6, 2007
Laboratory Reference: 0711-030
Project: 21-1-12180-009

NWTPH-Dx

Date Extracted: 11-6-07
Date Analyzed: 11-6-07

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**SP1-S1**	**SP1-S4**	**SP1-S5**
Lab ID:	11-030-01	11-030-02	11-030-03
Diesel Range:	**ND**	**ND**	**ND**
PQL:	28	28	28
Identification:	---	---	---
Lube Oil Range:	**160**	**870**	**300**
PQL:	57	56	55
Identification:	Lube Oil	Lube Oil	Lube Oil
Surrogate Recovery			
o-Terphenyl:	92%	95%	98%
Flags:	Y	Y	Y

Date of Report: November 9, 2007
Samples Submitted: November 6, 2007
Laboratory Reference: 0711-030
Project: 21-1-12180-009

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	11-6-07
Date Analyzed:	11-6-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1106S1
Diesel Range:	**ND**
PQL:	25
Identification:	---
Lube Oil Range:	**ND**
PQL:	50
Identification:	---
Surrogate Recovery	
o-Terphenyl:	93%
Flags:	Y

Date of Report: November 9, 2007
Samples Submitted: November 6, 2007
Laboratory Reference: 0711-030
Project: 21-1-12180-009

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted: 11-6-07
Date Analyzed: 11-6-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID:	11-015-01	11-015-01 DUP
Diesel Range:	**ND**	**ND**
PQL:	25	25
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	92%	92%
Flags:	Y	Y

Date of Report: November 9, 2007
Samples Submitted: November 6, 2007
Laboratory Reference: 0711-030
Project: 21-1-12180-009

TOTAL LEAD
EPA 6010B

Date Extracted:	11-7-07
Date Analyzed:	11-8-07
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID	Lab ID	Result	PQL
SP1-S1	11-030-01	**61**	5.7
SP1-S4	11-030-02	**93**	5.6
SP1-S5	11-030-03	**41**	5.5

Date of Report: November 9, 2007
Samples Submitted: November 6, 2007
Laboratory Reference: 0711-030
Project: 21-1-12180-009

TOTAL LEAD
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	11-7-07
Date Analyzed:	11-8-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1107S1

Analyte	Method	Result	PQL
Lead	6010B	**ND**	5.0

Date of Report: November 9, 2007
Samples Submitted: November 6, 2007
Laboratory Reference: 0711-030
Project: 21-1-12180-009

TOTAL LEAD
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 11-7-07
Date Analyzed: 11-8-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-218-23

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Lead	**ND**	**ND**	NA		5.0

Date of Report: November 9, 2007
Samples Submitted: November 6, 2007
Laboratory Reference: 0711-030
Project: 21-1-12180-009

TOTAL LEAD
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 11-7-07
Date Analyzed: 11-8-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-218-23

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Lead	250	**230**	92	**232**	93	1	

Date of Report: November 9, 2007
Samples Submitted: November 6, 2007
Laboratory Reference: 0711-030
Project: 21-1-12180-009

% MOISTURE

Date Analyzed: 11-6-07

Client ID	Lab ID	% Moisture
SP1-S1	11-030-01	12
SP1-S4	11-030-02	10
SP1-S5	11-030-03	9

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: Shannon & Wilson
Project Number: 21-1-12180-009
Project Name: Lakewood Station
Project Manager: Dan McMahon
Sampled by: DM

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☒ 3 Day
- ☐ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 11-030

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	VPH	EPH	Total Lead				% Moisture
1	SP1-S1	11/5/07	920	Soil	1			X													X				X
2	SP1-S4	11/5/07	922	Soil	1			X													X				↓
3	SP1-S5	11/5/07	924	Soil	1			X													X				
4	SP2-S1 (HOLD)	11/5/07	945	Soil	1																				
5	SP2-S3 (HOLD)	11/5/07	947	Soil	1																				

	Signature	Company	Date	Time
Relinquished by		Shannon & Wilson	11/5/07	15:30
Received by		OPE	11/6/07	935
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

APPENDIX B

KWANG LIGHT STANDARD ANALYTICAL LABORATORY REPORTS

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

September 14, 2007

Agnes Tirao
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, WA 98103

Re: Analytical Data for Project 21-1-12180-009
Laboratory Reference No. 0709-027

Dear Agnes:

Enclosed are the analytical results and associated quality control data for samples submitted on September 6, 2007.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

Case Narrative

Samples were collected on September 6, 2007 and received by the laboratory on September 6, 2007. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH Gx/BTEX Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

PAHs EPA 8270D/SIM Analysis

Sample Stockpile had one surrogate out of control limits. This is allowed by the method as long as the recovery is above 10%.

The interferences present in samples S-1, S-2 and S-3 prevented the analysis of some compounds down to MTCA clean-up levels.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Gx/BTEX

Date Extracted:	9-6-07
Date Analyzed:	9-6-07
Matrix: Soil	
Units: mg/kg (ppm)	
Client ID:	**Stockpile**
Lab ID:	09-027-01

	Result	Flags	PQL
Benzene	**ND**	**U1**	0.059
Toluene	**ND**	**U1**	0.30
Ethyl Benzene	**ND**	**U1**	0.30
m,p-Xylene	**1.1**		0.059
o-Xylene	**ND**	**U1**	0.30
TPH-Gas	**ND**		5.9
Surrogate Recovery:			
Fluorobenzene	86%		

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-6-07
Date Analyzed: 9-6-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0906S1

	Result	Flags	PQL
Benzene	**ND**		0.020
Toluene	**ND**		0.050
Ethyl Benzene	**ND**		0.050
m,p-Xylene	**ND**		0.050
o-Xylene	**ND**		0.050
TPH-Gas	**ND**		5.0
Surrogate Recovery:			
Fluorobenzene	109%		

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Gx/BTEX
DUPLICATE QUALITY CONTROL

Date Extracted: 9-6-07
Date Analyzed: 9-6-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID:	09-030-07 **Original**	09-030-07 **Duplicate**	**RPD**	**Flags**
Benzene	**ND**	**ND**	NA	
Toluene	**ND**	**ND**	NA	
Ethyl Benzene	**ND**	**ND**	NA	
m,p-Xylene	**ND**	**ND**	NA	
o-Xylene	**ND**	**ND**	NA	
TPH-Gas	**ND**	**ND**	NA	
Surrogate Recovery:				
Fluorobenzene	100%	102%		

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Gx/BTEX
MS/MSD QUALITY CONTROL

Date Extracted: 9-6-07
Date Analyzed: 9-6-07

Matrix: Soil
Units: mg/kg (ppm)

Spike Level (ppm): 2.25

Lab ID:	09-030-07 **MS**	Percent Recovery	09-030-07 **MSD**	Percent Recovery	**RPD**	**Flags**
Benzene	**2.17**	**96**	**2.27**	**101**	4	
Toluene	**2.22**	**98**	**2.32**	**103**	5	
Ethyl Benzene	**2.22**	**99**	**2.32**	**103**	4	
m,p-Xylene	**2.25**	**100**	**2.36**	**105**	4	
o-Xylene	**2.27**	**101**	**2.35**	**105**	4	

Surrogate Recovery:
Fluorobenzene 87% 88%

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Dx

Date Extracted:	9-6-07
Date Analyzed:	9-10-07
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID:	**Stockpile**
Lab ID:	09-027-01
Diesel Range:	**3000**
PQL:	290
Identification:	Diesel Range Organics
Lube Oil Range:	**15000**
PQL:	580
Identification:	Lube Oil
Surrogate Recovery	
o-Terphenyl:	---
Flags:	Y,S

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-6-07
Date Analyzed:	9-7-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0906S2
Diesel Range:	**ND**
PQL:	25
Identification:	---
Lube Oil Range:	**ND**
PQL:	50
Identification:	---
Surrogate Recovery	
o-Terphenyl:	96%
Flags:	Y

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted: 9-6-07
Date Analyzed: 9-7-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID:	09-030-02	09-030-02 DUP
Diesel Range:	**ND**	**ND**
PQL:	25	25
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	91%	91%
Flags:	Y	Y

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 9-7-07
Date Analyzed: 9-7-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-027-01
Client ID: Stockpile

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	12
Cadmium	6010B	**4.6**	0.58
Chromium	6010B	**23**	0.58
Lead	6010B	**770**	5.8
Mercury	7471A	**ND**	0.29

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-7-07
Date Analyzed:	9-7-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0907S1&MB0907S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-7-07
Date Analyzed: 9-7-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-016-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**13.1**	**14.7**	12	0.50	
Lead	**ND**	**ND**	NA	5.0	
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 9-7-07
Date Analyzed: 9-7-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-016-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**95.9**	96	**96.3**	96	0	
Cadmium	50	**51.1**	102	**51.2**	102	0	
Chromium	100	**113**	100	**118**	105	4	
Lead	250	**242**	97	**236**	94	3	
Mercury	0.50	**0.542**	108	**0.544**	109	0	

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PAHs by EPA 8270D/SIM

Date Extracted:	9-7-07
Date Analyzed:	9-7-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-027-01
Client ID:	**Stockpile**

Compound:	**Results**	**Flags**	**PQL**
Naphthalene	0.87		0.039
2-Methylnaphthalene	2.2		0.039
1-Methylnaphthalene	1.2		0.039
Acenaphthylene	0.087		0.039
Acenaphthene	0.072		0.039
Fluorene	0.38		0.039
Phenanthrene	1.2		0.039
Anthracene	0.062		0.039
Fluoranthene	0.17		0.039
Pyrene	0.37		0.039
Benzo[a]anthracene	0.13		0.039
Chrysene	0.48		0.039
Benzo[b]fluoranthene	0.21		0.039
Benzo[k]fluoranthene	0.040		0.039
Benzo[a]pyrene	0.073		0.039
Indeno(1,2,3-c,d)pyrene	0.059		0.039
Dibenz[a,h]anthracene	ND		0.039
Benzo[g,h,i]perylene	0.130		0.039

Surrogate :	**Percent Recovery**		**Control Limits**
Nitrobenzene-d5	127	Q	44 - 115
2-Fluorobiphenyl	109		52 - 110
Terphenyl-d14	112		66 - 123

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PAHs by EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-7-07
Date Analyzed:	9-7-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0907S1

Compound:	Results	Flags	PQL
Naphthalene	ND		0.0067
2-Methylnaphthalene	ND		0.0067
1-Methylnaphthalene	ND		0.0067
Acenaphthylene	ND		0.0067
Acenaphthene	ND		0.0067
Fluorene	ND		0.0067
Phenanthrene	ND		0.0067
Anthracene	ND		0.0067
Fluoranthene	ND		0.0067
Pyrene	ND		0.0067
Benzo[a]anthracene	ND		0.0067
Chrysene	ND		0.0067
Benzo[b]fluoranthene	ND		0.0067
Benzo[k]fluoranthene	ND		0.0067
Benzo[a]pyrene	ND		0.0067
Indeno(1,2,3-c,d)pyrene	ND		0.0067
Dibenz[a,h]anthracene	ND		0.0067
Benzo[g,h,i]perylene	ND		0.0067

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	80	44 - 115
2-Fluorobiphenyl	84	52 - 110
Terphenyl-d14	93	66 - 123

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PAHs by EPA 8270D/SIM
SB/SBD QUALITY CONTROL

Date Extracted: 9-7-07
Date Analyzed: 9-7-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: SB0907S1

