STERNOFF METALS

Soil Stockpile Characterization and Proposed Disposition Report

Thermally Desorbed Soil Stockpile
7201 East Marginal Way South
Seattle, Washington 98108

Prepared for:

Dennis McLeod
7201 East Marginal Way South
Seattle, Washington 98108

Prepared by:

Eco-Tec, Inc.
PO Box 690
Vaughn, WA 98394
(888) 668-8982

ETI Project #30206
March 12, 2003

Enviromental Consultants
Remediation Specialists
www.eco-tec-inc.com

Conclusions:

The report of analytical chemistry, "Analytical Data for Project 30206" was completed by OnSite Environmental, Inc. on March 11, 2003.

Results of analytical chemistry indicate that petroleum hydrocarbons in the gasoline range, as well as Benzene, Toluene, Ethylbenzene, and Xylene, are below laboratory detection limits for all twenty samples analyzed.

Results of analytical chemistry indicate that petroleum hydrocarbons in the diesel and heavier oil ranges are well below the Method A Cleanup Levels set forth in the Model Toxics Control Act (MTCA) Chapter 173-340 WAC for "Unrestricted Land Use" for all twenty samples analyzed.

Results of analytical chemistry indicate that metals contamination in the forms of Arsenic, Mercury, Selenium, and Chromium VI are below laboratory detection limits for all twenty samples analyzed. Metals contamination in the forms of Silver, Barium, Cadmium, and Chromium are well below Method A Cleanup Levels set forth in the Model Toxics Control Act (MTCA) Chapter 173-340 WAC and Method B Cleanup Levels set forth in the Cleanup Levels and Risk Calculations under the Model Toxics Control Act Cleanup Regulation (CLARC) Version 3.1, updated November 2001, for "Unrestricted Land Use" for all twenty samples analyzed.

Metals contamination exceeding the Model Toxics Control Act (MTCA) Chapter 173-340 WAC Method A Cleanup Levels for "Unrestricted Land Use" was encountered in sample number 03041005 in the form of Lead at 260 mg/kg. Method A "Unrestricted Land Use" Cleanup Levels are 250 mg/kg. The nineteen other samples analyzed reported Lead levels well below the Method A Cleanup Levels set forth in the Model Toxics Control Act (MTCA) Chapter 173-340 WAC for "Unrestricted Land Use". Although Lead concentrations in sample number 03041005 exceed the MTCA Method A "Unrestricted Land Use" Cleanup Levels by 10 mg/kg, the 260 mg/kg concentration is far below the MTCA Method A Soil Cleanup Levels for Industrial Properties of 1,000 mg/kg.

The average concentration of the Lead contamination in the soil Stockpile is 123.2 mg/kg. The average concentration is far below Method A Cleanup Levels set forth in the Model Toxics Control Act (MTCA) Chapter 173-340 WAC for "Unrestricted Land Use". The MTCA Method A Soil Cleanup Levels for Industrial Properties for Lead is 1,000 mg/kg. This Method A Cleanup Level concentration is based on "direct contact". Projected end use of this soil is as fill material around a storm water retention vault and as fill under paved site roads, consequently, direct contact would not be likely.

Summary:

Activities and results of analytical chemistry documented in this Report are to confirm the concentrations of contaminants of concern that have been documented, or suspected to exist, in a thermally desorbed soil Stockpile located at 7201 East Marginal Way South, Seattle, Washington 98108. The Stockpile size is approximately 7,000 cubic yards. The soil in the Stockpile is from previous thermal desorbtion activities preformed on the property by Remedco, a firm that was in the business of treating petroleum contaminated soil.

The Revised Sampling and Analysis Plan (see Appendix D) that was implemented during Stockpile assessment activities is a modification of the Sampling and Analysis Plan that was prepared on February 9, 2003 as a precursor to a meeting on February 10, 2003 between Mr. Dennis McLeod, property owner; Mr. Donald Verfurth, Attorney for Mr. McLeod; Ms. Jill Trohimovich, R.S., Seattle-King County Department of Public Health; Mr. Gary Criscione, R.S., Seattle-King County Department of Public Health; and Mr. Herbert Pearse, Principal, Eco-Tec, Inc.

The Revised Sampling and Analysis Plan, dated February 12, 2003, was prepared subsequent to the February 10, 2003 meeting and incorporates modifications to address assessment issues and recommendations that were resultant from that meeting. Additional modifications to the analytical procedures were addressed based on the confirmatory letter, dated February 24, 2003, to Mr. Dennis McLeod, RE: "Sampling plan for the Thermally Desorbed Stockpile ETI Project #30206 Former Remedco Site at 7201 East Marginal Way South", from Mr. Bill Heaton, Supervisor, Solid Waste / Vector Program, Seattle-King County Department of Public Health in Appendix B / Relevant Correspondence.

Although petroleum hydrocarbon contamination in this thermally desorbed soil Stockpile has been thoroughly documented through previous sampling events this data has been set aside, other than for reference. Twenty discrete grab samples have been collected and analyzed to assess petroleum hydrocarbons in the gasoline, diesel and heavier oil range, 8 RCRA metals, and Chromium VI.

On March 4, 2003, five soil samples were collected from the perimeter of the soil Stockpile at points around the east, north, and west slopes at a point approximately midway between the upper and lower extremities of the slope at approximately 3-4 feet below the slope surface. The south perimeter of the soil Stockpile was not accessible for sample collection due to the proximity of the soil Stockpile to the south fence. Depth of the soil Stockpile is estimated at an average of eleven feet. Five soil samples were collected from the top of the soil Stockpile at an approximate depth between two and three feet below the pile surface. Five soil samples were collected from the same locations at an approximate depth between five and six feet below the pile surface, and five soil samples were collected from the same locations at an approximate depth between eight and nine feet below the pile surface. See Figure 2 for sample locations.

Results of analytical chemistry indicate that all petroleum hydrocarbons contaminant concentrations are either below laboratory detection limits or below Method A Cleanup Levels set forth in the Model Toxics Control Act (MTCA) Chapter 173-340 WAC for "Unrestricted Land Use". All metals contaminant concentrations are below laboratory detection limits or Method A Cleanup Levels set forth in the Model Toxics Control Act (MTCA) Chapter 173-340

WAC and Method B Cleanup Levels set forth in the Cleanup Levels and Risk Calculations under the Model Toxics Control Act Cleanup Regulation (CLARC) Version 3.1, updated November 2001, for "Unrestricted Land Use" for nineteen of the samples analyzed.

Lead concentrations in sample number 03041005 exceed the MTCA Method A "Unrestricted Land Use" Cleanup Levels of 250 mg/kg by 10 mg/kg. The 260 mg/kg concentration is far below the MTCA Method A Soil Cleanup Level of 1,000 mg/kg for Industrial Properties. This Method A Industrial Cleanup Level is based on "direct contact". Projected end use of this soil is as fill material around a storm water retention vault and as fill under paved site roads consequently direct contact would not be likely. The average concentration of the Lead contamination in the soil Stockpile is 123.2 mg/kg.

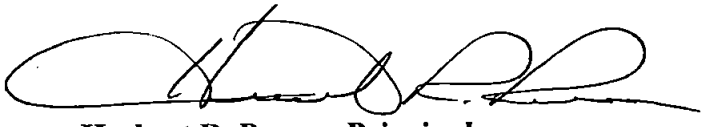
Based on this documentation of the contaminants of concern and receipt of approval from the Seattle-King County Department of Public Health, this Stockpiled soil, all or in part, will be removed from 7201 East Marginal Way South, Seattle, Washington 98108. Anticipated end use of this soil will be as fill material for road construction and as fill adjacent to a concrete storm water retention vault located at 12701 NE 141st Avenue, 98034 in the Totem Lake / Kingsgate Washington area, subject to approval by the Seattle-King County Department of Public Health (see Photograph).