Compound:	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
Naphthalene	0.0833	0.0672	81	0.0627	75	44-111	
Acenaphthylene	0.0833	0.0672	81	0.0623	75	53-114	
Acenaphthene	0.0833	0.0705	85	0.0662	79	54-114	
Fluorene	0.0833	0.0719	86	0.0682	82	53-123	
Phenanthrene	0.0833	0.0710	85	0.0690	83	58-115	
Anthracene	0.0833	0.0662	79	0.0606	73	58-113	
Fluoranthene	0.0833	0.0746	90	0.0736	88	69-115	
Pyrene	0.0833	0.0754	90	0.0742	89	72-114	
Benzo[a]anthracene	0.0833	0.0779	93	0.0753	90	66-126	
Chrysene	0.0833	0.0859	103	0.0846	101	63-130	
Benzo[b]fluoranthene	0.0833	0.0808	97	0.0804	97	66-124	
Benzo[k]fluoranthene	0.0833	0.0786	94	0.0770	92	63-128	
Benzo[a]pyrene	0.0833	0.0663	80	0.0610	73	56-116	
Indeno(1,2,3-c,d)pyrene	0.0833	0.0739	89	0.0739	89	66-127	
Dibenz[a,h]anthracene	0.0833	0.0743	89	0.0739	89	64-130	
Benzo[g,h,i]perylene	0.0833	0.0743	89	0.0740	89	65-119	

	RPD	RPD Limit	Flags
Naphthalene	7	28	
Acenaphthylene	8	27	
Acenaphthene	6	24	
Fluorene	5	22	
Phenanthrene	3	18	
Anthracene	9	18	
Fluoranthene	2	16	
Pyrene	2	16	
Benzo[a]anthracene	3	16	
Chrysene	2	16	
Benzo[b]fluoranthene	0	16	
Benzo[k]fluoranthene	2	17	
Benzo[a]pyrene	8	16	
Indeno(1,2,3-c,d)pyrene	0	16	
Dibenz[a,h]anthracene	1	16	
Benzo[g,h,i]perylene	0	17	

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Dx

Date Extracted: 9-11-07
Date Analyzed: 9-11-07

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**S-1**	**S-2**	**S-3**
Lab ID:	09-027-02	09-027-03	09-027-04
Diesel Range:	**2100**	**320**	**240**
PQL:	150	150	140
Identification:	Diesel Range Organics	Diesel Range Organics	Diesel Range Organics
Lube Oil Range:	**8400**	**3000**	**2400**
PQL:	300	290	280
Identification:	Lube Oil	Lube Oil	Lube Oil
Surrogate Recovery			
o-Terphenyl:	78%	85%	95%
Flags:	Y,N	Y,N	Y,N

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-11-07
Date Analyzed:	9-11-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0911S1
Diesel Range:	**ND**
PQL:	25
Identification:	---
Lube Oil Range:	**ND**
PQL:	50
Identification:	---
Surrogate Recovery	
o-Terphenyl:	113%
Flags:	Y

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	9-11-07
Date Analyzed:	9-11-07
Matrix:	Soil
Units:	mg/kg (ppm)

Lab ID:	09-027-04	09-027-04 DUP
Diesel Range:	**215**	**193**
PQL:	130	130
RPD:	11	
Surrogate Recovery		
o-Terphenyl:	95%	72%
Flags:	Y	Y

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PAHs by EPA 8270D/SIM

Date Extracted:	9-10-07
Date Analyzed:	9-11-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-027-02
Client ID:	**S-1**

Compound:	**Results**	**Flags**	**PQL**
Naphthalene	ND		0.0081
2-Methylnaphthalene	ND		0.0081
1-Methylnaphthalene	ND		0.0081
Acenaphthylene	0.017		0.0081
Acenaphthene	0.015		0.0081
Fluorene	ND		0.041
Phenanthrene	ND		0.041
Anthracene	0.047		0.041
Fluoranthene	ND		0.041
Pyrene	0.052		0.041
Benzo[a]anthracene	ND		0.041
Chrysene	ND		0.041
Benzo[b]fluoranthene	ND		0.041
Benzo[k]fluoranthene	0.044		0.041
Benzo[a]pyrene	0.069		0.041
Indeno(1,2,3-c,d)pyrene	ND		0.041
Dibenz[a,h]anthracene	ND		0.041
Benzo[g,h,i]perylene	0.14		0.041

Surrogate :	**Percent Recovery**	**Control Limits**
Nitrobenzene-d5	55	44 - 115
2-Fluorobiphenyl	67	52 - 110
Terphenyl-d14	83	66 - 123

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PAHs by EPA 8270D/SIM

Date Extracted:	9-10-07
Date Analyzed:	9-11-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-027-03
Client ID:	**S-2**

Compound:	**Results**	**Flags**	**PQL**
Naphthalene	ND		0.0078
2-Methylnaphthalene	0.012		0.0078
1-Methylnaphthalene	ND		0.0078
Acenaphthylene	0.011		0.0078
Acenaphthene	ND		0.0078
Fluorene	ND		0.0078
Phenanthrene	0.013		0.0078
Anthracene	0.012		0.0078
Fluoranthene	ND		0.0078
Pyrene	ND		0.0078
Benzo[a]anthracene	ND		0.0078
Chrysene	ND		0.0078
Benzo[b]fluoranthene	ND		0.0078
Benzo[k]fluoranthene	ND		0.0078
Benzo[a]pyrene	ND		0.0078
Indeno(1,2,3-c,d)pyrene	ND		0.0078
Dibenz[a,h]anthracene	ND		0.0078
Benzo[g,h,i]perylene	0.070		0.039

Surrogate :	**Percent Recovery**	**Control Limits**
Nitrobenzene-d5	76	44 - 115
2-Fluorobiphenyl	80	52 - 110
Terphenyl-d14	86	66 - 123

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PAHs by EPA 8270D/SIM

Date Extracted:	9-10-07
Date Analyzed:	9-11-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	09-027-04
Client ID:	**S-3**

Compound:	**Results**	**Flags**	**PQL**
Naphthalene	ND		0.0074
2-Methylnaphthalene	ND		0.0074
1-Methylnaphthalene	ND		0.0074
Acenaphthylene	ND		0.0074
Acenaphthene	ND		0.0074
Fluorene	ND		0.0074
Phenanthrene	ND		0.0074
Anthracene	ND		0.0074
Fluoranthene	ND		0.0074
Pyrene	0.0077		0.0074
Benzo[a]anthracene	ND		0.037
Chrysene	ND		0.037
Benzo[b]fluoranthene	ND		0.037
Benzo[k]fluoranthene	ND		0.037
Benzo[a]pyrene	ND		0.037
Indeno(1,2,3-c,d)pyrene	ND		0.037
Dibenz[a,h]anthracene	ND		0.037
Benzo[g,h,i]perylene	0.050		0.037

Surrogate :	**Percent Recovery**	**Control Limits**
Nitrobenzene-d5	57	44 - 115
2-Fluorobiphenyl	67	52 - 110
Terphenyl-d14	83	66 - 123

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PAHs by EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-10-07
Date Analyzed:	9-10-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0910S1

Compound:	Results	Flags	PQL
Naphthalene	ND		0.0067
2-Methylnaphthalene	ND		0.0067
1-Methylnaphthalene	ND		0.0067
Acenaphthylene	ND		0.0067
Acenaphthene	ND		0.0067
Fluorene	ND		0.0067
Phenanthrene	ND		0.0067
Anthracene	ND		0.0067
Fluoranthene	ND		0.0067
Pyrene	ND		0.0067
Benzo[a]anthracene	ND		0.0067
Chrysene	ND		0.0067
Benzo[b]fluoranthene	ND		0.0067
Benzo[k]fluoranthene	ND		0.0067
Benzo[a]pyrene	ND		0.0067
Indeno(1,2,3-c,d)pyrene	ND		0.0067
Dibenz[a,h]anthracene	ND		0.0067
Benzo[g,h,i]perylene	ND		0.0067

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	71	44 - 115
2-Fluorobiphenyl	78	52 - 110
Terphenyl-d14	97	66 - 123

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PAHs by EPA 8270D/SIM
MS/MSD QUALITY CONTROL

Date Extracted: 9-10-07
Date Analyzed: 9-10-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-043-03

Compound:	Sample Amount	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	Recovery Limits	Flags
Naphthalene	0.0138	0.0833	0.0688	66	0.0732	71	45-101	
Acenaphthylene	0.00723	0.0833	0.0750	81	0.0759	82	50-109	
Acenaphthene	ND	0.0833	0.0698	84	0.0699	84	52-103	
Fluorene	ND	0.0833	0.0728	87	0.0722	87	56-107	
Phenanthrene	0.0496	0.0833	0.0956	55	0.0977	58	52-109	
Anthracene	0.00777	0.0833	0.0774	84	0.0764	82	58-107	
Fluoranthene	0.0692	0.0833	0.115	55	0.121	62	42-128	
Pyrene	0.0720	0.0833	0.119	57	0.125	63	51-121	
Benzo[a]anthracene	0.0218	0.0833	0.0894	81	0.0896	81	60-121	
Chrysene	0.0354	0.0833	0.105	83	0.105	84	42-147	
Benzo[b]fluoranthene	0.0320	0.0833	0.0894	69	0.0894	69	50-123	
Benzo[k]fluoranthene	0.00870	0.0833	0.0777	83	0.0759	81	58-117	
Benzo[a]pyrene	0.0267	0.0833	0.0884	74	0.0880	74	54-115	
Indeno(1,2,3-c,d)pyrene	0.0168	0.0833	0.0855	82	0.0844	81	54-117	
Dibenz[a,h]anthracene	ND	0.0833	0.0806	97	0.0788	95	48-145	
Benzo[g,h,i]perylene	0.0251	0.0833	0.0893	77	0.0889	77	52-115	

	RPD	RPD Limit	Flags
Naphthalene	6	24	
Acenaphthylene	1	25	
Acenaphthene	0	21	
Fluorene	1	19	
Phenanthrene	2	17	
Anthracene	1	14	
Fluoranthene	5	27	
Pyrene	5	27	
Benzo[a]anthracene	0	18	
Chrysene	0	19	
Benzo[b]fluoranthene	0	26	
Benzo[k]fluoranthene	2	17	
Benzo[a]pyrene	1	18	
Indeno(1,2,3-c,d)pyrene	1	20	
Dibenz[a,h]anthracene	2	15	
Benzo[g,h,i]perylene	0	21	

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PCBs by EPA 8082

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Stockpile**					
Laboratory ID:	09-027-01					
Aroclor 1016	**ND**	0.058	EPA 8082	09-11-07	09-14-07	
Aroclor 1221	**ND**	0.058	EPA 8082	09-11-07	09-14-07	
Aroclor 1232	**ND**	0.058	EPA 8082	09-11-07	09-14-07	
Aroclor 1242	**0.21**	0.058	EPA 8082	09-11-07	09-14-07	
Aroclor 1248	**ND**	0.058	EPA 8082	09-11-07	09-14-07	
Aroclor 1254	**0.17**	0.058	EPA 8082	09-11-07	09-14-07	
Aroclor 1260	**ND**	0.058	EPA 8082	09-11-07	09-14-07	
Aroclor 1262	**ND**	0.058	EPA 8082	09-11-07	09-14-07	
Aroclor 1268	**ND**	0.058	EPA 8082	09-11-07	09-14-07	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*71*	*39-118*				

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

PCBs by EPA 8082
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0911S1					
Aroclor 1016	**ND**	0.050	EPA 8082	09-11-07	09-13-07	
Aroclor 1221	**ND**	0.050	EPA 8082	09-11-07	09-13-07	
Aroclor 1232	**ND**	0.050	EPA 8082	09-11-07	09-13-07	
Aroclor 1242	**ND**	0.050	EPA 8082	09-11-07	09-13-07	
Aroclor 1248	**ND**	0.050	EPA 8082	09-11-07	09-13-07	
Aroclor 1254	**ND**	0.050	EPA 8082	09-11-07	09-13-07	
Aroclor 1260	**ND**	0.050	EPA 8082	09-11-07	09-13-07	
Aroclor 1262	**ND**	0.050	EPA 8082	09-11-07	09-13-07	
Aroclor 1268	**ND**	0.050	EPA 8082	09-11-07	09-13-07	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*86*	*39-118*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-049-01										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	**0.389**	**0.397**	0.500	0.500	ND	**78**	**79**	35-120	2	17	
Surrogate:											
DCB						*88*	*91*	*39-118*			