Standard of Care:

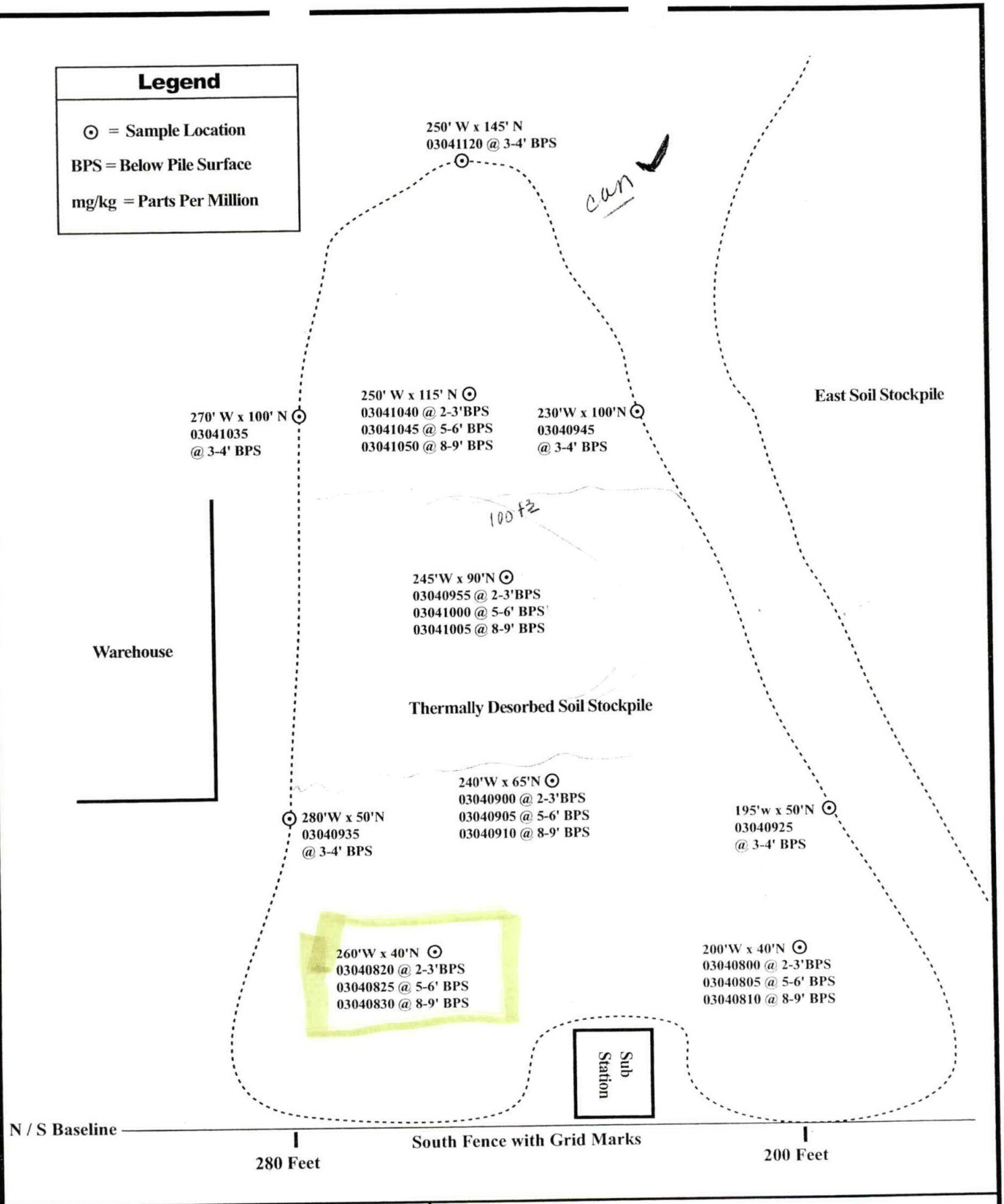
ETI feels that this Report adequately documents the general status of the contaminants of concern in the thermally desorbed soil Stockpile with regard to petroleum hydrocarbons in the gasoline, diesel and heavier oil ranges, and metals contamination in the forms of Chromium, Chromium VI, Lead, Mercury, Selenium, Silver Barium, Arsenic, and Cadmium.

The conclusions and recommendations contained in this Report represent our professional opinions. These opinions were derived in accordance with currently accepted hydrogeologic, engineering, and environmental practices that are to be implemented at the time and place of performance of the activities presented herein. Other than this no warranty is implied or intended.

ECO-TEC, Inc.
Per



Herbert R. Pearse, Principal



Sample Location Map
Thermally Desorbed Soil Stockpile
7201 East Marginal Way
Seattle, Washington 98108

ECO-TEC, Inc.
P.O. Box 690
Vaughn, Washington 98394-0690
888-668-8982
ETI Project: #30206

Date: 3/5/03
Figure: 2
Scale: NTS

North

ECO-TEC, Inc.
PO Box 690
Vaughn, Washington 98394
Phone / Fax - Toll Free: (888) 668-8982
E-mail: herb@eco-tec-inc.com
Web: www.eco-tec-inc.com

Soil Stockpile Characterization
And
Proposed Disposition Report

Thermally Desorbed Soil Stockpile
7201 East Marginal Way South
Seattle, Washington 98108

March 12, 2003
ETI Project #30206

Introduction:

This "Soil Stockpile Characterization and Proposed Disposition Report" (Report) has been prepared to fully document the concentrations of the contaminants of concern that have previously been documented to exist in the thermally desorbed soil stockpile (Stockpile) located at 7201 East Marginal Way South in Seattle, Washington (see Photographs).

The Stockpile is resultant from activities performed by Remedco, a firm involved in the thermal treatment of petroleum contaminated soil. The Stockpile is estimated to be approximately 7,000 cubic yards of thermally and biologically remediated soil and associated gravel in the two-inch-minus range. The Stockpile is approximately one hundred fifty feet east to west at the southern extreme, tapering to approximately twenty feet east to west at the northern extreme. The Stockpile north south dimension is approximately one hundred fifty feet (see Figure 2).

The Revised Sampling and Analysis Plan that was implemented during Stockpile assessment activities is a modification of the Sampling and Analysis Plan that was prepared on February 9, 2003 as a precursor to a meeting on February 10, 2003 between Mr. Dennis McLeod, property owner; Mr. Donald Verfurth, Attorney for Mr. McLeod; Ms. Jill Trohimovich, R.S., Seattle-King County Department of Public Health; Mr. Gary Criscione, R.S., Seattle-King County Department of Public Health; and Mr. Herbert Pearse, Principal, Eco-Tec, Inc.

The Revised Sampling and Analysis Plan, dated February 12, 2003, was prepared subsequent to the February 10, 2003 meeting and incorporates modifications to address assessment issues and recommendations that were resultant from that meeting. The goal of the Revised Sampling and Analysis Plan is to adequately document the contaminants of concern that are known to exist in the Stockpile of thermally desorbed soil, totaling approximately 7,000 cubic yards, to the satisfaction of the Seattle-King County Department of Public Health.

Samples collected during this sampling event were analyzed to thoroughly document Soil Stockpile petroleum hydrocarbon contamination in the gasoline, diesel and heavier oil ranges, and metals contamination in the forms of Chromium, Chromium VI, Lead, Arsenic, Cadmium, Silver, Selenium, Mercury and Barium. Analytical Chemistry that was performed follows the parameters set forth in the Revised Sampling and Analysis Plan in Appendix D, and the confirmatory letter, dated February 24, 2003 to Mr. Dennis McLeod, RE: "Sampling Plan for the Thermally Desorbed Stockpile ETI project #30206 Former Remedco Site at 7201 East Marginal Way South", from Mr. Bill Heaton, Supervisor, Solid Waste / Vector Program, Seattle-King County Department of Public Health, in Appendix B / Relevant Correspondence.

In order to avoid redundancy, the complete Revised Sampling and Analysis Plan has been included in Appendix D of this Report. The Quality Assurance / Quality Control Plan (Appendix B), the Standard Operating Procedures (Appendix C), and the general Site Safety / Work Plan (Appendix D), as well as the entirety of the Revised Sampling and Analysis Plan is incorporated into this Report by reference. The Site Safety Plan, specific to sample collection activities documented in this Report, is presented in Appendix C of this Report.

Three previous sampling events have been performed on this soil Stockpile (See Appendix A of the Revised Sampling and Analysis Plan in Appendix D of this Report). During the most recent sampling event performed by Kane Environmental, Inc. and documented in a "Limited Phase II Investigation" report prepared on December 16, 2002, a total of five samples were collected from this soil Stockpile. Three screening samples were collected from this soil Stockpile by Eco-Tec, Inc. (ETI) on February 27, 2001. Thirty-two samples were collected from this soil Stockpile by Environmental Hazards Control in May / June 1999.

Results of analytical chemistry presented in all three of the sampling events reported levels of petroleum hydrocarbon contamination in the diesel and heavier oil range that were well below the current MTCA Cleanup Regulation Chapter 173-340 WAC Method A Cleanup Levels for Unrestricted Land Use (2,000 mg/kg) for all samples analyzed. Gasoline range petroleum hydrocarbons were not encountered during previous sampling events. Metals contamination in the forms of Cadmium and Lead, that exceeded MTCA Method A Cleanup Levels, were encountered in one sample collected by Environmental Hazards Control. Results of analytical chemistry performed on samples collected by Kane Environmental, Inc. reported Chromium at a high of 37 mg/kg. Current MTCA Cleanup Regulation Chapter 173-340 WAC Method A Cleanup Levels for Unrestricted Land Use sets Cleanup Levels at 19 mg/kg for Chromium VI and at 2000 mg/kg for Chromium III. These samples were not analyzed specifically for Chromium VI.

During the current sampling event a total of twenty discrete soil samples were collected from the Stockpile for analysis. This quantity of samples is recommended, in the Ecology document, "Guidance for Remediation of Petroleum Contaminated Soil", revised in November of 1995, to thoroughly assess the estimated 7,000 cubic yards of soil. The twenty discrete grab samples collected during this sampling event were analyzed to thoroughly document soil Stockpile petroleum hydrocarbon contamination in the gasoline, diesel and heavier oil ranges, and metals contamination in the forms of Chromium, Chromium VI, Lead, Arsenic, Cadmium, Silver, Selenium, Mercury and Barium. Analytical Chemistry that was performed follows the parameters set forth in the Revised Sampling and Analysis Plan in Appendix D, and the confirmatory letter, dated February 24, 2003 to Mr. Dennis McLeod, RE: "Sampling plan for the

Thermally Desorbed Stockpile ETI project #30206 Former Remedco Site at 7201 East Marginal Way South", from Mr. Bill Heaton, Supervisor, Solid Waste / Vector Program, Seattle-King County Department of Public Health, in Appendix B / Relevant Correspondence.

The results of analytical chemistry performed on the twenty discrete soil samples are presented in the Tables of Analytical Chemistry and in Appendix A / Laboratory Analytical Data.

Subsequent to review of this Report documenting the contaminants of concern and upon receipt of approval from the Seattle-King County Department of Public Health, this Stockpile, all or in part, will be removed from 7201 East Marginal Way South, Seattle, Washington 98108.

Proposed end use of this soil will be as fill material for road construction and as fill adjacent to a concrete storm water retention vault located at 12701 NE 141st Avenue, 98034 in the Totem Lake / Kingsgate Washington area (see Photographs).

Objectives and Scope of Services:

Objectives:

1) To fully document the levels of gasoline range petroleum hydrocarbons and the contaminants of concern previously documented to exist in the Stockpile through the collection of, and performance of analytical chemistry on, a total of twenty discrete soil samples. This number of samples is recommended in the Ecology document, "Guidance for Remediation of Petroleum Contaminated Soil", revised in November of 1995 to thoroughly assess the estimated 7,000 cubic yards of soil.

2) To receive approval from the Seattle-King County Department of Public Health, to remove this Stockpiled soil, all or in part, from 7201 East Marginal Way South, Seattle, Washington 98108.

3) To receive approval from the Seattle-King County Department of Public Health for lawful use of this soil as fill material for road construction and as fill adjacent to a concrete storm water retention vault located at 12701 NE 141st Avenue, 98034 in the Totem Lake / Kingsgate Washington area.

Scope of Services:

1) Prepare a Sampling and Analysis Plan, Site Safety Plan, Work Plan, and Quality Assurance / Quality Control Plan.

2) Collect twenty discrete grab samples.

3) Preserve and properly document the samples collected.

4) Deliver the collected samples, under chain of custody, to an accredited analytical laboratory for performance of the required analytical chemistry.

5) Provide documentation, and conclusions based on the results of analytical chemistry in a Soil Stockpile Characterization and Proposed Disposition Report.

6) Interact as necessary with associated regulatory agencies and contractors / subcontractors.

7) Document and report as necessary on the final disposition of the Soil Stockpile.

At a minimum, the scope of work performed has met the standards presented in the Model Toxics Control Act (MTCA) Chapter 173-340 WAC and the Washington State Department of Ecology (Ecology) document, "Guidance for Remediation of Petroleum Contaminated Soil", revised in November of 1995. Ecology's recommendations and requirements are considered the minimum activities required. ETI will perform additional activities, in excess of Ecology's minimum requirements, that may be necessary to properly document assessment and / or remediation at this specific site.

Site Activities:

On March 4, 2003, ETI personnel arrived at 7201 East Marginal Way South to commence the soil Stockpile sampling event. A copy of the Site Safety Plan was posted on site and all personnel involved in sample collection activities were thoroughly briefed on the Site Safety Plan.

The thermally desorbed soil Stockpile sampling event commenced at 0800 hours.

Sample #03040800 was collected at 0800 hours from the top of the soil Stockpile at a point 200 feet west and 40 feet north at a depth of 2-3 feet below the pile surface.

Sample #03040805 was collected at 0805 hours from the top of the soil Stockpile at a point 200 feet west and 40 feet north at a depth of 5-6 feet below the pile surface.

Sample #03040810 was collected at 0810 hours from the top of the soil Stockpile at a point 200 feet west and 40 feet north at a depth of 8-9 feet below the pile surface.

Sample #03040820 was collected at 0820 hours from the top of the soil Stockpile at a point 260 feet west and 40 feet north at a depth of 2-3 feet below the pile surface.

Sample #03040825 was collected at 0825 hours from the top of the soil Stockpile at a point 260 feet west and 40 feet north at a depth of 5-6 feet below the pile surface.

Sample #03040830 was collected at 0830 hours from the top of the soil Stockpile at a point 260 feet west and 40 feet north at a depth of 8-9 feet below the pile surface.

Sample #03040900 was collected at 0900 hours from the top of the soil Stockpile at a point 240 feet west and 65 feet north at a depth of 2-3 feet below the pile surface.

Sample #03040905 was collected at 0905 hours from the top of the soil Stockpile at a point 240 feet west and 65 feet north at a depth of 5-6 feet below the pile surface.

Sample #03040910 was collected at 0910 hours from the top of the soil Stockpile at a point 240 feet west and 65 feet north at a depth of 8-9 feet below the pile surface.

Sample #03040925 was collected at 0925 hours from the east slope of the soil Stockpile at a point 195 feet west and 50 feet north at a depth of 3-4 feet below the pile surface.

Sample #03040935 was collected at 0935 hours from the west slope of the soil Stockpile at a point 280 feet west and 50 feet north at a depth of 3-4 feet below the pile surface.

Sample #03040945 was collected at 0945 hours from the east slope of the soil Stockpile at a point 230 feet west and 100 feet north at a depth of 3-4 feet below the pile surface.

Sample #03040955 was collected at 0955 hours from the top of the soil Stockpile at a point 245 feet west and 90 feet north at a depth of 2-3 feet below the pile surface.

Sample #03041000 was collected at 1000 hours from the top of the soil Stockpile at a point 245 feet west and 90 feet north at a depth of 5-6 feet below the pile surface.

Sample #03041005 was collected at 1005 hours from the top of the soil Stockpile at a point 245 feet west and 90 feet north at a depth of 8-9 feet below the pile surface.

Sample #03041035 was collected at 1035 hours from the west slope of the soil Stockpile at a point 270 feet west and 100 feet north at a depth of 3-4 feet below the pile surface.

Sample #03041040 was collected at 1040 hours from the top of the soil Stockpile at a point 250 feet west and 115 feet north at a depth of 2-3 feet below the pile surface.

Sample #03041045 was collected at 1045 hours from the top of the soil Stockpile at a point 250 feet west and 115 feet north at a depth of 5-6 feet below the pile surface.

Sample #03041050 was collected at 1050 hours from the top of the soil Stockpile at a point 250 feet west and 115 feet north at a depth of 8-9 feet below the pile surface.

Sample #03041120 was collected at 1120 hours from the north slope of the soil Stockpile at a point 250 feet west and 145 feet north at a depth of 3-4 feet below the pile surface.