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TCLP LEAD
by EPA 1311/6010B

Date Prepared:	9-11-07
Date Extracted:	9-12-07
Date Analyzed:	9-12-07
Matrix:	TCLP Extract
Units:	mg/L (ppm)

Client ID	Lab ID	Result	PQL
Stockpile	09-027-01	**3.3**	0.20

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TCLP LEAD
by EPA 1311/6010B
METHOD BLANK QUALITY CONTROL

Date Prepared:	9-11-07
Date Extracted:	9-12-07
Date Analyzed:	9-12-07
Matrix:	TCLP Extract
Units:	mg/L (ppm)
Lab ID:	MB0912T1

Analyte	Method	Result	PQL
Lead	6010B	**ND**	0.20

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TCLP LEAD
by EPA 1311/6010B
DUPLICATE QUALITY CONTROL

Date Prepared: 9-11-07
Date Extracted: 9-12-07
Date Analyzed: 9-12-07

Matrix: TCLP Extract
Units: mg/L (ppm)

Lab ID: 09-027-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Lead	**3.35**	**3.43**	3	0.20	

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TCLP LEAD
by EPA 1311/6010B
MS/MSD QUALITY CONTROL

Date Prepared: 9-11-07
Date Extracted: 9-12-07
Date Analyzed: 9-12-07

Matrix: TCLP Extract
Units: mg/L (ppm)

Lab ID: 09-027-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Lead	10	**13.4**	100	**13.4**	101	0	

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B

Date Extracted: 9-11-07
Date Analyzed: 9-11-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-027-02
Client ID: S-1

Analyte	Method	Result	PQL
Cadmium	6010B	**1.1**	0.61
Lead	6010B	**150**	6.1

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B

Date Extracted: 9-11-07
Date Analyzed: 9-11-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-027-03
Client ID: S-2

Analyte	Method	Result	PQL
Cadmium	6010B	**ND**	0.58
Lead	6010B	**150**	5.8

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B

Date Extracted: 9-11-07
Date Analyzed: 9-11-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-027-04
Client ID: S-3

Analyte	Method	Result	PQL
Cadmium	6010B	**ND**	0.56
Lead	6010B	**27**	5.6

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-11-07
Date Analyzed:	9-11-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0911S1

Analyte	Method	Result	PQL
Cadmium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 9-11-07
Date Analyzed: 9-11-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-036-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Cadmium	**ND**	**ND**	NA	0.50	
Lead	**ND**	**ND**	NA	5.0	

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 9-11-07
Date Analyzed: 9-11-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-036-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Cadmium	50	**49.1**	98	**49.0**	98	0	
Lead	250	**238**	95	**239**	96	0	

Date of Report: September 14, 2007
Samples Submitted: September 6, 2007
Laboratory Reference: 0709-027
Project: 21-1-12180-009

% MOISTURE

Date Analyzed: 9-6&10-07

Client ID	Lab ID	% Moisture
Stockpile	09-027-01	14
S-1	09-027-02	18
S-2	09-027-03	14
S-3	09-027-04	10

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

09-027

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020
(206) 695-6777 Fax

11500 Olive Blvd., Suite 276
St. Louis, MO 63141
(314) 872-8170
(314) 872-8178 Fax

2055 Hill Road
Fairbanks, AK 99709
(907) 479-0600
(907) 479-5691 Fax

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120
(907) 561-4483 Fax

303 Wellsian Way
Richland, WA 99352
(509) 946-6309
(509) 946-6580 Fax

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Laboratory OSE

Attn: DB

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	NWTPH-Gx/BTEX	NWTPH-Dx	MTCA 5	PAH	%moisture	PCB	TCLP Pb	Total Number of Containers	Pb, Cd - total	Remarks/Matrix
Stockpile	1	0900	9/6/07	X		24 hr	24 hr	24 hr	⊗	X	0	0	6		SOIL
S-1	2	0800	↓		X		O		O	O			1	O	↓
S-2	3	0810			↓		O		O	O			1	O	
S-3	4	0820					O		O	O			1	O	
															⊗ Added 9/6/07. (1 day TAT)
															O. Added 9/10/07. DB Dx-1 day others-2 day

Project Information		Sample Receipt	
Project Number:	21-1-12180-009	Total Number of Containers	
Project Name:	Lkwd Sta	COC Seals/Intact? Y/N/NA	
Contact:	A TIRAO	Received Good Cond./Cold	
Ongoing Project?	Yes ☑ No ☐	Delivery Method:	
Sampler:	ACT	(attach shipping bill, if any)	

Instructions	
Requested Turnaround Time:	RUSH
Special Instructions:	~~O added 9/10~~

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1155	Signature: Time:	Signature: Time:
Printed Name: AGNES TIRAO Date: 9/6/07	Printed Name: Date:	Printed Name: Date:
Company: SHW	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1340	Signature: Time:	Signature: Time:
Printed Name: Blair Goodrow Date: 9/6/07	Printed Name: Date:	Printed Name: Date:
Company: OSE	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. _____

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

September 26, 2007

Dan McMahon
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, WA 98103

Re: Analytical Data for Project 21-1-12180-009
Laboratory Reference No. 0709-135

Dear Dan:

Enclosed are the analytical results and associated quality control data for samples submitted on September 18, 2007.

Please note that the data for the EPH analysis will follow in a later report.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

Case Narrative

Samples were collected on September 17, 2007 and received by the laboratory on September 18, 2007. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH Gx and Volatiles EPA 8260B Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

NWTPH-Gx

Date Extracted:	9-19-07
Date Analyzed:	9-19-07
Matrix: Soil	
Units: mg/kg (ppm)	
Client ID:	**S-1A**
Lab ID:	09-135-01

	Result	Flags	PQL
TPH-Gas	**ND**		9.4
Surrogate Recovery:			
Fluorobenzene	86%		

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

NWTPH-Gx
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-19-07
Date Analyzed:	9-19-07
Matrix: Soil	
Units: mg/kg (ppm)	
Lab ID:	MB0919S1

	Result	Flags	PQL
TPH-Gas	**ND**		5.0
Surrogate Recovery:			
Fluorobenzene	91%		

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

NWTPH-Gx
DUPLICATE QUALITY CONTROL

Date Extracted: 9-19-07
Date Analyzed: 9-19-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID:	09-140-02 **Original**	09-140-02 **Duplicate**	**RPD**	**Flags**
TPH-Gas	**ND**	**ND**	NA	
Surrogate Recovery:				
Fluorobenzene	77%	82%		

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

NWTPH-Dx

Date Extracted:	9-19-07
Date Analyzed:	9-19-07
Matrix:	Soil
Units:	mg/kg (ppm)
Client ID:	**S-4**
Lab ID:	09-135-02
Diesel Range:	**350**
PQL:	29
Identification:	Diesel Range Organics
Lube Oil Range:	**2300**
PQL:	57
Identification:	Lube Oil
Surrogate Recovery	
o-Terphenyl:	97%
Flags:	Y

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	9-19-07
Date Analyzed:	9-19-07
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0919S1
Diesel Range:	**ND**
PQL:	25
Identification:	---
Lube Oil Range:	**ND**
PQL:	50
Identification:	---
Surrogate Recovery	
o-Terphenyl:	100%
Flags:	Y

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted: 9-19-07
Date Analyzed: 9-19-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID:	09-063-02	09-063-02 DUP
Diesel Range:	**ND**	**ND**
PQL:	25	25
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	111%	103%
Flags:	Y	Y

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

VOLATILES by EPA 8260B
Page 1 of 2

Date Extracted: 9-18-07
Date Analyzed: 9-18-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-135-01
Client ID: S-1A

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0015
Chloromethane	ND		0.0015
Vinyl Chloride	ND		0.0015
Bromomethane	ND		0.0015
Chloroethane	ND		0.0076
Trichlorofluoromethane	ND		0.0015
1,1-Dichloroethene	ND		0.0015
Acetone	0.038		0.0076
Iodomethane	ND		0.0076
Carbon Disulfide	ND		0.0015
Methylene Chloride	0.0089	H	0.0076
(trans) 1,2-Dichloroethene	ND		0.0015
Methyl t-Butyl Ether	ND		0.0015
1,1-Dichloroethane	ND		0.0015
Vinyl Acetate	ND		0.0076
2,2-Dichloropropane	ND		0.0015
(cis) 1,2-Dichloroethene	ND		0.0015
2-Butanone	ND		0.0076
Bromochloromethane	ND		0.0015
Chloroform	ND		0.0015
1,1,1-Trichloroethane	ND		0.0015
Carbon Tetrachloride	ND		0.0015
1,1-Dichloropropene	ND		0.0015
Benzene	ND		0.0015
1,2-Dichloroethane	ND		0.0015
Trichloroethene	ND		0.0015
1,2-Dichloropropane	ND		0.0015
Dibromomethane	ND		0.0015
Bromodichloromethane	ND		0.0015
2-Chloroethyl Vinyl Ether	ND		0.0076
(cis) 1,3-Dichloropropene	ND		0.0015
Methyl Isobutyl Ketone	ND		0.0076
Toluene	ND		0.0015
(trans) 1,3-Dichloropropene	ND		0.0015

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

VOLATILES by EPA 8260B
Page 2 of 2

Lab ID: 09-135-01
Client ID: S-1A

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0015
Tetrachloroethene	ND		0.0015
1,3-Dichloropropane	ND		0.0015
2-Hexanone	ND		0.0076
Dibromochloromethane	ND		0.0015
1,2-Dibromoethane	ND		0.0015
Chlorobenzene	ND		0.0015
1,1,1,2-Tetrachloroethane	ND		0.0015
Ethylbenzene	ND		0.0015
m,p-Xylene	ND		0.0030
o-Xylene	ND		0.0015
Styrene	ND		0.0015
Bromoform	ND		0.0015
Isopropylbenzene	ND		0.0015
Bromobenzene	ND		0.0015
1,1,2,2-Tetrachloroethane	ND		0.0015
1,2,3-Trichloropropane	ND		0.0015
n-Propylbenzene	ND		0.0015
2-Chlorotoluene	ND		0.0015
4-Chlorotoluene	ND		0.0015
1,3,5-Trimethylbenzene	ND		0.0015
tert-Butylbenzene	ND		0.0015
1,2,4-Trimethylbenzene	ND		0.0015
sec-Butylbenzene	ND		0.0015
1,3-Dichlorobenzene	ND		0.0015
p-Isopropyltoluene	ND		0.0015
1,4-Dichlorobenzene	ND		0.0015
1,2-Dichlorobenzene	ND		0.0015
n-Butylbenzene	ND		0.0015
1,2-Dibromo-3-chloropropane	ND		0.0076
1,2,4-Trichlorobenzene	ND		0.0015
Hexachlorobutadiene	ND		0.0076
Naphthalene	ND		0.0015
1,2,3-Trichlorobenzene	ND		0.0015

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	86	70-118
Toluene, d8	79	70-121
4-Bromofluorobenzene	81	70-130

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 1 of 2

Date Extracted: 9-18-07
Date Analyzed: 9-18-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0918S1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0010
Chloromethane	ND		0.0010
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane	ND		0.0050
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Acetone	ND		0.0050
Iodomethane	ND		0.0050
Carbon Disulfide	ND		0.0010
Methylene Chloride	ND		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
Methyl t-Butyl Ether	ND		0.0010
1,1-Dichloroethane	ND		0.0010
Vinyl Acetate	ND		0.0050
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
2-Butanone	ND		0.0050
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
Benzene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND		0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
Methyl Isobutyl Ketone	ND		0.0050
Toluene	ND		0.0010
(trans) 1,3-Dichloropropene	ND		0.0010

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
Page 2 of 2

Lab ID: MB0918S1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010
2-Hexanone	ND		0.0050
Dibromochloromethane	ND		0.0010
1,2-Dibromoethane	ND		0.0010
Chlorobenzene	ND		0.0010
1,1,1,2-Tetrachloroethane	ND		0.0010
Ethylbenzene	ND		0.0010
m,p-Xylene	ND		0.0020
o-Xylene	ND		0.0010
Styrene	ND		0.0010
Bromoform	ND		0.0010
Isopropylbenzene	ND		0.0010
Bromobenzene	ND		0.0010
1,1,2,2-Tetrachloroethane	ND		0.0010
1,2,3-Trichloropropane	ND		0.0010
n-Propylbenzene	ND		0.0010
2-Chlorotoluene	ND		0.0010
4-Chlorotoluene	ND		0.0010
1,3,5-Trimethylbenzene	ND		0.0010
tert-Butylbenzene	ND		0.0010
1,2,4-Trimethylbenzene	ND		0.0010
sec-Butylbenzene	ND		0.0010
1,3-Dichlorobenzene	ND		0.0010
p-Isopropyltoluene	ND		0.0010
1,4-Dichlorobenzene	ND		0.0010
1,2-Dichlorobenzene	ND		0.0010
n-Butylbenzene	ND		0.0010
1,2-Dibromo-3-chloropropane	ND		0.0050
1,2,4-Trichlorobenzene	ND		0.0010
Hexachlorobutadiene	ND		0.0050
Naphthalene	ND		0.0010
1,2,3-Trichlorobenzene	ND		0.0010

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	81	70-118
Toluene, d8	88	70-121
4-Bromofluorobenzene	94	70-130

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Date Extracted: 9-18-07
Date Analyzed: 9-18-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: SB0918S1

Compound	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	0.0500	0.0456	91	0.0485	97	70-130	
Benzene	0.0500	0.0474	95	0.0510	102	70-127	
Trichloroethene	0.0500	0.0525	105	0.0518	104	73-117	
Toluene	0.0500	0.0543	109	0.0525	105	78-115	
Chlorobenzene	0.0500	0.0489	98	0.0495	99	80-117	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	6	10	
Benzene	7	11	
Trichloroethene	1	13	
Toluene	3	12	
Chlorobenzene	1	10	

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

PCBs by EPA 8082

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**S-1A**					
Laboratory ID:	09-135-01					
Aroclor 1016	**ND**	0.065	EPA 8082	09-19-07	09-19-07	
Aroclor 1221	**ND**	0.065	EPA 8082	09-19-07	09-19-07	
Aroclor 1232	**ND**	0.065	EPA 8082	09-19-07	09-19-07	
Aroclor 1242	**ND**	0.065	EPA 8082	09-19-07	09-19-07	
Aroclor 1248	**ND**	0.065	EPA 8082	09-19-07	09-19-07	
Aroclor 1254	**0.27**	0.065	EPA 8082	09-19-07	09-19-07	
Aroclor 1260	**0.14**	0.065	EPA 8082	09-19-07	09-19-07	
Aroclor 1262	**ND**	0.065	EPA 8082	09-19-07	09-19-07	
Aroclor 1268	**ND**	0.065	EPA 8082	09-19-07	09-19-07	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*63*	*39-118*				

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

PCBs by EPA 8082
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0919S1					
Aroclor 1016	**ND**	0.050	EPA 8082	09-19-07	09-19-07	
Aroclor 1221	**ND**	0.050	EPA 8082	09-19-07	09-19-07	
Aroclor 1232	**ND**	0.050	EPA 8082	09-19-07	09-19-07	
Aroclor 1242	**ND**	0.050	EPA 8082	09-19-07	09-19-07	
Aroclor 1248	**ND**	0.050	EPA 8082	09-19-07	09-19-07	
Aroclor 1254	**ND**	0.050	EPA 8082	09-19-07	09-19-07	
Aroclor 1260	**ND**	0.050	EPA 8082	09-19-07	09-19-07	
Aroclor 1262	**ND**	0.050	EPA 8082	09-19-07	09-19-07	
Aroclor 1268	**ND**	0.050	EPA 8082	09-19-07	09-19-07	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*88*	*39-118*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0919S1										
	SB	SBD	SB	SBD		SB	SBD				
Aroclor 1260	**0.511**	**0.507**	0.500	0.500	N/A	**102**	**101**	65-120	1	17	
Surrogate:											
DCB						*89*	*89*	*39-118*			

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

VOLATILE PETROLEUM HYDROCARBONS

Date Extracted: 9-19-07
Date Analyzed: 9-19&21-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-135-02
Client ID: **S-4**

VPH:	**Results**	**PQL**
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	ND	5.0
Aliphatic C10-C12	ND	5.0
Total Aliphatic:	NA	
Aromatic C8-C10	ND	5.0
Aromatic C10-C12	ND	5.0
Aromatic C12-C13	ND	5.0
Total Aromatic:	NA	
Target Analytes:		
Methyl t-butyl ether	ND	0.50
Benzene	ND	0.020
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylene	ND	0.50
o-Xylene	ND	0.50

Surrogate:	**Percent Recovery**	**Control Limits**
Fluorobenzene	83	60-119

Flags:

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

VOLATILE PETROLEUM HYDROCARBONS
METHOD BLANK QUALITY CONTROL

Date Extracted: 9-19-07
Date Analyzed: 9-19&21-07

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0919S1

VPH:	Results	PQL
Aliphatic C5-C6	ND	5.0
Aliphatic C6-C8	ND	5.0
Aliphatic C8-C10	ND	5.0
Aliphatic C10-C12	ND	5.0
Total Aliphatic:	NA	
Aromatic C8-C10	ND	5.0
Aromatic C10-C12	ND	5.0
Aromatic C12-C13	ND	5.0
Total Aromatic:	NA	
Target Analytes:		
Methyl t-butyl ether	ND	0.50
Benzene	ND	0.020
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylene	ND	0.50
o-Xylene	ND	0.50

Surrogate:	Percent Recovery	Control Limits
Fluorobenzene	92	60-119

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

VOLATILE PETROLEUM HYDROCARBONS
MS/MSD QUALITY CONTROL

Date Extracted: 9-19-07
Date Analyzed: 9-19-07

Matrix: Soil
Units: mg/kg (ppm)

Spike Level: 1.88 ppm

Lab ID: 09-140-02 MS 09-140-02 MSD

	Result	Percent Recovery	Result	Percent Recovery	PQL	RPD
Benzene	1.86	99	1.86	99	0.020	0
Toluene	1.89	100	1.89	100	0.50	0
Ethylbenzene	1.91	101	1.91	101	0.50	0
m,p-Xylene	1.92	102	1.92	102	0.50	0
o-Xylene	1.88	100	1.89	101	0.50	1

Surrogate:	Percent Recovery	Percent Recovery	Control Limits
Fluorobenzene	90	91	60-119

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

VOLATILE PETROLEUM HYDROCARBONS
SPIKE BLANK QUALITY CONTROL

Date Extracted: 9-19-07
Date Analyzed: 9-19-07

Matrix: Soil
Units: mg/kg (ppm)

Spike Level: 1.00 ppm

Lab ID: SB0919S1

	Result	Percent Recovery	PQL
Benzene	0.913	91	0.020
Toluene	0.943	94	0.50
Ethylbenzene	0.955	96	0.50
m,p-Xylene	0.966	97	0.50
o-Xylene	0.957	96	0.50

Surrogate:	Percent Recovery	Control Limits
Fluorobenzene	91	60-119

Date of Report: September 26, 2007
Samples Submitted: September 18, 2007
Laboratory Reference: 0709-135
Project: 21-1-12180-009

% MOISTURE

Date Analyzed: 9-18&19-07

Client ID	Lab ID	% Moisture
S-1A	09-135-01	23
S-4	09-135-02	13

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Analytical Resources, Incorporated
Analytical Chemists and Consultants

11 October 2007

David Baumeister
OnSite Environmental, Inc.
14648 NE 95th
Redmond, WA 98052

RE: Client Project: 21-1-12180-009
ARI Job No: LR08

Dear David:

Please find enclosed the original Chain-of-Custody (COC) record and the final results for the sample from the project referenced above. Analytical Resources, Inc. accepted one soil sample on September 26, 2007. The sample was received intact. The sample was analyzed for EPH as requested.

The percent difference was not within control limits for the closing CCAL that bracketed the analysis of this sample. The sample was re-analyzed. The %D for the closing CCAL was not within control limits for the re-analysis. It was concluded that the sample matrix was the cause of the poor %Ds. No further corrective actions were taken. The results for the original analysis only have been submitted.

There were no further analytical complications noted for this analysis.

An electronic copy of this package will remain on file at ARI. Should you have any questions, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

Enclosures

cc: file LR08

MDH/mdh

LR08

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

Laboratory Reference #: 09-135

Subcontract Laboratory: Analytical Resources, Inc.

Turnaround Request:

Phone Number: (206) 695-6200

1 Day 2 Day 3 Day

Project Manager: David Baumeister

Date/Time: _____

Standard

Project Number: 21-1-12180-009

Contact Person: Mark Harris

Other: _____

Project Name: _____

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analysis
2	S-4	9/17/07		S	1	EPH

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by: M. Norm	OSE	9/20/07	1140	
Received by: [signature]	ARI	9/20/07	1140	
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

ARI Data Reporting Qualifiers

Effective 11/22/04

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
NR	Spiked compound recovery is not reported due to chromatographic interference
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte reporting limit is raised due to a positive chromatographic interference. The compound is not detected above the raised limit but may be present at or below the limit
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: MB-092607
METHOD BLANK

Lab Sample ID: MB-092607
LIMS ID: 07-20381
Matrix: Soil
Data Release Authorized:
Reported: 10/11/07

QC Report No: LR08-OnSite Environmental, Inc.
Project: 21-1-12180-009

Date Sampled: NA
Date Received: NA

Date Extracted: 09/26/07
Percent Moisture: NA

Sample Amount: 10.0 g-as-rec
Final Extract Volume: 1.0 mL

Aliphatic
Date Analyzed: 10/05/07 12:29
Instrument/Analyst: FID4B/JGR

Dilution Factor: 1.00

Aromatic
Date Analyzed: 10/05/07 12:29
Instrument/Analyst: FID4A/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	< 2,000 U
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	< 2,000 U
C21-C34 Aromatics	2,000	< 2,000 U

Reported in µg/kg (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	46.7%
Aromatic	Ortho-terphenyl	78.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: S-4
SAMPLE

Lab Sample ID: LR08A
LIMS ID: 07-20381
Matrix: Soil
Data Release Authorized:
Reported: 10/11/07