Five soil samples were collected from the perimeter of the soil Stockpile at points around the east, north, and west slopes at a point approximately midway between the upper and lower extremities of the slope at approximately 3-4 feet below the slope surface. The south perimeter of the soil Stockpile was not accessible for sample collection due to the proximity of the soil Stockpile to the south fence. Depth of the soil Stockpile is estimated at an average of eleven feet. Five soil samples were collected from the top of the soil Stockpile at an approximate depth between two and three feet below the pile surface. Five soil samples were collected from the same locations at an approximate depth between five and six feet below the pile surface, and five soil samples were collected from the same locations at an approximate depth between eight and nine feet below the pile surface. See Figure 2 for sample locations.

Samples were collected using a back hoe to excavate into the perimeter slopes of the soil Stockpile to a depth of not less than three feet below the slope surface. Samples were collected from the top of the soil Stockpile using a backhoe and excavating to the desired depth of sample collection. All samples collected during this soil Stockpile sampling event were discrete grab samples. Samples were collected from the soil in the center of the backhoe bucket as retrieved to the surface from the desired depth of sample collection.

Two discrete grab samples were collected from each sample location directly into sterilized 4-ounce glass sample containers and those samples were immediately given unique identifying numbers and refrigerated for transport, under chain of custody to OnSite Environmental, Inc. in Redmond, Washington. Detailed sample locations are presented in Figure 2 of this Report.

Mr. Gary D. Criscione, R.S., Health and Environmental Investigator II, Seattle - King County Department of Public Health, visited the site on two separate occasions during this sampling event. Mr. Criscione gave verbal approval of the methods and practices being implemented for sample collection. Mr. Criscione noted, as did Eco-Tec, Inc., that there was some wood, plastic and metal (aluminum can, wire, iron) debris in the vicinity of the sample collection location at 260 feet west by 40 feet north at approximately 6-8 feet below the pile surface. No other anomalies were noted in any of the other sample collection locations. Soil characterized throughout the Stockpile consisted of fine grained to coarse grained sands, small cobble in the two-inch-minus range and organic matter generated from bioremediation activities.

ETI departed from the site at 1415 hours, directly following the completion of the sampling event and sample preservation / documentation, to deliver the samples to OnSite Environmental, Inc. for the performance of the required analytical chemistry. Samples were delivered, under chain of custody, to OnSite Environmental, Inc. at 1445 on March 4, 2003.

Samples collected during this sampling event were analyzed to thoroughly document soil Stockpile petroleum hydrocarbon contamination in the gasoline, diesel and heavier oil ranges, and metals contamination in the forms of Chromium, Chromium VI, Lead, Arsenic, Cadmium, Silver, Selenium, Mercury and Barium. Analytical Chemistry that was performed follows the parameters set forth in the Revised Sampling and Analysis Plan in Appendix D, and the confirmatory letter, dated February 24, 2003 to Mr. Dennis McLeod, RE: "Sampling Plan for the Thermally Desorbed Stockpile ETI Project #30206 Former Remedco Site at 7201 East Marginal Way South", from Mr. Bill Heaton, Supervisor, Solid Waste / Vector Program, Seattle - King County Department of Public Health, in Appendix B / Relevant Correspondence.

The results of analytical chemistry are presented, in full, in Appendix A - Laboratory Analytical Data, and summarized in the Tables of Analytical Chemistry.

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

March 11, 2003

Herb Pearse
Eco-Tec, Inc.
P.O. Box 690
Vaughn, WA 98394

Re: Analytical Data for Project 30206
Laboratory Reference No. 0303-020

Dear Herb:

Enclosed are the analytical results and associated quality control data for samples submitted on March 4, 2003.

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: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

Case Narrative

Samples were collected on March 4, 2003. Samples were maintained at the laboratory at 4°C and followed SW846 analysis and extraction methods.

NWTPH Gx/BTEX Analysis

Any 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.

NWTPH Dx Analysis

Any 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.

Total Metals EPA 6010B/7471A Analysis

Any 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.

Hexavalent Chromium EPA 3060A/7196A Analysis

Any 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: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**03040800**			**03040805**		
Lab ID:	03-020-01			03-020-02		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.011	**ND**		0.011
Toluene	**ND**		0.056	**ND**		0.056
Ethyl Benzene	**ND**		0.056	**ND**		0.056
m,p-Xylene	**ND**		0.056	**ND**		0.056
o-Xylene	**ND**		0.056	**ND**		0.056
TPH-Gas	**ND**		5.6	**ND**		5.6
Surrogate Recovery: Fluorobenzene	82%			80%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted:	3-5-03					
Date Analyzed:	3-5-03					
Matrix: Soil						
Units: mg/kg (ppm)						
Client ID:	**03040810**			**03040820**		
Lab ID:	03-020-03			03-020-04		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.011	**ND**		0.011
Toluene	**ND**		0.057	**ND**		0.056
Ethyl Benzene	**ND**		0.057	**ND**		0.056
m,p-Xylene	**ND**		0.057	**ND**		0.056
o-Xylene	**ND**		0.057	**ND**		0.056
TPH-Gas	**ND**		5.7	**ND**		5.6
Surrogate Recovery:						
Fluorobenzene	77%			75%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**03040825**			**03040830**		
Lab ID:	03-020-05			03-020-06		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.011	**ND**		0.012
Toluene	**ND**		0.056	**ND**		0.060
Ethyl Benzene	**ND**		0.056	**ND**		0.060
m,p-Xylene	**ND**		0.056	**ND**		0.060
o-Xylene	**ND**		0.056	**ND**		0.060
TPH-Gas	**ND**		5.6	**ND**		6.0
Surrogate Recovery: Fluorobenzene	76%			74%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**03040900**			**03040905**		
Lab ID:	03-020-07			03-020-08		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.011	**ND**		0.011
Toluene	**ND**		0.056	**ND**		0.056
Ethyl Benzene	**ND**		0.056	**ND**		0.056
m,p-Xylene	**ND**		0.056	**ND**		0.056
o-Xylene	**ND**		0.056	**ND**		0.056
TPH-Gas	**ND**		5.6	**ND**		5.6
Surrogate Recovery: Fluorobenzene	81%			78%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	03040910			03040925		
Lab ID:	03-020-09			03-020-10		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.012	**ND**		0.011
Toluene	**ND**		0.058	**ND**		0.056
Ethyl Benzene	**ND**		0.058	**ND**		0.056
m,p-Xylene	**ND**		0.058	**ND**		0.056
o-Xylene	**ND**		0.058	**ND**		0.056
TPH-Gas	**ND**		5.8	**ND**		5.6
Surrogate Recovery: Fluorobenzene	79%			76%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**03040935**			**03040945**		
Lab ID:	03-020-11			03-020-12		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.011	**ND**		0.011
Toluene	**ND**		0.057	**ND**		0.055
Ethyl Benzene	**ND**		0.057	**ND**		0.055
m,p-Xylene	**ND**		0.057	**ND**		0.055
o-Xylene	**ND**		0.057	**ND**		0.055
TPH-Gas	**ND**		5.7	**ND**		5.5
Surrogate Recovery: Fluorobenzene	77%			77%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**03040955**			**03041000**		
Lab ID:	03-020-13			03-020-14		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.011	**ND**		0.011
Toluene	**ND**		0.057	**ND**		0.057
Ethyl Benzene	**ND**		0.057	**ND**		0.057
m,p-Xylene	**ND**		0.057	**ND**		0.057
o-Xylene	**ND**		0.057	**ND**		0.057
TPH-Gas	**ND**		5.7	**ND**		5.7
Surrogate Recovery: Fluorobenzene	78%			74%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**03041005**			**03041035**		
Lab ID:	03-020-15			03-020-16		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.011	**ND**		0.011
Toluene	**ND**		0.057	**ND**		0.056
Ethyl Benzene	**ND**		0.057	**ND**		0.056
m,p-Xylene	**ND**		0.057	**ND**		0.056
o-Xylene	**ND**		0.057	**ND**		0.056
TPH-Gas	**ND**		5.7	**ND**		5.6
Surrogate Recovery:						
Fluorobenzene	76%			81%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**03041040**			**03041045**		
Lab ID:	03-020-17			03-020-18		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.011	**ND**		0.011
Toluene	**ND**		0.057	**ND**		0.057
Ethyl Benzene	**ND**		0.057	**ND**		0.057
m,p-Xylene	**ND**		0.057	**ND**		0.057
o-Xylene	**ND**		0.057	**ND**		0.057
TPH-Gas	**ND**		5.7	**ND**		5.7
Surrogate Recovery: Fluorobenzene	78%			77%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**03041050**			**03041120**		
Lab ID:	03-020-19			03-020-20		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.011	**ND**		0.011
Toluene	**ND**		0.056	**ND**		0.057
Ethyl Benzene	**ND**		0.056	**ND**		0.057
m,p-Xylene	**ND**		0.056	**ND**		0.057
o-Xylene	**ND**		0.056	**ND**		0.057
TPH-Gas	**ND**		5.6	**ND**		5.7
Surrogate Recovery: Fluorobenzene	79%			79%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0305S1