QC Report No: LR08-OnSite Environmental, Inc.
Project: 21-1-12180-009

Date Sampled: 09/17/07
Date Received: 09/26/07

Date Extracted: 09/26/07
Percent Moisture: 7.5%

Sample Amount: 9.29 g-dry-wt
Final Extract Volume: 1.0 mL

Aliphatic
Date Analyzed: 10/05/07 16:25
Instrument/Analyst: FID4B/JGR

Dilution Factor: 1.00

Aromatic
Date Analyzed: 10/05/07 16:25
Instrument/Analyst: FID4A/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,200	< 2,200 U
C10-C12 Aliphatics	2,200	< 2,200 U
C12-C16 Aliphatics	**2,200**	**5,700**
C16-C21 Aliphatics	**2,200**	**130,000**
C21-C34 Aliphatics	**2,200**	**750,000**
C8-C10 Aromatics	2,200	< 2,200 U
C10-C12 Aromatics	2,200	< 2,200 U
C12-C16 Aromatics	2,200	< 2,200 U
C16-C21 Aromatics	**2,200**	**19,000**
C21-C34 Aromatics	**2,200**	**140,000**

Reported in µg/kg (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	47.7%
Aromatic	Ortho-terphenyl	87.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: LCS-092607
LAB CONTROL

Lab Sample ID: LCS-092607
LIMS ID: 07-20381
Matrix: Soil
Data Release Authorized:
Reported: 10/11/07

QC Report No: LR08-OnSite Environmental, Inc.
Project: 21-1-12180-009

Date Sampled: NA
Date Received: NA

Date Extracted: 09/26/07

Sample Amount: 10.0 g-as-rec
Final Extract Volume: 1.0 mL

Aliphatic
Date Analyzed: 10/05/07 12:51
Instrument/Analyst: FID4B/JGR

Dilution Factor: 1.00

Aromatic
Date Analyzed: 10/05/07 12:51
Instrument/Analyst: FID4A/JGR

Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
C8-C10 Aliphatics	4000	15000	26.7%
C10-C12 Aliphatics	4600	15000	30.7%
C12-C16 Aliphatics	8000	15000	53.3%
C16-C21 Aliphatics	11000	15000	73.3%
C10-C12 Aromatics	5600	15000	37.3%
C12-C16 Aromatics	9300	15000	62.0%
C16-C21 Aromatics	27400	30000	91.3%
C21-C34 Aromatics	24000	30000	80.0%

Results reported in µg/kg

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	51.0%
Aromatic	Ortho-terphenyl	86.0%

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: Shannon & Wilson
Project Number: 21-1-12180-009
Project Name: Lakewood Station
Project Manager: Dan McMahon
Sampled by: DM

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☐ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 09-135

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	VPH	EPH					% Moisture
1	S-1A	9/17/07	1030	S	~~5~~ 3		X		X				X												X
2	S-4	9/17/07	1130	S	3			X											X	X					X

	Signature	Company	Date	Time
Relinquished by	[signature]	Shannon & W.	9/17/07	1700
Received by	Pete Bodin	Speedy Msngr.	9/18/07	1124 am
Relinquished by	Pete Bodin	"	9/18/07	1156 am
Received by	[signature]	OnSite Env.	9/18/07	1150
Relinquished by				
Received by				

Comments/Special Instructions:

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

APPENDIX C

DANGEROUS WASTE DISPOSAL DOCUMENTATION

CWMI

389710

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
WAH0000262911	1	(800) 424-9300	001174395 FLE

GENERATOR

5. Generator's Name and Mailing Address
SOUND TRANSIT (ATTN; MARK MENARD)
401 S. JACKSON ST (LEGAL DEPARTMENT)
SEATTLE WA. 98104-2826
Generator's Phone: (206) 386-5227

Generator's Site Address (if different than mailing address)
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC — U.S. EPA ID Number: WAD988515995

7. Transporter 2 Company Name: N/A — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643

U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S,9,NA3077,III, (LEAD)	001	DT	68100	P	D008
	2.			CTK 5134		
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.OR100096,HAZMAT SOIL NOS-CONTANING LEAD; ERG# 171; (RQ=10LBS)

5134, 68100P, 34.05T

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C. MENARD — Signature: Mark C. Menard — Month 05 Day 04 Year 07

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials — 5-15-07

Transporter 1 Printed/Typed Name: Edward T Kenney — Signature: Edward T Kenney — Month 05 Day 15 Year 07

Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

5-16-07 BMS

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Driver change dweight - D 5/16/07
Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H111			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Janice Strand — Signature: Janice Strand — Month 5 Day 16 Year 07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **DESIGNATED FACILITY TO GENERATOR**

BMS

2302 389647 CWMI

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAH000026291
2. Page 1 of: 1
3. Emergency Response Phone: (800) 424-9300
4. Manifest Tracking Number: 001174396 FLE

GENERATOR

5. Generator's Name and Mailing Address:
SOUND TRANSIT (ATTN; MARK MENARD)
401 S. JACKSON ST (LEGAL DEPARTMENT)
SEATTLE WA. 98104-2826
Generator's Phone: (206) 398-5227

Generator's Site Address (if different than mailing address):
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC
U.S. EPA ID Number: WAD988515995

7. Transporter 2 Company Name: N/A
U.S. EPA ID Number:

8. Designated Facility Name and Site Address:
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S.,9,NA3077,III, (LEAD)	001	DT	30,000 61600 ETI	P	D006
	2.			5-8-07		
	3.					
	4.					

14. Special Handling Instructions and Additional Information:
1.OR100096,HAZMAT SOIL NOS-CONTANING LEAD; ERG# 171; (RQ=10LBS)
SUBB, 161000P, 30,00T

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C. MENARD
Signature: Mark C. Menard
Month/Day/Year: 05/04/07

INTL

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Edward T Kenney
Signature: Edward T Kenney
Month/Day/Year: 5/05/07

Transporter 2 Printed/Typed Name:
Signature:
Month/Day/Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Driver changed weight - OD 5/8/07
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month/Day/Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H111			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Jamie Strand
Signature:
Month/Day/Year: 5/8/07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

CWMI

389711

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WAH0000262891	1	(800) 424-9300	001174397 FLE

5. Generator's Name and Mailing Address
SOUND TRANSIT (ATTN; MARK MENARD)
401 S. JACKSON ST (LEGAL DEPARTMENT)
SEATTLE WA. 98104-2826
Generator's Phone: (206) 398-5227

Generator's Site Address (if different than mailing address)
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC — U.S. EPA ID Number: WAD988515995

7. Transporter 2 Company Name: N/A — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643

U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S,9,NA3077,III, (LEAD)	001	DT	64550	P	D008		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
T.OR100096,HAZMAT SOIL NOS-CONTANING LEAD; ERG# 171; (RQ=10LBS)

SU2B, 64550P, 32.28T

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C. MENARD — Signature: Mark C. Menard — Month: 05 Day: 04 Year: 07

GENERATOR

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

INT'L

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: THOMAS J. Urban — Signature: for Urban — Month: 5 Day: 15 Year: 07

Transporter 2 Printed/Typed Name: — Signature: — Month: Day: Year:

TRANSPORTER

18. Discrepancy

18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Driver changed weight @ 5/16/07
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month: Day: Year:

DESIGNATED FACILITY

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H111			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Janice Strand — Signature: — Month: 5 Day: 16 Year: 07

5/17/07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO GENERATOR

BMS

CWM!

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 58778 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WAH0000262891	1	(800) 424-9300	001174414 FLE

GENERATOR

5. Generator's Name and Mailing Address
SOUND TRANSIT (ATTN; MARK MENARD)
401 S. JACKSON ST
SEATTLE WA. 98104-2826
Generator's Phone: (206) 398-5227

Generator's Site Address (if different than mailing address)
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC — U.S. EPA ID Number: WAD988851595

7. Transporter 2 Company Name: N/A — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S.,8,NA3077,III, (LEAD)	001	DT	52850	P	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
T.OR100096,HAZMAT SOIL NOS-CONTANING LEAD; ERG# 171; (RQ=10LBS)

SU 3A, 52950P, 26.437

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C. MENARD — Signature: [signature] — Month: 5 — Day: 22 — Year: 07

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: THOMAS J. URBON — Signature: [signature] — Month: 5 — Day: 22 — Year: 07
Transporter 2 Printed/Typed Name: — Signature: — Month: — Day: — Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Overcharged Total Quant
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H111 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Janice Grant — Signature: [signature] — Month: 05 — Day: 23 — Year: 07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **DESIGNATED FACILITY TO GENERATOR**

CWMI

389810

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WAH0000262911	1	(800) 424-9300	001174415 FLE

GENERATOR

5. Generator's Name and Mailing Address
SOUND TRANSIT (ATTN; MARK MENARD)
401 S. JACKSON ST
SEATTLE WA 98104-2826
Generator's Phone: (206) 398-5227

Generator's Site Address (if different than mailing address)
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC — U.S. EPA ID Number: WAD988515995

7. Transporter 2 Company Name: N/A — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643

U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S,9,NA3077,III, (LEAD)	001	DT	~~55,000~~ 63850	P	D008
	2.			T.W.	5-24-07	
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.OR100096,HAZMAT SOIL NOS-CONTANING LEAD; ERG# 171; (RQ=10LBS)

543A, 63950P, 31.93T

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C MENARD — Signature: Mark C. Menard — Month: 5 — Day: 22 — Year: 07

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Thomas D. Wilson — Signature: Thomas D. Wilson — Month: 5 — Day: 24 — Year: 07

Transporter 2 Printed/Typed Name: — Signature: — Month: — Day: — Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Driver changed Total Quantity - CD 5/24/07 Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H111			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Janice Strand — Signature: Janice Strand — Month: 5 — Day: 24 — Year: 07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

CWMI

379809

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WAH0000268291	1	(800) 424-9300	001174416 FLE

GENERATOR

5. Generator's Name and Mailing Address
SOUND TRANSIT (ATTN; MARK MENARD)
401 S. JACKSON ST
SEATTLE WA. 98104-2826
Generator's Phone: (206) 398-5227

Generator's Site Address (if different than mailing address)
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC — U.S. EPA ID Number: WAD988515995

7. Transporter 2 Company Name: N/A — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S.,9,NA3077,III, (LEAD)	001	DT	6/,200	P	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.OR100096,HAZMAT SOIL NOS-CONTANING LEAD; ERG# 171; (RQ=10LBS)

SU3B, 60350P, 30,19T

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C. MENARD — Signature: Mark C. Menard — Month 5 Day 22 Year 07

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Edward T Kenney — Signature: Edward T Kenney — Month 5 Day 23 Year 07

Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H111			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Janice Strand — Signature: Janice Strand — Month 5 Day 24 Year 07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

MS

39 T127

CWMI

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
WA H 0 0 0 0 2 6 2 9 1	1	(800) 424-9300	001174417 FLE

GENERATOR

5. Generator's Name and Mailing Address
SOUND TRANSIT (ATTN; MARK MENARD)
401 S. JACKSON ST
SEATTLE WA. 98104-2826
Generator's Phone: (206) 398-5227

Generator's Site Address (if different than mailing address)
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC — U.S. EPA ID Number: WA D 9 8 8 5 1 5 9 9 5

7. Transporter 2 Company Name: N/A — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643

U.S. EPA ID Number: O R D 0 8 9 4 5 2 3 5 3

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S.9,NA3077,III, (LEAD)	001	DT	83000	P	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.OR100096,HAZMAT SOIL NOS-CONTANING LEAD; ERG# 171; (RQ=10LBS)

543A, 83000P, 41.50T

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C. MENARD — Signature: Mark C. Menard — Month: 5 — Day: 22 — Year: 07

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Edward T Kenney — Signature: Edward T Kenney — Month: 05 — Day: 24 — Year: 07

Transporter 2 Printed/Typed Name: — Signature: — Month: — Day: — Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Driver changed Total Quantity - 5/25/07 — Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month: — Day: — Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H111			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Jessica Strand — Signature: Jessica Strand — Month: 5 — Day: 25 — Year: 07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

BMC

CWMI

389883

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WAH0000262891	1	(800) 424-9300	001174418 FLE

GENERATOR

5. Generator's Name and Mailing Address
SOUND TRANSIT (ATTN; MARK MENARD)
401 S. JACKSON ST
SEATTLE WA. 98104-2826
Generator's Phone: (206) 398-5227

Generator's Site Address (if different than mailing address)
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC — U.S. EPA ID Number: WAD988515995

7. Transporter 2 Company Name: N/A — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S,9,NA3077,III, (LEAD)	001	DT	~~69750~~ 69750	P	D008		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1.OR100096,HAZMAT SOIL NOS-CONTANING LEAD: ERG# 171: (RQ=10LBS)

SU3A, 69750P, 34.391

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C. MENARD — Signature: Mark C. Menard — Month: 5 Day: 22 Year: 07

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Edward T Kenney — Signature: Edward T Kenney — Month: 5 Day: 31 Year: 07

Transporter 2 Printed/Typed Name: — Signature: — Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Driver changed weight - OJ 5/31/07
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H111			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Janice Shank — Signature: Janice Shank — Month: 6 Day: 1 Year: 07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **DESIGNATED FACILITY TO GENERATOR**

2304 389784 CWMI

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WA H 0 0 0 0 2 6 2 9 1	1	(800) 424-9300	001174423 FLE

GENERATOR

5. Generator's Name and Mailing Address
SOUND TRANSIT (ATTN: MARK MENARD)
401 S. JACKSON ST
SEATTLE WA 98104-2826
Generator's Phone: (206) 398-5227

Generator's Site Address (if different than mailing address)
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC — U.S. EPA ID Number: WA D 9 8 8 5 1 5 9 9 5

7. Transporter 2 Company Name: N/A — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643
U.S. EPA ID Number: O R D 0 8 9 4 5 2 3 5 3

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S,9,NA3077,III, (LEAD)	001	DT	01	P	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.OR100096,HAZMAT SOIL NOS-CONTANING LEAD; ERG# 171; (RQ=10LBS)

SU24, L09SDP, 30.49T

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C MENARD — Signature: M C. Menard — Month 5 Day 22 Year 07

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Edward T Kenney — Signature: Edward T Kenney — Month 05 Day 22 Year 07

Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H111			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Sue McAllister — Signature: Sue McAllister — Month 05 Day 23 Year 07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **DESIGNATED FACILITY TO GENERATOR**

RMS

CWMI

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 389852 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WA H 0 0 0 0 2 6 2 9 1	1	(800) 424-9300	001174419 FLE

GENERATOR

5. Generator's Name and Mailing Address
SOUND TRANSIT (ATTN; MARK MENARD)
401 S. JACKSON ST
SEATTLE WA. 98104-2826
Generator's Phone: (206) 398-5227

Generator's Site Address (if different than mailing address)
SOUND TRANSIT
115 S 26TH ST
TACOMA WA 98402

6. Transporter 1 Company Name: NOR-PAC ENTERPRISES INC — U.S. EPA ID Number: WA D 9 8 8 5 1 5 9 9 5

7. Transporter 2 Company Name: N/A — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
CWMNW,INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541) 454-2643

U.S. EPA ID Number: O R D 0 8 9 4 5 2 3 5 3

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ,HAZARDOUS WASTE,SOLID,N.O.S,9,NA3077,III, (LEAD)	001	DT	6400	P	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.OR100086,HAZMAT SOIL NOS-CONTANING LEAD; ERG# 171; (RQ=10LBS)

SUZA, 66200P, 33, 1DT

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: MARK C. MENARD — Signature: Mark C. Menard — Month 5 Day 22 Year 07

TRANSPORTER

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter 1 Printed/Typed Name — Signature — Month Day Year

Transporter 2 Printed/Typed Name: Zeb Stephens — Signature — Month 5 Day 31 Year 07

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H111			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Janice Strand — Signature — Month 6 Day 1 Year 07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

APPENDIX D

PROBLEM WASTE DISPOSAL DOCUMENTATION

(Landfill) PCRCD, LLC dba LRI WA935.1 PAGE 1

* COMMODITY CHARGE REPORT * BILLED & CURRENT ACTIVITY THRU 9/26/07

TRANSACTION DETAIL

FOR CUSTOMER MCE TO MCE-X, TRANSACTION DATE 4/01/07 TO 12/31/07

SITE	COM	CUST #	TRUCK	UNITS	RATE	NET $	TAX $	TOTAL $	DATE	TICKET
7	83	MCE-X	1	37.79 TON	22.0000	831.38	29.93	861.31	4/16/07	462734
7	83	MCE-X	1	38.00 TON	22.0000	836.00	30.10	866.10	4/16/07	462745
7	83	MCE-X	2	25.27 TON	22.0000	555.94	20.01	575.95	4/16/07	462746
7	83	MCE-X	1	24.12 TON	22.0000	530.64	19.10	549.74	4/16/07	462752
7	83	MCE-X	1	35.67 TON	22.0000	784.74	28.25	812.99	4/16/07	462794
7	83	MCE-X	2	38.55 TON	22.0000	848.10	30.53	878.63	4/16/07	462804
7	83	MCE-X	1	24.04 TON	22.0000	528.88	19.04	547.92	4/16/07	462805
7	83	MCE-X	1	24.26 TON	22.0000	546.92	19.69	566.61	4/16/07	462808
7	83	MCE-X	1	36.07 TON	22.0000	793.54	28.57	822.11	4/16/07	462845
7	83	MCE-X	1	39.41 TON	22.0000	867.02	31.21	898.23	4/16/07	462850
7	83	MCE-X	2	26.19 TON	22.0000	576.18	20.74	596.92	4/16/07	462855
7	83	MCE-X	1	24.98 TON	22.0000	549.56	19.78	569.34	4/16/07	462859
7	83	MCE-X	1	38.17 TON	22.0000	773.74	27.85	801.59	4/16/07	462896
7	83	MCE-X	2	31.37 TON	22.0000	690.14	24.85	714.99	4/16/07	462898
7	83	MCE-X	1	34.35 TON	22.0000	755.70	27.21	782.91	4/17/07	462918
7	83	MCE-X	2	30.28 TON	22.0000	666.16	23.98	690.14	4/17/07	462919
7	83	MCE-X	1	28.52 TON	22.0000	627.44	22.59	650.03	4/17/07	462936
7	83	MCE-X	15	34.27 TON	22.0000	753.94	27.14	781.08	4/17/07	462942
7	83	MCE-X	12	26.33 TON	22.0000	579.26	20.85	600.11	4/17/07	462947
7	83	MCE-X	2	27.84 TON	22.0000	612.48	22.05	634.53	4/17/07	462960
7	83	MCE-X	5	27.49 TON	22.0000	604.78	21.77	626.55	4/17/07	462967
7	83	MCE-X	51	36.96 TON	22.0000	813.12	29.27	842.39	4/17/07	462978
7	83	MCE-X	15	32.85 TON	22.0000	722.70	26.02	748.72	4/17/07	463001
7	83	MCE-X	655	34.18 TON	22.0000	751.96	27.07	779.03	4/17/07	463004
7	83	MCE-X	12	27.81 TON	22.0000	611.82	22.03	633.85	4/17/07	463007
7	83	MCE-X	16	29.72 TON	22.0000	653.84	23.54	677.38	4/17/07	463009
7	83	MCE-X	1	29.34 TON	22.0000	645.48	23.24	668.72	4/17/07	463010
7	83	MCE-X	6	27.24 TON	22.0000	599.28	21.57	620.85	4/17/07	463019
7	83	MCE-X	51	33.92 TON	22.0000	746.24	26.86	773.10	4/17/07	463036
7	83	MCE-X	655	32.97 TON	22.0000	725.34	26.11	751.45	4/17/07	463060
7	83	MCE-X	15	32.47 TON	22.0000	714.34	25.72	740.06	4/17/07	463064
7	83	MCE-X	12	28.86 TON	22.0000	634.92	22.86	657.78	4/17/07	463071
7	83	MCE-X	2	29.19 TON	22.0000	642.18	23.12	665.30	4/17/07	463081
7	83	MCE-X	5	27.91 TON	22.0000	614.02	22.10	636.12	4/17/07	463086
7	83	MCE-X	16	29.72 TON	22.0000	653.84	23.54	677.38	4/17/07	463089
7	83	MCE-X	51	36.31 TON	22.0000	798.82	28.76	827.58	4/17/07	463091
7	83	MCE-X	655	30.61 TON	22.0000	673.42	24.24	697.66	4/17/07	463113
7	83	MCE-X	15	31.50 TON	22.0000	693.00	24.95	717.95	4/17/07	463119
7	83	MCE-X	12	28.20 TON	22.0000	620.40	22.33	642.73	4/17/07	463123
7	83	MCE-X	1	25.76 TON	22.0000	566.72	20.40	587.12	4/17/07	463127
7	83	MCE-X	5	31.46 TON	22.0000	692.12	24.92	717.04	4/17/07	463131
7	83	MCE-X	16	29.99 TON	22.0000	659.78	23.75	683.53	4/17/07	463143
7	83	MCE-X	51	35.70 TON	22.0000	785.40	28.27	813.67	4/17/07	463148
7	83	MCE-X	655	34.32 TON	22.0000	755.04	27.18	782.22	4/17/07	463158
7	83	MCE-X	15	33.33 TON	22.0000	733.26	26.40	759.66	4/17/07	463163