	Result	Flags	PQL
Benzene	ND		0.010
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	83%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0305S2

	Result	Flags	PQL
Benzene	ND		0.010
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	90%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX
DUPLICATE QUALITY CONTROL

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID:	03-020-10 Original	03-020-10 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	76%	76%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX
DUPLICATE QUALITY CONTROL

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID:	03-020-01 Original	03-020-01 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	82%	78%		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Gx/BTEX
MS/MSD QUALITY CONTROL

Date Extracted: 3-5-03
Date Analyzed: 3-5-03

Matrix: Soil
Units: mg/kg (ppm)

Spike Level: 1.00 ppm

Lab ID:	03-020-01 **MS**	Percent Recovery	03-020-01 **MSD**	Percent Recovery	**RPD**	**Flags**
Benzene	**0.769**	**77**	**0.775**	**78**	0.71	
Toluene	**0.780**	**78**	**0.785**	**79**	0.64	
Ethyl Benzene	**0.786**	**79**	**0.792**	**79**	0.70	
m,p-Xylene	**0.782**	**78**	**0.786**	**79**	0.51	
o-Xylene	**0.781**	**78**	**0.787**	**79**	0.77	
Surrogate Recovery:						
Fluorobenzene	77%		77%			

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx

Date Extracted:	3-7-03
Date Analyzed:	3-7&10-03
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	03040800	03040805	03040810
Lab ID:	03-020-01	03-020-02	03-020-03
Diesel Range:	ND	ND	ND
PQL:	28	28	28
Identification:	---	---	---
Lube Oil Range:	59	ND	ND
PQL:	56	56	57
Identification:	Lube Oil	---	---
Surrogate Recovery			
o-Terphenyl:	80%	80%	78%

Flags:

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx

Date Extracted:	3-7-03		
Date Analyzed:	3-7&10-03		
Matrix:	Soil		
Units:	mg/Kg (ppm)		
Client ID:	03040820	03040825	03040830
Lab ID:	03-020-04	03-020-05	03-020-06
Diesel Range:	ND	ND	ND
PQL:	28	28	150
Identification:	---	---	---
Lube Oil Range:	77	ND	610
PQL:	56	56	300
Identification:	Lube Oil	---	Lube Oil
Surrogate Recovery			
o-Terphenyl:	73%	70%	91%

Flags:

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx

Date Extracted:	3-7-03		
Date Analyzed:	3-10-03		
Matrix:	Soil		
Units:	mg/Kg (ppm)		
Client ID:	03040900	03040905	03040910
Lab ID:	03-020-07	03-020-08	03-020-09
Diesel Range:	ND	ND	ND
PQL:	28	28	29
Identification:	---	---	---
Lube Oil Range:	100	110	89
PQL:	56	56	58
Identification:	Lube Oil	Lube Oil	Lube Oil
Surrogate Recovery			
o-Terphenyl:	75%	73%	86%

Flags:

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx

Date Extracted:	3-7-03
Date Analyzed:	3-7&10-03
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	03040925	03040935	03040945
Lab ID:	03-020-10	03-020-11	03-020-12
Diesel Range:	ND	45	ND
PQL:	28	29	28
Identification:	---	Diesel Range Organics	---
Lube Oil Range:	75	150	ND
PQL:	56	57	55
Identification:	Lube Oil	Lube Oil	---
Surrogate Recovery			
o-Terphenyl:	78%	84%	88%

Flags:

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx

Date Extracted:	3-7-03		
Date Analyzed:	3-7&10-03		
Matrix:	Soil		
Units:	mg/Kg (ppm)		
Client ID:	03040955	03041000	03041005
Lab ID:	03-020-13	03-020-14	03-020-15
Diesel Range:	ND	ND	ND
PQL:	28	28	28
Identification:	---	---	---
Lube Oil Range:	ND	100	83
PQL:	57	57	57
Identification:	---	Lube Oil	Lube Oil
Surrogate Recovery			
o-Terphenyl:	83%	78%	78%

Flags:

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx

Date Extracted:	3-7-03		
Date Analyzed:	3-10-03		
Matrix:	Soil		
Units:	mg/Kg (ppm)		
Client ID:	03041035	03041040	03041045
Lab ID:	03-020-16	03-020-17	03-020-18
Diesel Range:	ND	ND	ND
PQL:	28	29	29
Identification:	---	---	---
Lube Oil Range:	83	120	120
PQL:	56	57	57
Identification:	Lube Oil	Lube Oil	Lube Oil
Surrogate Recovery			
o-Terphenyl:	81%	81%	72%

Flags:

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx

Date Extracted:	3-7-03	
Date Analyzed:	3-7&10-03	
Matrix:	Soil	
Units:	mg/Kg (ppm)	
Client ID:	03041050	03041120
Lab ID:	03-020-19	03-020-20
Diesel Range:	ND	ND
PQL:	28	28
Identification:	---	---
Lube Oil Range:	ND	60
PQL:	56	56
Identification:	---	Lube Oil
Surrogate Recovery		
o-Terphenyl:	94%	77%

Flags:

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	3-7-03
Date Analyzed:	3-7-03
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB0307S2
Diesel Range:	ND
PQL:	.25
Identification:	---
Lube Oil Range:	ND
PQL:	50
Identification:	---
Surrogate Recovery	
o-Terphenyl:	88%
Flags:	

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	3-7-03	
Date Analyzed:	3-10-03	
Matrix:	Soil	
Units:	mg/Kg (ppm)	
Lab ID:	03-020-01	03-020-01 DUP
Diesel Range:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	80%	68%

Flags:

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	3-7-03
Date Analyzed:	3-7-03
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	03-020-02	03-020-02 DUP
Diesel Range:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	80%	74%
Flags:		

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-01
Client ID: 03040800

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**57**	2.8
Cadmium	6010B	**ND**	0.56
Chromium	6010B	**27**	0.56
Lead	6010B	**100**	5.6
Mercury	7471A	**ND**	0.28
Selenium	6010B	**ND**	11
Silver	6010B	**0.86**	0.56

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-02
Client ID: 03040805

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Barium	6010B	52	2.8
Cadmium	6010B	ND	0.56
Chromium	6010B	23	0.56
Lead	6010B	98	5.6
Mercury	7471A	ND	0.28
Selenium	6010B	ND	11
Silver	6010B	ND	0.56

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-03
Client ID: 03040810

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Barium	6010B	60	2.8
Cadmium	6010B	ND	0.57
Chromium	6010B	28	0.57
Lead	6010B	42	5.7
Mercury	7471A	ND	0.28
Selenium	6010B	ND	11
Silver	6010B	ND	0.57

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-04
Client ID: 03040820

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**66**	2.8
Cadmium	6010B	**ND**	0.56
Chromium	6010B	**29**	0.56
Lead	6010B	**140**	5.6
Mercury	7471A	**ND**	0.28
Selenium	6010B	**ND**	11
Silver	6010B	**0.63**	0.56

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-05
Client ID: 03040825

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Barium	6010B	400	2.8
Cadmium	6010B	ND	0.56
Chromium	6010B	30	0.56
Lead	6010B	130	5.6
Mercury	7471A	ND	0.28
Selenium	6010B	ND	11
Silver	6010B	ND	0.56

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-06
Client ID: 03040830

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	12
Barium	6010B	**71**	3.0
Cadmium	6010B	**0.99**	0.60
Chromium	6010B	**30**	0.60
Lead	6010B	**95**	6.0
Mercury	7471A	**ND**	0.30
Selenium	6010B	**ND**	12
Silver	6010B	**ND**	0.60

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-07
Client ID: 03040900

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**56**	2.8
Cadmium	6010B	**ND**	0.56
Chromium	6010B	**28**	0.56
Lead	6010B	**54**	5.6
Mercury	7471A	**ND**	0.28
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.56

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-08
Client ID: 03040905

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Barium	6010B	54	2.8
Cadmium	6010B	ND	0.56
Chromium	6010B	27	0.56
Lead	6010B	110	5.6
Mercury	7471A	ND	0.28
Selenium	6010B	ND	11
Silver	6010B	ND	0.56

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-09
Client ID: 03040910

Analyte	Method	Result	PQL
Arsenic	6010B	ND	12
Barium	6010B	80	2.9
Cadmium	6010B	ND	0.58
Chromium	6010B	31	0.58
Lead	6010B	60	5.8
Mercury	7471A	ND	0.29
Selenium	6010B	ND	12
Silver	6010B	ND	0.58

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-10
Client ID: 03040925

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Barium	6010B	81	2.8
Cadmium	6010B	1.1	0.56
Chromium	6010B	33	0.56
Lead	6010B	180	5.6
Mercury	7471A	ND	0.28
Selenium	6010B	ND	11
Silver	6010B	ND	0.56

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-11
Client ID: 03040935

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Barium	6010B	84	2.9
Cadmium	6010B	0.76	0.57
Chromium	6010B	31	0.57
Lead	6010B	170	5.7
Mercury	7471A	ND	0.29
Selenium	6010B	ND	11
Silver	6010B	ND	0.57

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-12
Client ID: 03040945

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Barium	6010B	68	2.7
Cadmium	6010B	ND	0.55
Chromium	6010B	36	0.55
Lead	6010B	130	5.5
Mercury	7471A	ND	0.27
Selenium	6010B	ND	11
Silver	6010B	ND	0.55

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-13
Client ID: 03040955

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**74**	2.8
Cadmium	6010B	**0.58**	0.57
Chromium	6010B	**27**	0.57
Lead	6010B	**100**	5.7
Mercury	7471A	**ND**	0.28
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.57

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-14
Client ID: 03041000

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**68**	2.8
Cadmium	6010B	**0.58**	0.57
Chromium	6010B	**31**	0.57
Lead	6010B	**230**	5.7
Mercury	7471A	**ND**	0.28
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.57

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-15
Client ID: 03041005

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Barium	6010B	69	2.8
Cadmium	6010B	ND	0.57
Chromium	6010B	26	0.57
Lead	6010B	260	5.7
Mercury	7471A	ND	0.28
Selenium	6010B	ND	11
Silver	6010B	0.70	0.57

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-16
Client ID: 03041035

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**66**	2.8
Cadmium	6010B	**0.62**	0.56
Chromium	6010B	**27**	0.56
Lead	6010B	**120**	5.6
Mercury	7471A	**ND**	0.28
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.56

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-17
Client ID: 03041040

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**75**	2.9
Cadmium	6010B	**0.59**	0.57
Chromium	6010B	**34**	0.57
Lead	6010B	**130**	5.7
Mercury	7471A	**ND**	0.29
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.57

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-18
Client ID: 03041045

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**75**	2.9
Cadmium	6010B	**ND**	0.57
Chromium	6010B	**29**	0.57
Lead	6010B	**100**	5.7
Mercury	7471A	**ND**	0.29
Selenium	6010B	**ND**	11
Silver	6010B	**7.7**	0.57

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-19
Client ID: 03041050

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**110**	2.8
Cadmium	6010B	**ND**	0.56
Chromium	6010B	**35**	0.56
Lead	6010B	**130**	5.6
Mercury	7471A	**ND**	0.28
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.56

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-20
Client ID: 03041120

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**53**	2.8
Cadmium	6010B	**0.57**	0.57
Chromium	6010B	**23**	0.57
Lead	6010B	**85**	5.7
Mercury	7471A	**ND**	0.28
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.57

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

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

Date Extracted:	3-5&7-03
Date Analyzed:	3-7,10&11-03
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0305S1&MB0307S1

Analyte	Method	Result	PQL
Arsenic	6010B	ND	10
Barium	6010B	ND	2.5
Cadmium	6010B	ND	0.50
Chromium	6010B	ND	0.50
Lead	6010B	ND	5.0
Mercury	7471A	ND	0.25
Selenium	6010B	ND	10
Silver	6010B	ND	0.50

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**51.7**	**59.7**	14	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**23.9**	**25.2**	5.0	0.50	
Lead	**91.4**	**97.5**	6.4	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**0.778**	**ND**	NA	0.50	

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

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

Date Extracted: 3-5&7-03
Date Analyzed: 3-7,10&11-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**93.3**	93	**89.4**	89	4.3	
Barium	100	**153**	101	**142**	90	7.5	
Cadmium	50	**47.2**	94	**48.1**	96	2.0	
Chromium	100	**114**	90	**106**	82	7.0	
Lead	250	**315**	89	**312**	88	0.78	
Mercury	1.0	**0.980**	98	**0.954**	95	2.7	
Selenium	100	**97.6**	98	**96.1**	96	1.5	
Silver	50	**45.7**	90	**46.1**	91	0.88	

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

HEXAVALENT CHROMIUM
EPA 3060A/7196A

Date Extracted:	3-6-03
Date Analyzed:	3-6-03
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID	Lab ID	Result	PQL
03040800	03-020-01	ND	2.2
03040805	03-020-02	ND	2.2
03040810	03-020-03	ND	2.3
03040820	03-020-04	ND	2.2
03040825	03-020-05	ND	2.2
03040830	03-020-06	ND	2.4
03040900	03-020-07	ND	2.2
03040905	03-020-08	ND	2.2
03040910	03-020-09	ND	2.3
03040925	03-020-10	ND	2.2
03040935	03-020-11	ND	2.3
03040945	03-020-12	ND	2.2
03040955	03-020-13	ND	2.3
03041000	03-020-14	ND	2.3

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

HEXAVALENT CHROMIUM
EPA 3060A/7196A

Date Extracted:	3-6-03
Date Analyzed:	3-6-03
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID	Lab ID	Result	PQL
03041005	03-020-15	ND	2.3
03041035	03-020-16	ND	2.2
03041040	03-020-17	ND	2.3
03041045	03-020-18	ND	2.3
03041050	03-020-19	ND	2.2
03041120	03-020-20	ND	2.3

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

HEXAVALENT CHROMIUM
EPA 3060A/7196A
METHOD BLANK QUALITY CONTROL

Date Extracted:	3-6-03
Date Analyzed:	3-6-03
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0306S1

Analyte	Method	Result	PQL
Hexavalent Chromium	7196A	**ND**	2.0

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

HEXAVALENT CHROMIUM
EPA 3060A/7196A
DUPLICATE QUALITY CONTROL

Date Extracted: 3-6-03
Date Analyzed: 3-6-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-020-01

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Hexavalent Chromium	**ND**	**ND**	NA		2.0

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

HEXAVALENT CHROMIUM
EPA 3060A/7196A
MATRIX SPIKE QUALITY CONTROL

Date Extracted:	3-6-03
Date Analyzed:	3-6-03
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	03-020-01

Analyte	Spike Level	MS	Percent Recovery	Flags
Hexavalent Chromium	4.0	3.04	76	

Date of Report: March 11, 2003
Samples Submitted: March 4, 2003
Lab Reference: 03-020
Project: 30206

% MOISTURE

Date Analyzed: 3-5-03

Client ID	Lab ID	% Moisture
03040800	03-020-01	10
03040805	03-020-02	11
03040810	03-020-03	12
03040820	03-020-04	11
03040825	03-020-05	11
03040830	03-020-06	17
03040900	03-020-07	11
03040905	03-020-08	11
03040910	03-020-09	14
03040925	03-020-10	10
03040935	03-020-11	13
03040945	03-020-12	9.0
03040955	03-020-13	12
03041000	03-020-14	12
03041005	03-020-15	12
03041035	03-020-16	10
03041040	03-020-17	13
03041045	03-020-18	13
03041050	03-020-19	11
03041120	03-020-20	12

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.

D - Data from 1:____ dilution.

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.

G - Insufficient sample quantity for duplicate analysis.

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 inhomogeniety. 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 (toluene-napthalene) are present in the sample.

O - Hydrocarbons outside the defined gasoline range are present in the sample.

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.

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 silica gel cleanup procedure.

Y - Sample extract treated with an acid cleanup procedure.