(Landfill) PCRCD, LLC dba LRI WA935.1 PAGE 2

* COMMODITY CHARGE REPORT * BILLED & CURRENT ACTIVITY THRU 9/26/07

TRANSACTION DETAIL

FOR CUSTOMER MCE TO MCE-X, TRANSACTION DATE 4/01/07 TO 12/31/07

SITE	COM	CUST #	TRUCK	UNITS	RATE	NET $	TAX $	TOTAL $	DATE	TICKET
7	83	MCE-X	12	29.98 TON	22.0000	659.56	23.74	683.30	4/17/07	463168
7	83	MCE-X	51	35.02 TON	22.0000	770.44	27.74	798.18	4/18/07	463184
7	83	MCE-X	655	35.67 TON	22.0000	784.74	28.25	812.99	4/18/07	463185
7	83	MCE-X	15	34.45 TON	22.0000	757.90	27.28	785.18	4/18/07	463199
7	83	MCE-X	16	32.38 TON	22.0000	712.36	25.64	738.00	4/18/07	463202
7	83	MCE-X	12	29.72 TON	22.0000	653.84	23.54	677.38	4/18/07	463210
7	83	MCE-X	1	29.33 TON	22.0000	645.26	23.23	668.49	4/18/07	463217
7	83	MCE-X	5	29.55 TON	22.0000	650.10	23.40	673.50	4/18/07	463229
7	83	MCE-X	51	36.27 TON	22.0000	797.94	28.73	826.67	4/18/07	463249
7	83	MCE-X	655	32.23 TON	22.0000	709.06	25.53	734.59	4/18/07	463252
7	83	MCE-X	15	32.51 TON	22.0000	715.22	25.75	740.97	4/18/07	463262
7	83	MCE-X	12	28.13 TON	22.0000	618.86	22.28	641.14	4/18/07	463269
7	83	MCE-X	16	31.77 TON	22.0000	698.94	25.16	724.10	4/18/07	463278
7	83	MCE-X	1	29.08 TON	22.0000	639.76	23.03	662.79	4/18/07	463285
7	83	MCE-X	5	31.54 TON	22.0000	693.88	24.98	718.86	4/18/07	463297
7	83	MCE-X	51	35.46 TON	22.0000	780.12	28.08	808.20	4/18/07	463342
7	83	MCE-X	655	35.13 TON	22.0000	772.86	27.82	800.68	4/18/07	463344
7	83	MCE-X	15	34.36 TON	22.0000	755.92	27.21	783.13	4/18/07	463350
7	83	MCE-X	1	28.80 TON	22.0000	633.60	22.81	656.41	4/18/07	463355
7	83	MCE-X	51	36.15 TON	22.0000	795.30	28.63	823.93	4/18/07	463402
7	83	MCE-X	2	31.64 TON	22.0000	696.08	25.06	721.14	5/24/07	468913
7	83	MCE-X	2	29.82 TON	22.0000	656.04	23.62	679.66	5/24/07	468915
7	83	MCE-X	1	32.92 TON	22.0000	724.24	26.07	750.31	5/24/07	468919
7	83	MCE-X	3	30.57 TON	22.0000	672.54	24.21	696.75	5/24/07	468931
7	83	MCE-X	1	35.60 TON	22.0000	783.20	28.20	811.40	5/24/07	468968
7	83	MCE-X	2	36.64 TON	22.0000	806.08	29.02	835.10	5/24/07	468972
7	83	MCE-X	3	36.32 TON	22.0000	799.04	28.77	827.81	5/24/07	468974
7	83	MCE-X	1	31.72 TON	22.0000	697.84	25.12	722.96	5/24/07	468982
7	83	MCE-X	1	37.57 TON	22.0000	826.54	29.76	856.30	5/24/07	469013
7	83	MCE-X	2	36.09 TON	22.0000	793.98	28.58	822.56	5/24/07	469015
7	83	MCE-X	3	32.66 TON	22.0000	718.52	25.87	744.39	5/24/07	469019
7	83	MCE-X	1	29.56 TON	22.0000	650.32	23.41	673.73	5/24/07	469027
7	83	MCE-X	1	36.77 TON	22.0000	808.94	29.12	838.06	5/24/07	469063
7	83	MCE-X	2	29.76 TON	22.0000	654.72	23.57	678.29	5/24/07	469064
7	83	MCE-X	3	30.50 TON	22.0000	671.00	24.16	695.16	5/24/07	469076
7	83	MCE-X	1	28.87 TON	22.0000	635.14	22.87	658.01	5/24/07	469079
7	83	MCE-X	1	28.25 TON	22.0000	621.50	22.37	643.87	5/24/07	469109
7	83	MCE-X	2	31.87 TON	22.0000	701.14	25.24	726.38	5/24/07	469110
7	83	MCE-X	1	33.74 TON	22.0000	742.28	26.72	769.00	5/24/07	469125
7	83	MCE-X	2	30.23 TON	22.0000	665.06	23.94	689.00	5/24/07	469127
7	83	MCE-X	1	28.52 TON	22.0000	627.44	22.59	650.03	5/25/07	469151
7	83	MCE-X	2	29.76 TON	22.0000	654.72	23.57	678.29	5/25/07	469154
7	83	MCE-X	3	31.19 TON	22.0000	686.18	24.70	710.88	5/25/07	469156
7	83	MCE-X	2323	30.24 TON	22.0000	665.28	23.95	689.23	5/25/07	469161
7	83	MCE-X	2324	28.96 TON	22.0000	637.12	22.94	660.06	5/25/07	469168
7	83	MCE-X	1	27.95 TON	22.0000	614.90	22.14	637.04	5/25/07	469171
7	83	MCE-X	2320	30.51 TON	22.0000	671.22	24.16	695.38	5/25/07	469205
7	83	MCE-X	2310	28.78 TON	22.0000	633.16	22.79	655.95	5/25/07	469207
7	83	MCE-X	2303	27.45 TON	22.0000	603.90	21.74	625.64	5/25/07	469213
7	83	MCE-X	2324	27.69 TON	22.0000	609.18	21.93	631.11	5/25/07	469215
7	83	MCE-X	2323	29.63 TON	22.0000	651.86	23.47	675.33	5/25/07	469220

(Landfill) PCRCD, LLC dba LRI WA935.1 PAGE 3

* COMMODITY CHARGE REPORT * BILLED & CURRENT ACTIVITY THRU 9/26/07

TRANSACTION DETAIL

FOR CUSTOMER MCE TO MCE-X, TRANSACTION DATE 4/01/07 TO 12/31/07

SITE	COM	CUST #	TRUCK	UNITS	RATE	NET $	TAX $	TOTAL $	DATE	TICKET
7	83	MCE-X	9	26.49 TON	22.0000	582.78	20.98	603.76	5/25/07	469224
7	83	MCE-X	2310	31.82 TON	22.0000	700.04	25.20	725.24	5/25/07	469259
7	83	MCE-X	2320	27.17 TON	22.0000	597.74	21.52	619.26	5/25/07	469260
7	83	MCE-X	2324	28.72 TON	22.0000	631.84	22.75	654.59	5/25/07	469264
7	83	MCE-X	2303	30.14 TON	22.0000	663.08	23.87	686.95	5/25/07	469265
7	83	MCE-X	2323	27.68 TON	22.0000	608.96	21.92	630.88	5/25/07	469272
7	83	MCE-X	9	28.14 TON	22.0000	619.08	22.29	641.37	5/25/07	469278
7	83	MCE-X	2320	30.11 TON	22.0000	662.42	23.85	686.27	5/25/07	469306
7	83	MCE-X	2324	31.54 TON	22.0000	693.88	24.98	718.86	5/25/07	469314
7	83	MCE-X	2303	29.19 TON	22.0000	642.18	23.12	665.30	5/25/07	469322
7	83	MCE-X	2323	32.84 TON	22.0000	722.48	26.01	748.49	5/25/07	469326
7	83	MCE-X	9	29.28 TON	22.0000	644.16	23.19	667.35	5/25/07	469327
7	83	MCE-X	2320	30.79 TON	22.0000	677.38	24.39	701.77	5/25/07	469350
7	83	MCE-X	2320	33.86 TON	22.0000	744.92	26.82	771.74	5/29/07	469600
7	83	MCE-X	1	36.25 TON	22.0000	797.50	28.71	826.21	5/29/07	469602
7	83	MCE-X	2320	42.44 TON	22.0000	933.68	33.61	967.29	5/29/07	469668
7	83	MCE-X	1	30.56 TON	22.0000	672.32	24.20	696.52	6/21/07	474351
7	83	MCE-X	2	31.92 TON	22.0000	702.24	25.28	727.52	6/21/07	474362
7	83	MCE-X	2303	36.28 TON	22.0000	798.16	28.73	826.89	6/21/07	474371
7	83	MCE-X	2324	35.10 TON	22.0000	772.20	27.80	800.00	6/21/07	474374
7	83	MCE-X	1	29.37 TON	22.0000	646.14	23.26	669.40	6/21/07	474395
7	83	MCE-X	2301	33.81 TON	22.0000	743.82	26.78	770.60	6/21/07	474413
7	83	MCE-X	2323	36.30 TON	22.0000	798.60	28.75	827.35	6/21/07	474424
7	83	MCE-X	2303	34.97 TON	22.0000	769.34	27.70	797.04	6/21/07	474431
7	83	MCE-X	2324	33.37 TON	22.0000	734.14	26.43	760.57	6/21/07	474434
7	83	MCE-X	1	32.41 TON	22.0000	713.02	25.67	738.69	6/21/07	474453
7	83	MCE-X	2301	34.39 TON	22.0000	756.58	27.24	783.82	6/21/07	474474
7	83	MCE-X	2323	35.57 TON	22.0000	782.54	28.17	810.71	6/21/07	474480
7	83	MCE-X	2303	33.58 TON	22.0000	738.10	26.57	764.67	6/21/07	474483
7	83	MCE-X	2324	34.65 TON	22.0000	762.30	27.44	789.74	6/21/07	474502
7	83	MCE-X	1	30.77 TON	22.0000	676.94	24.37	701.31	6/21/07	474519
7	83	MCE-X	2301	33.87 TON	22.0000	745.14	26.83	771.97	6/21/07	474530
7	83	MCE-X	2323	34.12 TON	22.0000	750.64	27.02	777.66	6/21/07	474541
7	83	MCE-X	2303	32.62 TON	22.0000	717.64	25.84	743.48	6/21/07	474547
7	83	MCE-X	2324	34.79 TON	22.0000	765.38	27.55	792.93	6/21/07	474573
7	83	MCE-X	1	31.75 TON	22.0000	698.50	25.15	723.65	6/21/07	474592
7	83	MCE-X	2301	35.81 TON	22.0000	787.82	28.36	816.18	6/21/07	474604
7	83	MCE-X	2303	32.46 TON	22.0000	714.12	25.71	739.83	6/21/07	474613
7	83	MCE-X	2323	33.73 TON	22.0000	742.06	26.71	768.77	6/21/07	474615
7	83	MCE-X	2324	36.89 TON	22.0000	811.58	29.22	840.80	6/21/07	474622
7	83	MCE-X	2301	35.85 TON	22.0000	788.70	28.39	817.09	6/22/07	474643
7	83	MCE-X	2323	36.29 TON	22.0000	798.38	28.74	827.12	6/22/07	474647
7	83	MCE-X	2324	30.62 TON	22.0000	673.64	24.25	697.89	6/22/07	474648
7	83	MCE-X	2303	34.05 TON	22.0000	749.10	26.97	776.07	6/22/07	474682
7	83	MCE-X	2324	30.28 TON	22.0000	666.16	23.98	690.14	6/22/07	474707
7	83	MCE-X	2323	24.16 TON	22.0000	531.52	19.13	550.65	6/22/07	474709
7	83	MCE X	2303	33.23 TON	22.0000	731.06	26.32	757.38	6/22/07	474716
7	83	MCE-X	1	30.09 TON	22.0000	661.98	23.83	685.81	6/28/07	475994
7	83	MCE-X	0	21.12-TON	98.8900	2,088.56-	75.19-	2,163.75-	9/26/07	492320
7	83	MCE-X	0	21.12 TON	98.8900	2,088.56	75.19	2,163.75	9/26/07	492320
7	83	MCE-X	0	21.12 TON	22.0000	464.64	16.73	481.37	9/26/07	492320

(Landfill) PCRCD, LLC dba LRI WA935.1 PAGE 4
* COMMODITY CHARGE REPORT * BILLED & CURRENT ACTIVITY THRU 9/26/07

TRANSACTION DETAIL
FOR CUSTOMER MCE TO MCE-X, TRANSACTION DATE 4/01/07 TO 12/31/07

SITE COM CUST # TRUCK	UNITS	RATE	NET $	TAX $	TOTAL $	DATE	TICKET
** TOTALS **	4,670.49		104,466.74	3,760.80	108,227.54		***152

ADJUSTMENT
PCRCD, LLC dba LRI
17925 Meridian St E
Puyallup, WA 98375

001187 McCANN ENTERPRISES
PO BOX 481
RENTON WA 98057

RECEIVED
DEC 05 2007
MCEI

SITE	TICKET	GRID	WEIGHMASTER
02	000112		Trisha Summers

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
11/14/07	/ /	10:28			

REFERENCE	ORIGIN

Gross Wt. 0 LB
Tare Wt. 0 LB
Net Weight 68600 LB

Charge ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
34.30	TON	83 SOIL DISPOSAL-OC	22.00	754.60	27.17	781.77

APPROVED _____
PROJECT _____
COST CODE _____
G/L # _____

NET AMOUNT
781.77
TENDERED
CHANGE
CHECK NO.

NOTES CORRECT PRICING.