Z -

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

Chain of Custody

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

Company: ECO-TEC, INC.
Project Number: 30206
Project Name: SOIL STOCKPILE
Project Manager:
Sampled by: HERB PEARSE

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day
☐ 2 Day ☐ 3 Day
☒ Standard (7 working days)
☒ 5 DAY. OK (other)

Laboratory Number: 03-020

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	PCB's by 8082	Pesticides by 8081	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	VPH	EPH	Chromium VI				% Mois
1	03040800						X	X								X					X				X
2	03040805						X	X								X					X				X
3	03040810						X	X								X					X				X
4	03040820						X	X								X					X				X
5	03040825						X	X								X					X				X
6	03040830						X	X								X					X				X
7	03040900						X	X								X					X				X
8	03040905						X	X								X					X				
9	03040910						X	X								X					X				X
10	03040925						X	X								X					X				X

	Signature	Company	Date	Time
Relinquished by		ECO-TEC, INC.	3/4/03	1445
Received by		ONSITE ENV.	3/4/03	2:45
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

Public Health
Seattle & King County
HEALTHY PEOPLE. HEALTHY COMMUNITIES.

Alonzo L. Plough, Ph.D., MPH, *Director and Health Officer*

February 24, 2003

Dennis McLeod
7201 East Marginal Way South
Seattle, Washington 98108

RE: Sampling plan for the Thermally Desorbed Stockpile ETI project #30206
Former Remedco Site at 7201 East Marginal Way South

Dear Mr. McLeod:

We have completed the review of your Revised Sampling and Analysis Plan dated February 12, 2003 ("the Plan"). As indicated in the Plan, you are taking responsibility for commissioning a qualified analytical laboratory to analyze the 7000 cubic yard soil pile that you indicate has been thermally treated at the above-referenced site. In addition, you will have the soils lawfully removed off site as fill material after analytical results indicate that the soils qualify for such removal. Because so much time has lapsed since previous soil testing, and the soils have been significantly moved from their original location(s) at the site, we require that the pile be tested for the full constituents as follows:

The twenty samples shall be tested for:

- Petroleum hydrocarbons in the diesel and heavier oil ranges by NWTPH-Dx
- NWTPH –Gx/BTEX
- Total RCRA Eight Metals including Chromium VI by EPA method 3060A/7196A

Once the analysis is completed please provide the results for our review and approval before moving any soil off site. After the treated pile is removed, provide the plan for the remediation of the second untreated pile. Please contact me 48 hours prior to the sampling so that we can schedule a site visit should we wish to observe the sampling process.

Contact Jill Trohimovich at (206) 296-4807 to schedule the sampling or if you have any questions.

Sincerely,

Bill Heaton, Supervisor
Solid Waste/Vector Program

BH:mg

cc: Herbert Pearce, Eco Tec, Inc.
Pete Christensen, DOE NWRO
Kimquy Kieu, Manager, Environmental Hazard Section
Jill Trohimovich, Health & Environmental Investigator III
Gary Criscione, Health & Environmental Investigator II

Revised Sampling and Analysis Plan

Thermally Desorbed Soil Stockpile
7201 East Marginal Way South
Seattle, Washington 98108

Prepared for:

Dennis McLeod
7201 East Marginal Way South
Seattle, Washington 98108

Prepared by:

Eco-Tec, Inc.
PO Box 690
Vaughn, WA 98394
(888) 668-8982

ETI Project #30206
February 12, 2003

Enviromental Consultants
Remediation Specialists
www.eco-tec-inc.com

ECO-TEC, Inc.
PO Box 690
Vaughn, Washington 98394
Phone / Fax - Toll Free: (888) 668-8982
E-mail: herb@eco-tec-inc.com
Web: www.eco-tec-inc.com

Revised Sampling and Analysis Plan

Thermally Desorbed Soil Stockpile
7201 East Marginal Way South
Seattle, Washington 98108

February 12, 2003
ETI Project #30206

Purpose and Objectives:

This Revised Sampling and Analysis Plan is a modification of the Sampling and Analysis Plan that was prepared on February 9, 2003 as a precursor to a meeting on February 10, 2003 between Mr. Dennis McLeod, property owner; Mr. Donald Verfurth, Attorney for Mr. McLeod; Ms. Jill Trohimovich, R.S., Seattle-King County Department of Public Health; Mr. Gary Criscione, R.S., Seattle-King County Department of Public Health; and Mr. Herbert Pearse, Principal, Eco-Tec, Inc.

This Revised Sampling and Analysis Plan has been prepared subsequent to the February 10, 2003 meeting and incorporates modifications to address assessment issues and recommendations that were resultant from that meeting. The goal of this Revised Sampling and Analysis Plan is to adequately document the contaminants of concern that are known to exist in a stockpile of thermally desorbed soil, totaling approximately 7,000 cubic yards, to the satisfaction of the Seattle-King County Department of Public Health.

Subsequent to completion of this documentation of the contaminants of concern and upon receipt of approval from the Seattle-King County Department of Public Health, this stockpiled soil, all or in part, will be removed from 7201 East Marginal Way South, Seattle, Washington 98108. Anticipated end use of this soil will be as fill material for road construction and as fill adjacent to a concrete storm water retention vault located at 12701 NE 141st Avenue, 98034 in the Totem Lake / Kingsgate Washington area (see photograph).

This Revised Sampling and Analysis Plan will be included in the Soil Characterization and Disposition Report that is to be prepared presenting the results of analytical chemistry pertinent to this sampling event and the results of analytical chemistry from previous sampling activities.

A Quality Assurance / Quality Control Plan and a Site Safety / Work Plan are included in Appendices B and D of this Revised Sampling and Analysis Plan.

Organization and Responsibilities for Sampling:

Eco-Tec, Inc. (ETI) personnel will perform collection, preservation and proper documentation of the samples collected under this Revised Sampling and Analysis Plan. The field sampling approach and procedures that ETI will follow when collecting samples at this site are presented herein.

At a minimum, the scope of work performed will meet the standards presented in the Model Toxics Control Act (MTCA) Chapter 173-340 WAC and the Washington State Department of Ecology, (Ecology), document, "Guidance for Remediation of Petroleum Contaminated Soil", revised in November of 1995. Ecology's recommendations and requirements are considered the minimum activities required. ETI will perform additional activities, in excess of Ecology's minimum requirements, that may be necessary to properly document assessment and / or remediation at this specific site.

Field Sampling Procedures:

Field Screening: Field instruments recommended for identifying the source of suspected release, identifying areas that should be sampled, monitoring potential exposures, and determining health and safety precautions will be used as needed during field screening. Sample collection will be performed at Personal Protection Level-D.

Soil / Sediment Sampling Methods: Discrete grab samples will be collected for analysis. Samples will be collected directly into 4-ounce laboratory sterilized glass jars by forcing the glass jars into the location to be sampled until the jars are filled to capacity. This method eliminates the possibility of sample dilution and cross contamination. In areas where subsurface sediments are excessively hard or safely inaccessible, an excavator may be used for sample collection. Sediment samples will be collected directly from the center of the excavator bucket.

Required Number and Locations of Soil / Sediment Samples: Soil / Sediment samples will be collected where field screening and any previous assessment activities indicate that contamination exists. When field screening fails to confirm suspected contamination, or to identify more appropriate sampling locations, samples will be collected for laboratory analysis. The table below provides the required number of samples to be collected for removed / stockpiled soil and compliance sampling as presented in the Ecology document, "Guidance for Remediation of Petroleum Contaminated Soil", revised in November of 1995.

Cubic Yards of Material	Minimum Number of Samples
0 - 100	3
101 - 500	5
501 - 1000	7
1001 - 2000	10
>2000	10 + 1 for each additional 500 cubic yards

Sample Containers and Preservation: The sample containers to be used on this project will be those designated as appropriate for the type of media and the anticipated analysis to be performed. Samples will be properly preserved depending on the analysis to be performed. Volatile samples will be maintained at 4°C.

Decontamination Procedures: Decontamination will be required of personnel, sampling equipment, and containers prior to and after sampling. Decontamination of sampling equipment will be required between sampling locations to prevent introduction of contamination or cross-contamination. Disposable laboratory gloves will be worn while collecting samples (see Standard Operating Procedures in Appendix C).

Sample Analytical Requirements:

Sampling procedure and methods are included in the ETI Quality Assurance / Quality Control (QA/QC) Plan and Standard Operating Procedures (SOPs) included in the appendices of this Revised Sampling and Analysis Plan. Individual samples are each given a unique identification number that will specify the location from which the sample was collected and the time and date of collection. Each sample will be submitted to an accredited analytical laboratory for the performance of the appropriate analysis or analytical chemistry.

Sample Collection Schedule:

It is anticipated that all samples pertinent to this sampling event will be collected during a one-day sampling event.

Identification and Justification for Sample Location, Parameters and Frequency:

Three previous sampling events have been performed on this soil stockpile. During the most recent sampling event performed by Kane Environmental, Inc. and documented in a "Limited Phase II Investigation" report prepared on December 16, 2002, a total of five samples were collected from this soil stockpile. Three screening samples were collected from this soil stockpile by ETI on February 27, 2001. Thirty-two samples were collected from this soil stockpile by Environmental Hazards Control in May / June 1999. Excerpts from the reports of these sampling events and results of analytical chemistry are presented in Appendix A of this Revised Sampling and Analysis Plan for reference.

Results of analytical chemistry presented in all three of the sampling events reported levels of petroleum hydrocarbon contamination in the diesel and heavier oil range that were well below the current MTCA Cleanup Regulation Chapter 173-340 WAC Method A Cleanup Levels for Unrestricted Land Use (2,000 mg/kg) for all samples analyzed. Metals contamination in the form of Cadmium and Lead that exceeded MTCA Method A Cleanup Levels was encountered in one sample collected by Environmental Hazards Control. Results of analytical chemistry performed on samples collected by Kane Environmental, Inc. reported Chromium at a high of 37 mg/kg. Current MTCA Cleanup Regulation Chapter 173-340 WAC Method A Cleanup Levels for Unrestricted Land Use sets cleanup levels at 19 mg/kg for Chromium VI and at 2000 mg/kg for Chromium III. These samples were not analyzed specifically for Chromium VI.

Sample Location / Frequency: Five soil samples will be collected from the perimeter of the soil stockpile at points evenly spaced around the east, north, and west slopes at a point approximately midway between the upper and lower extremities of the slope. The south perimeter of the soil stockpile is not accessible for sample collection due to the proximity of the soil stockpile to the south fence. Depth of the soil stockpile is estimated at an average of eleven feet. Five soil samples will be collected from the top of the soil stockpile at an approximate depth between two and three feet below the pile surface. Five soil samples will be collected from the same locations at an approximate depth between five and six feet below the pile surface, and five soil samples will be collected from the same locations at an approximate depth between eight and nine feet below the pile surface. This sampling approach is intended to document the general status of the soil stockpile relative to the contaminants of concern known to exist therein. See Figure 2 for proposed sample locations.

Parameters: Samples will be collected using a back hoe to excavate into the perimeter slopes of the soil stockpile to a depth of not less than three feet below the slope surface. Samples will be collected from the top of the soil stockpile using a backhoe and excavating to the desired depth of sample collection. Actual sample location points and depths will be documented in the Soil Characterization and Disposition Report that will be prepared following the completion of this sampling event. Proposed sample locations are presented in Figure 2 of this plan.

Appendix A of this Revised Sampling and Analysis Plan provides the results of analytical chemistry performed on a total of forty samples collected during previous sampling events and analyzed for petroleum hydrocarbons in the diesel and heavy oil range. Historically, assessment of the soil stockpile has reported petroleum hydrocarbon contamination that was well below the current MTCA Cleanup Regulation Chapter 173-340 WAC Method A Cleanup Levels for Unrestricted Land Use for all samples.

Although petroleum hydrocarbon contamination in this thermally desorbed soil stockpile has been thoroughly documented through previous sampling events this data will be set aside, other than for reference. A complete assessment of the petroleum hydrocarbons in the diesel and heavier oil range will be performed under this Revised Sampling and Analysis Plan. The twenty discrete samples to be collected will be analyzed for petroleum hydrocarbons in the diesel and heavier oil ranges by NWTPH-Dx.

Additionally, this Revised Sampling and Analysis Plan is structured to assess the metals contamination in the form of Chromium III, Chromium VI, Cadmium, and Lead that has been documented to exist in some portions of the soil stockpile at levels exceeding current cleanup regulations. MTCA Cleanup Regulation Chapter 173-340 WAC Method A Cleanup Levels for Unrestricted Land Use sets cleanup levels at 2000 mg/kg for Chromium III, at 19 mg/kg for Chromium VI, at 2 mg/kg for Cadmium, and at 250 mg/kg for Lead.

Total metals concentrations have been reported in previous sampling events that exceed current MTCA Cleanup Regulation Chapter 173-340 WAC Method A Cleanup Levels for Unrestricted Land Use. Analysis of these samples did not differentiate between Chromium VI and Chromium III. Chromium concentrations that have been documented to exist in the soil stockpile do not exceed the current MTCA Cleanup Regulation Chapter 173-340 WAC Method A Cleanup Levels for Unrestricted Land Use of 2000 mg/kg, in fact, Chromium contaminant concentrations are not documented to exceed 49 mg/kg.

Under this Revised Sampling and Analysis Plan a total of twenty discrete soil samples are to be collected for analysis. Each of these samples will be analyzed for Chromium VI by EPA Method 3060A/7196A, and for Chromium III by EPA Method 6010B/200.7.

One sample collected from the top of the stockpile at "Stake #37" by Environmental Hazards Control documented elevated levels of Cadmium and Lead. This area has since been over excavated and the removed soil has been stockpiled with other metals impacted soil that is slated for treatment / disposal. Each of the twenty samples to be collected under this Revised Sampling and Analysis Plan will be analyzed for Cadmium and Lead by EPA Method 6010B/200.7.

Standard Operating Procedures: Standard Operating Procedures are presented in Appendix C of this Revised Sampling and Analysis Plan.

Summary:

This Revised Sampling and Analysis Plan is structured to document the general status of the thermally desorbed soil stockpile with regards to the previously documented contaminants of concern. For reference, Appendix A of this Revised Sampling and Analysis Plan provides historic documentation from previous sampling events.

A total of twenty discrete soil samples will be collected from the soil stockpile for analysis. This quantity of samples is recommended in the Ecology document, "Guidance for Remediation of Petroleum Contaminated Soil", revised in November of 1995 to thoroughly assess the estimated 7,000 cubic yards of soil.

A total of twenty discrete samples will be collected during this sampling event to thoroughly document soil stockpile petroleum hydrocarbon contamination in the diesel and heavier oil ranges, and metals contamination in the forms of Chromium III, Chromium VI, Lead, and Cadmium. Chromium contaminant concentrations have been previously documented at a high of 49 mg/kg which is well below the Ecology Method A Cleanup Levels of 2,000 mg/kg for Chromium III, however, analysis has not been performed to document Chromium VI concentrations separately from Chromium.

The sampling event proposed under this Revised Sampling and Analysis Plan is anticipated to be completed on a one-day schedule.

Subsequent to the receipt of the results of analytical chemistry a Soil Characterization and Disposition Report will be prepared presenting the results of analytical chemistry pertinent to this sampling event and the results of analytical chemistry from previous sampling activities.

Following completion of this documentation of the contaminants of concern and receipt of approval from the Seattle-King County Department of Public Health, this stockpiled soil, all or in part, will be removed from 7201 East Marginal Way South, Seattle, Washington 98108. Anticipated end use of this soil will be as fill material for road construction and as fill adjacent to a concrete storm water retention vault located at 12701 NE 141st Avenue, 98034 in the Totem Lake / Kingsgate Washington area, subject to approval by the Seattle-King County Department of Public Health (see photograph).

Standard of Care:

ETI feels that this Revised Sampling and Analysis Plan will adequately document the general status of the Contaminants of concern in the thermally desorbed soil stockpile with regard to petroleum hydrocarbons in the diesel and heavier oil ranges and metals contamination in the forms of Chromium III, Chromium VI, Lead and Cadmium.

The conclusions and recommendations contained in this Revised Sampling and Analysis Plan represent our professional opinions. These opinions were derived in accordance with currently accepted hydrogeologic, engineering and environmental practices that are to be implemented at the time and place of performance of the activities presented herein. Other than this no warranty is implied or intended.

ECO-TEC, Inc.
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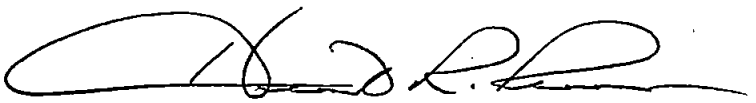

Herbert R. Pearse, Principal