WW6TI TO REORDER CONTACT CAROLINA SOFTWARE (910) 799-6767 SIGNATURE _____

ADJUSTMENT
PCRCD, LLC dba LRI
17925 Meridian St E
Puyallup, WA 98375

001187 McCANN ENTERPRISES
PO BOX 481
RENTON WA 98057

RECEIVED
DEC 0 5 2007
MCEI

SITE	TICKET	GRID	WEIGHMASTER
02	000114		Trisha Summers

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
11/14/07	/ /	10:32			

REFERENCE	ORIGIN

Gross Wt. 0 LB
Tare Wt. 0 LB
Net Weight 62060 LB

Charge ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
31.03	TON	83 SOIL DISPOSAL-OC	22.00	682.66	24.58	707.24

APPROVED _____
PROJECT _____
COST CODE _____
G/L # _____

NET AMOUNT
707.24
TENDERED
CHANGE
CHECK NO.

NOTES CORRECT PRICING

WW6T1 TO REORDER CONTACT CAROLINA SOFTWARE (910) 799-6767 SIGNATURE _____

APPENDIX E

DATA COMPLIANCE EVALUATION DATA

173-340-740 Compliance Monitoring

those substances are specified in the draft cleanup action plan.

(7) **Compliance monitoring.**

(a) Compliance with soil cleanup levels shall be based on total analyses of the soil fraction less than two millimeters in size. When it is reasonable to expect that larger soil particles could be reduced to two millimeters or less during current or future site use and this reduction could cause an increase in the concentrations of hazardous substances in the soil, soil cleanup levels shall also apply to these larger soil particles. Compliance with soil cleanup levels shall be based on dry weight concentrations. The department may approve the use of alternate procedures for stabilized soils.

(b) When soil levels have been established at a site, sampling of the soil shall be conducted to determine if compliance with the soil cleanup levels has been achieved. Sampling and analytical procedures shall be defined in a compliance monitoring plan prepared under WAC 173-340-410. The sample design shall provide data that are representative of the area where exposure to hazardous substances may occur.

(c) The data analysis and evaluation procedures used to evaluate compliance with soil cleanup levels shall be defined in a compliance monitoring plan prepared under WAC 173-340-410. These procedures shall meet the following general requirements:

(i) Methods of data analysis shall be consistent with the sampling design. Separate methods may be specified for surface soils and deeper soils;

(ii) When cleanup levels are based on requirements specified in applicable state and federal laws, the procedures for evaluating compliance that are specified in those requirements shall be used to evaluate compliance with cleanup levels unless those procedures conflict with the intent of this section;

(iii) Where procedures for evaluating compliance are not specified in an applicable state and federal law, statistical methods shall be appropriate for the distribution of sampling data for each hazardous substance. If the distributions for hazardous substances differ, more than one statistical method may be required; and

(iv) The data analysis plan shall specify which parameters are to be used to determine compliance with soil cleanup levels.

(A) For cleanup levels based on short-term or acute toxic effects on human health or the environment, an upper percentile soil concentration shall be used to evaluate compliance with cleanup levels.

(B) For cleanup levels based on chronic or carcinogenic threats, the true mean soil concentration shall be used to evaluate compliance with cleanup levels.

(d) When data analysis procedures for evaluating compliance are not specified in an applicable state or federal law the following procedures shall be used:

(i) A confidence interval approach that meets the following requirements:

(A) The upper one sided ninety-five percent confidence limit on the true mean soil concentration shall be less than the soil cleanup level. For lognormally distributed data, the upper one-sided ninety-five percent confidence limit shall be calculated using Land's method; and

(B) Data shall be assumed to be lognormally distributed unless this assumption is rejected by a statistical test. If a lognormal distribution is inappropriate, data shall be assumed to be normally distributed unless this assumption is rejected by a statistical test. The W test, D'Agostino's test, or, censored probability plots, as appropriate for the data, shall be the statistical methods used to determine whether the data are lognormally or normally distributed;

(ii) For an evaluation conducted under (c)(iv)(A) of this subsection, a parametric test for percentiles based on tolerance intervals to test the proportion of soil samples having concentrations less than the soil cleanup level. When using this method, the true proportion of samples that do not exceed the soil cleanup level shall not be less than ninety percent.

Statistical tests shall be performed with a Type I error level of 0.05;

(iii) Direct comparison of soil sample concentrations with cleanup levels may be used to evaluate compliance with cleanup levels where selective sampling of soil can be reliably expected to find suspected soil contamination. There must be documented, reliable information that the soil samples have been taken from the appropriate locations. Persons using this method must demonstrate that the basis used for selecting the soil sample locations provides a high probability that any existing areas of soil contamination have been found; or

(iv) Other statistical methods approved by the department.

(e) All data analysis methods used, including those specified in state and federal law, must meet the following requirements:

(i) No single sample concentration shall be greater than two times the soil cleanup level. Higher exceedances to control false positive error rates at five percent may be approved by the department when the cleanup level is based on background concentrations; and

(ii) Less than ten percent of the sample concentrations shall exceed the soil cleanup level. Higher exceedances to control false positive error rates at five percent may be approved by the department when the cleanup level is based on background concentrations.

(f) When using statistical methods to demonstrate compliance with soil cleanup levels, the following procedures shall be used for measurements below the practical quantitation limit:

(i) Measurements below the method detection limit shall be assigned a value equal to one-half the method detection limit when not more than fifteen percent of the measurements are below the practical quantitation limit.

(ii) Measurements above the method detection limit but below the practical quantitation limit shall be assigned a value equal to the method detection limit when not more than fifteen percent of the measurements are below the practical quantitation limit.

(iii) When between fifteen and fifty percent of the measurements are below the practical quantitation limit and the data are assumed to be lognormally or normally distributed, Cohen's method shall be used to calculate a corrected mean and standard deviation for use in calculating an upper confidence limit on the true mean soil concentration.

(iv) If more than fifty percent of the measurements are below the practical quantitation limit, the largest value in the data set shall be used in place of an upper confidence limit on the true mean soil concentration.

(v) The department may approve alternate statistical procedures for handling nondetected values or values below the practical quantitation limit.

(vi) If a hazardous substance or petroleum fraction has never been detected in any sample at a site and these substances are not suspected of being present at the site based on site history and other knowledge, that hazardous substance or petroleum fraction may be excluded from the statistical analysis.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-740, filed 2/12/01, effective 8/15/01; 96-04-010 (Order 94-37), § 173-340-740, filed 1/26/96, effective 2/26/96; 91-04-019, § 173-340-740, filed 1/28/91, effective 2/28/91.]

NOTES:

Reviser's Note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

WAC 173-340-745 Soil cleanup standards for industrial properties. (1) **Applicability.**

(a) Criteria. This section shall be used to establish soil cleanup levels where the department has determined that industrial land use represents the reasonable maximum exposure. Soil cleanup levels for this presumed exposure scenario shall be established in accordance with this

6.9 LEAD assuming NDs at HALF PQLs

7.2
7.5
7.9
9.2
9.7
10
13
15
17
19
20
24
26
28
30
34
42
42
47
49
57
60
61
72
72
88
99
100
120
120
130
130
150
220
260
270
290
2.75
2.75
2.75
2.75
2.8
2.95

Number of samples		Uncensored values	
Uncensored	44	Mean	63.19
Censored		Lognormal mean	77.04
Detection limit or PQL		Std. devn.	75.503923
Method detection limit		Median	32
TOTAL	44	Min.	2.75
		Max.	290

Lognormal distribution?		Normal distribution?	
r-squared is:	0.964	r-squared is:	0.768

Recommendations:
Use lognormal distribution.

UCL (Land's method) is 140.701451572429

700
770
300
390
410
70
89
150
91
320
1400
26.5
550
100
28
1100
370
380
340
460
32.5
120
27.5
27.5
28
30
74
31.5
150
140
2300

LUBE OIL assuming NDs at HALF PQLs

Number of samples		Uncensored values	
Uncensored	31	Mean	355.02
Censored	0	Lognormal mean	391.06
Detection limit or PQL		Std. devn.	489.274267
Method detection limit		Median	150
TOTAL	31	Min.	26.5
		Max.	2300

Lognormal distribution?		Normal distribution?	
r-squared is:	0.947	r-squared is:	0.667

Recommendations:
Use lognormal distribution.

UCL (Land's method) is 781.162861343816

700 LUBE OIL assuming NDs at highest PQLs
770
300
390
410
70
89
150
91
320
1400
65
550
100
65
1100
370
380
340
460
65
120
65
65
65
65
74
65
150
140
2300

Number of samples		Uncensored values	
Uncensored	31	Mean	364.32
Censored	8	Lognormal mean	354.44
Detection limit or PQL	65	Std. devn.	483.087941
Method detection limit		Median	150
TOTAL	39	Min.	65
		Max.	2300

Lognormal distribution?		Normal distribution?	
r-squared is:	0.958	r-squared is:	0.754

Recommendations:
Use lognormal distribution.

UCL (Land's method) is 516.85296066677
Cohen's method applied.

$\bar{x} + \frac{(T \cdot s)}{\sqrt{N}} = 515.94$
(I used Normal dist)
OK - SMD

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 07/21/08
Site Name: Lakewood Station
Sample Name: Kwang Light Standard, S-4

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6		0.00%
AL_EC >6-8		0.00%
AL_EC >8-10		0.00%
AL_EC >10-12		0.00%
AL_EC >12-16	5.7	0.55%
AL_EC >16-21	130	12.44%
AL_EC >21-34	750	71.79%
AR_EC >8-10		0.00%
AR_EC >10-12		0.00%
AR_EC >12-16	19	1.82%
AR_EC >16-21	140	13.40%
AR_EC >21-34		0.00%
Benzene		0.00%
Toluene		0.00%
Ethylbenzene		0.00%
Total Xylenes		0.00%
Naphthalene		0.00%
1-Methyl Naphthalene		0.00%
2-Methyl Naphthalene		0.00%
n-Hexane		0.00%
MTBE		0.00%
Ethylene Dibromide (EDB)		0.00%
1,2 Dichloroethane (EDC)		0.00%
Benzo(a)anthracene		0.00%
Benzo(b)fluoranthene		0.00%
Benzo(k)fluoranthene		0.00%
Benzo(a)pyrene		0.00%
Chrysene		0.00%
Dibenz(a,h)anthracene		0.00%
Indeno(1,2,3-cd)pyrene		0.00%
Sum	1044.7	100.00%

Notes for Data Entry | Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared previously

REMARK:
EPH-VPH analyses were conducted on a soil sample with lube oil at 2,300 mg/kg, slightly above the unrestricted cleanup criterion of 2,000 mg/kg.

No VPH were detected. No gasoline or BTEX detected.

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.42	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.12	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.003	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: ug/L

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 7/21/2008
Site Name: Lakewood Station
Sample Name: Kwang Light Standard, S-4
Measured Soil TPH Concentration, mg/kg: **1,044.700**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	10,224	0.00E+00	1.02E-01	Pass
	Method C	122,689	0.00E+00	8.52E-03	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	100% NAPL	0.00E+00	2.40E-02	Pass
	NA	NA	NA	NA	NA

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through -7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**10,224.11**	**122,689.37**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	1.02E+04	0.00E+00	1.00E+00	YES	1.23E+05	0.00E+00	1.00E+00
Total Risk=1E-5	NA	NA	NA	NA	NA	NA	NA	NA
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA				
EDB	NA	NA	NA	NA		NA		
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1 Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	NA
Protective Ground Water Concentration, ug/L	NA
Protective Soil Concentration, mg/kg	**Soil-to-Ground Water is not a critical pathway!**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	1.71E+01	0.00E+00	2.62E-02	100% NAPL
Total Risk = 1E-5	NA	NA	NA	NA	NA
Total Risk = 1E-6	NA	NA	NA	NA	NA
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 66000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
NA	NA	NA	NA	NA

APPENDIX F

IMPORTANT INFORMATION ABOUT YOUR ENVIRONMENTAL REPORT

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Attachment to and part of Report 21-1-12180-009

Date: September 19, 2008
To: Ms. Monica Moravec
KPFF Consulting Engineers

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland