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**REPORT OF
SITE CHARACTERIZATION AND
INDEPENDENT CLEANUP ACTION
KENNEWICK PLAZA SHOPPING CENTER
WEST KENNEWICK AVENUE AND SOUTH ELY STREET
KENNEWICK, WASHINGTON 99336**

**FOR
JSH PROPERTIES, INC.
BY
ATC ASSOCIATES INC.
PROJECT NO. 76.18452.0201 TASK 6
APRIL 28, 2000**



6347 Seaview Avenue Northwest
Seattle, Washington 98107
www.atc-enviro.com
206.781.1449
Fax 206.781.1543

Colleen D. Fitzgerald
Director of Retail Properties
JSH Properties, Inc.
14335 NE 24th Street, Suite 202
Bellevue, Washington 98007-3737

April 28, 2000

RE: SITE CHARACTERIZATION AND
INDEPENDENT CLEANUP ACTION
KENNEWICK PLAZA SHOPPING CENTER
WEST KENNEWICK AVENUE AND SOUTH ELY STREET
KENNEWICK, WASHINGTON
PROJECT NO. 76.18552.0201 TASK 6

Dear Ms. Fitzgerald:

Attached is the Site Characterization and Independent Cleanup Action report conducted at the above-referenced site. The report includes background information, findings, analytical results, and provides conclusions and recommendations.

ATC appreciates the opportunity to be of service to JSH Properties, Inc. Please contact us if you have any questions regarding this report or need additional information.

Sincerely,

ATC ASSOCIATES INC.

A handwritten signature in black ink, appearing to read 'Neil R. Gilham'.

Neil R. Gilham, CHMM
Senior Project Manager

A handwritten signature in black ink, appearing to read 'Thomas J. Cammarata'.

Thomas J. Cammarata
Project Manager

NRG

Attachment

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1.0 INTRODUCTION

1.1 Site Description

Kennewick Plaza shopping center is located at the southwestern corner of West Kennewick Avenue and South Ely Street in the City of Kennewick, County of Benton, State of Washington (project area). The project area and surrounding areas are characterized by retail, commercial, and residential uses. Figure 1 depicts the location of the project area on a topographic map (*Kennewick, Wash., United States Geological Survey topographic map, 7.5-minute series, 1:24,000 scale, 1992*). The project area consists of approximately 15.51 acres of land developed with one large retail strip building complex, three stand-alone retail buildings, and an undeveloped vacant parcel. The project area was developed in 1979 with the retail strip building complex. Three stand-alone buildings were constructed in 1980 (Denny's), 1991 (Blockbuster Video), and 1998 (multi-tenant building), respectively. The project area is primarily used as a retail shopping center. Before 1979, the project area use was primarily agricultural. Other former uses included an auto service garage (approximately 1950 to 1976) and an office of the Washington State Patrol (approximately 1961 to 1978). The former auto service garage area was located along the northern side of the project area and is the subject of this report (Figure 2).

1.2 Purpose and Scope

The purpose of this Site Characterization and Independent Cleanup Action was to determine if the project area had been adversely impacted from former auto service activities and then to conduct cleanup actions related to the discovered impacts.

The scope of work for this investigation included the following:

- Performance of a geophysical exploration across the area of the former auto service garage to assess the presence of any buried objects suspected of being underground storage tanks (USTs), hydraulic hoists, or other suspect subsurface features;
- Advancement of five direct-push sampling probes (B-1 through B-5) in the vicinity of suspect buried objects discovered during the geophysical exploration and over the general area of the former auto service garage;
- Sampling and analysis of selected soil samples collected from the probe for the presence of petroleum hydrocarbons;
- Subsurface exploration of one area with a buried object resembling an UST;
- Remedial excavation of one area determined to be impacted by petroleum hydrocarbons;
- Confirmation soil sampling and analysis of the subsurface exploration and remedial excavation;
- Sampling and analysis of soil stockpiles for waste profiling and disposal;
- Disposal of impacted soil in accordance with applicable regulations;
- Backfilling of the excavation with clean material and restoration of the site;
- Drilling of four hollow stem auger borings (HSA-1 through HSA-4) in an effort of further confirm the nature and extent of impacted soil in the area of the remedial excavation;
- Excavating seven test pits (SX-1 through SX-7) in an effort to further confirm the nature and extent of potentially impacted soil in the area of the former auto service garage.

2.0 BACKGROUND

ATC performed a Phase I Environmental Site Assessment of Kennewick Plaza shopping center in November and December 1999. The following report describes this investigation:

Phase I Environmental Site Assessment – Kennewick Plaza – Kennewick, Washington, ATC Associates Inc., December 13, 1999

The above-referenced report identified an auto service garage that operated in the project area from the early 1950s to 1976. The garage was located near the northeastern corner of the project area along West Kennewick Avenue between the existing Blockbuster Video and Denny's restaurant. The garage was known as Hiland Garage during the 1950s and early 1960s, Inland Garage from 1966 to 1974, and Tri City Auto Repair in 1976. The garage facility was vacant in 1975.

ATC recommended a geophysical exploration in the area of the former auto-service garage in order to further assess if any USTs, hydraulic lift mechanisms, or other subsurface anomalies remained in place. Based on results from the geophysical survey, ATC further recommended an additional subsurface investigation be performed to collect and analyze soil samples (and groundwater samples if encountered) to determine if former auto service activities had adversely affected the project area. These recommendations formed the basis of the following referenced report along with the cleanup actions that took place resulting from the findings of the geophysical survey and subsurface investigation. This work was performed in December 1999 and January 2000. This report is referenced as follows:

Interim Report of Site Characterization and Independent Cleanup Action – Kennewick Plaza Shopping Center – Kennewick, Washington, ATC Associates Inc., February 9, 2000

At the time the above-referenced report was completed, Kennewick Plaza was in the process of being purchased by Franklin-Kennewick, L.L.C. Based on the findings and conclusions of the above-referenced report, Franklin-Kennewick, L.L.C. required further characterization as a condition of purchase. The additional characterization work included four soil borings in the area of the remedial excavation and seven test pits in other areas of the former auto-service garage.

3.0 GEOPHYSICAL EXPLORATION

On December 7, 1999, a geophysical exploration was performed in the area of the former auto service garage. Apollo Geophysics Corporation (AGC) using an electromagnetic instrument (EM) and ground penetrating radar (GPR) conducted the geophysical exploration. AGC's report is included in Appendix A.

AGC identified five subsurface features during their geophysical exploration. These features are summarized and numbered in accordance with AGC's report as follows:

- 1) Potential UST in degraded condition.
- 2) Unknown subsurface feature.
- 3) Unknown subsurface feature.
- 4) Potential UST, possibly crushed.
- 5) Potential building footprint with a potential hydraulic lift in the northeast corner.

AGC marked the locations of these subsurface features on the asphalt pavement using white marking paint. Figure 3 depicts the five subsurface features summarized above along with the locations of the subsurface explorations discussed in the following section.

4.0 SUBSURFACE INVESTIGATION – DECEMBER 1999

4.1 Soil Investigation Methods

On December 9, 1999, five direct-push sampling probes (B-1, B-2, B-3, B-4, and B-5) were advanced in the area of the former auto service garage (Figure 3). Transglobal Environmental Geosciences Northwest, Inc. (TEG) using a truck-mounted Strataprobe™ direct-push probe apparatus advanced the soil probes under the direction of ATC. The five probes were advanced to depths ranging from 13 to 18 feet below ground surface (bgs). The five probes were located in selected areas summarized as follows:

- B-1: Eastern side of AGC's No. 1 (potential UST in degraded condition).
- B-2: Southern side of AGC's No. 4 (potential UST, possibly crushed).
- B-3: Northeastern corner of AGC's No. 5 (potential building footprint with a potential hydraulic lift feature in the northeast corner) and on the southern side of AGC's No. 3 (unknown subsurface feature).
- B-4: Eastern side of AGC's No. 2 (unknown subsurface feature).
- B-5: Approximate center of former auto service garage.

Soil samples from probes B-1 through B-5 were collected by driving a split-barrel sampler into undisturbed formation using the Strataprobe™ direct-push probe apparatus. Subsurface conditions were recorded on boring logs. Boring logs are included in Appendix B.

The soil samples were placed into laboratory-provided glass containers. The collected soil samples were placed into a cooler chilled with "blue" ice and transported to the laboratory following chain-of-custody (COC) protocols.

The soil samples were sent to the laboratory of TEG in Lacey, Washington for analysis. Selected soil samples were analyzed for the presence of petroleum hydrocarbons using Method NWTPH-HCID and Method NWTPH-D Extended (NWTPH-Dx), and for the presence of volatile organic compounds (VOCs) using EPA Method 8260B.

4.2 Soil and Groundwater Conditions

Soil and groundwater conditions at the project area discussed in Section 6.3.

4.3 Soil Quality Results

The laboratory analytical results for the subsurface investigation are summarized in Table 1. The analytical reports and chain-of-custody documentation are included in Appendix C.

Soil samples collected from probe B-1 exhibited a mild petroleum odor. No petroleum odor or other signs of adverse impact were observed in the soil samples collected from B-2, B-3, B-4, and B-5.

Selected soil samples collected from B-1 were analyzed for the presence of diesel- and oil-range petroleum hydrocarbons using Method NWTPH-Dx. Detectable concentrations of oil-range petroleum hydrocarbons were reported in probe B-1 at the 10 to 11 and the 13 to 14 foot sampling depth intervals at a concentration of 450 milligrams per kilogram (mg/kg) and 4,000 mg/kg, respectively. These concentrations exceeded the current MTCA Method A cleanup level of 200 mg/kg for diesel- and oil-range petroleum hydrocarbons (Model Toxics Control Act Cleanup Regulation - Chapter 173-340 WAC). However, concentration petroleum hydrocarbons in the sample collected from the 10 to 11 foot sample depth interval (450 mg/kg) did not exceed the proposed MTCA Method A cleanup level of 2,000 mg/kg for diesel- and oil-range petroleum hydrocarbons. The proposed Method A cleanup level is scheduled to become effective June 16, 2000. A deeper sample collected from B-1 at the 16 to 17 foot sampling depth interval contained no detectable concentrations of diesel- and oil-range petroleum hydrocarbons. Therefore, the impacted area did not appear to extend below 17 feet bgs in this area.

Because of the comparatively high concentration (4,000 mg/kg) of oil-range petroleum hydrocarbons reported in the 13 to 14 foot sampling depth interval from B-1, this sample was analyzed for the presence of VOCs using EPA Method 8260B. Trace concentrations of VOCs were detected including methylene chloride, cis-1,2-dichloroethene, trichloroethene, toluene, tetrachloroethene, chlorobenzene, xylenes, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, and 1,4-dichlorobenzene. All of these VOCs were detected at concentrations well below the applicable MTCA cleanup levels.

Soil samples collected from B-2, B-3, B-4, and B-5 were selectively analyzed for the qualitative presence of gasoline-, diesel- and oil-range petroleum hydrocarbons using Method NWTPH-HCID. The 10 to 11 foot bgs depth interval and the 13 to 14 foot bgs depth interval samples were analyzed from B-2. The 10 to 11 foot bgs interval was analyzed from B-3, B-4, and B-5. No gasoline-, diesel- and oil-range petroleum hydrocarbons were detected in these samples.

5.0 SUBSURFACE EXPLORATION AND REMEDIAL EXCAVATION - DECEMBER 1999

5.1 Subsurface Exploration at Subsurface Feature No. 4

On December 27, 1999, a subsurface exploration was conducted at the AGC subsurface feature No. 4 (potential UST, possibly crushed). Emerald Services Inc. (ESI), formerly Westpac Environmental Inc., under the direction of ATC, conducted the subsurface exploration using a backhoe/loader. Figure 4 depicts the location of this subsurface exploration.

The asphalt pavement was removed and the area was explored to a depth of approximately 2 to 3 feet bgs. Several objects were uncovered including an old truck running board, a chromed wheel ring, and an oil filter. These objects were presumed to be those detected during the geophysical exploration and misinterpreted as a potential crushed UST. There were no indications of impact to the soil including staining, discoloration, or odors. The excavation was screened using an organic vapor monitor (OVM) equipped with a photoionization detector (PID). The OVM indicated no organic vapors in the excavation. Because no impacts were observed in the soil remaining in the excavation, the excavated soil was used as backfill. The excavation was returned to its original grade level and the area was subsequently repaved.

A single soil sample was collected from this subsurface exploration excavation. This sample, sample no. S-Object No. 4, was collected from a depth of 2 feet bgs, near the bottom of the excavation. The sample was analyzed for the presence of diesel- and oil-range petroleum hydrocarbons using Method NWTPH-Dx and total lead by EPA Method 7240. The analytical reports and chain-of-custody documentation are

included in Appendix D. The concentration of total lead at 31 mg/kg was well below the MTCA Method A cleanup level of 250 mg/kg. Detectable oil-range petroleum hydrocarbons were found at a concentration of 790 mg/kg. This concentration exceeded the current MTCA Method A cleanup level of 200 mg/kg for diesel- and oil-range petroleum hydrocarbons. However, this concentration did not exceed the proposed MTCA Method A cleanup level of 2,000 mg/kg for diesel- and oil-range petroleum hydrocarbons. The proposed Method A cleanup level is scheduled to become effective June 16, 2000.

Probe B-2 was located along the southern side of the subsurface exploration area at AGC subsurface feature No. 4. The 10 to 11 and 13 to 14 foot sample depth intervals were analyzed from B-2. No gasoline-, diesel- and oil-range petroleum hydrocarbons were detected in these samples. Therefore, the impacted area appears to be limited to shallow soil.

The soil samples were placed into laboratory-provided glass containers. The collected soil samples were placed into a cooler chilled with "blue" ice and transported to the laboratory following chain-of-custody protocols. The soil samples were sent to the laboratory of TEG in Lacey and Bellevue, Washington for analysis.

5.2 Remedial Excavation at Subsurface Feature No. 1

On December 27, 1999, a subsurface exploration was conducted at the AGC subsurface feature No. 1 (potential UST in degraded condition) that was also explored by probe boring B-1. ESI, under the direction of ATC, conducted the subsurface exploration using a backhoe/loader on December 27, 1999 and a tracked excavator beginning on December 28, 1999. Figure 4 depicts the location of this subsurface exploration.

On December 27, 1999, the asphalt pavement was removed and excavation commenced. By December 28, 1999, the excavation was enlarged to a dimension of 12 feet long by 12 feet wide by 15 feet deep (approximately 80 cubic yards of material). Several objects were uncovered in the upper 5 feet that included mostly used oil and air filters as well as some concrete blocks and wood. These objects were presumed to be those detected during the geophysical exploration and misinterpreted as a potential UST in degraded condition. There were indications of impact to the soil including a hydrocarbon odor and slight discoloration. The excavation was screened using an OVM equipped with a PID. The OVM indicated some organic vapors in the excavation and in the headspace of some soil samples at less than 10 parts per million. However, because the impact was from heavier petroleum hydrocarbons, the OVM could not detect these contaminants.

On December 28, 1999, the initial excavation was concluded and interim verification samples were collected from the sidewalls and bottom of the excavation. Figure 5 depicts the sample locations. Four grab samples were collected from the sidewalls (north, east, south, and west) from a depth of approximately 12 feet bgs and one grab sample was collected from the bottom of the excavation from a depth of approximately 15 feet bgs. The samples were collected using the bucket of the backhoe/loader. These samples were analyzed for the presence of gasoline-range petroleum hydrocarbons using NWTPH-G Extended (NWTPH-Gx) and for the presence of diesel- and oil-range petroleum hydrocarbons using Method NWTPH-Dx. The analytical results indicated the presence of oil-range petroleum hydrocarbons in the north, south, west, and bottom samples at concentrations ranging from 3,000 to 3,700 mg/kg. These concentrations exceeded the current and proposed MTCA Method A cleanup levels (200 mg/kg and 2,000 mg/kg respectively). No gasoline-, diesel-, or oil-range petroleum hydrocarbons were detected in the east sidewall of the excavation. The laboratory analytical results for the interim excavation soil

samples are summarized in Table 2. The analytical reports and chain-of-custody documentation are included in Appendix D.

Based on the analytical results of the interim excavation sampling, excavation was resumed on December 29, 1999. The excavation was extended approximately 4 to 6 feet to the north, south, and west. The excavation was not extended to the east because the previous sampling from this side of the excavation detected no petroleum hydrocarbons. The depth of the excavation was deepened to approximately 16 feet. At the conclusion of excavation activities, the dimensions of the excavation were approximately 24 feet long by 18 feet wide by 16 feet deep. Approximately 176 additional yards of material were excavated and stockpiled separate from the material excavated on December 27 and 28, 1999.

Following the December 29, 1999 final excavation phase, verification samples were collected from the north, south, and west sidewalls and bottom of the excavation. Figure 5 depicts the sample locations. Three samples were collected from the sidewalls (north, south, and west) from a depth of approximately 12 feet bgs and one sample was collected from the bottom of the excavation from a depth of approximately 16 feet bgs. The samples were collected using the bucket of the backhoe/loader. These samples were analyzed for the presence of gasoline-range petroleum hydrocarbons using NWTPH-Gx, diesel- and oil-range petroleum hydrocarbons using Method NWTPH-Dx/Dx Extended, and total lead by EPA Method 7240. The analytical results indicated the presence of oil-range petroleum hydrocarbons only in the bottom sample at a concentration of 1,300 mg/kg. This concentration exceeded the current MTCA Method A cleanup level of 200 mg/kg for diesel- and oil-range petroleum hydrocarbons. However, this concentration does not exceed the proposed MTCA Method A cleanup level of 2,000 mg/kg for diesel- and oil-range petroleum hydrocarbons. No petroleum hydrocarbons were detected in the north, south, and west sidewall samples. Concentrations of total lead were well below the MTCA Method A cleanup level. The laboratory analytical results for the final excavation soil samples are summarized in Table 3. The analytical reports and chain-of-custody documentation are included in Appendix C.

The soil samples were placed into laboratory-provided glass containers (one 4-ounce glass jar with a Teflon™-lined lid per sample). The collected soil samples were placed into a cooler chilled with "blue" ice and transported to the laboratory following chain-of-custody protocols. The soil samples were sent to the laboratory of TEG in Lacey and Bellevue, Washington for analysis.

5.3 Soil Stockpile Sampling and Analysis

Soil excavated during the December 27 and 28, 1999 interim excavation phase was stockpiled and sampled separately from the soil excavated during the December 29, 1999 final excavation phase. This was because the soil excavated during the December 27 and 28, 1999 interim excavation phase appeared to be more affected by petroleum hydrocarbons than the soil from the December 29, 1999 final excavation phase. It was apparent that the soil from the December 27 and 28, 1999 interim excavation phase represented the locus of the affected area. For the purpose of discussion, stockpiled soil generated during the interim excavation phase will be designated the "Interim" stockpile, while the stockpile generated during the final excavation phase will be designated as the "Final" stockpile.

The December Interim stockpile was sampled on December 27, 1999. Additional soil was added to this stockpile on December 28, 1999. The stockpile comprised an estimated 80 cubic yards of material. Three composite samples were collected from this stockpile (sample nos. Stockpile-1, -2, and -3). Sample no. Stockpile-1 was analyzed for the presence of VOCs using EPA Method 8021B, gasoline-range petroleum hydrocarbons using NWTPH-Gx, diesel- and oil-range petroleum hydrocarbons using Method

NWTPH-Dx, polychlorinated biphenyls using EPA Method 8082, total RCRA 8 metals using EPA Method 7000 series, and for lead using Toxicity Characteristics Leaching Procedure (TCLP) EPA Method 1311. The analytical results are summarized in Table 4. The laboratory analytical reports are included in Appendix D. Sample nos. Stockpile-2 and Stockpile-3 were not analyzed but were submitted and retained by TEG laboratories.

The analytical results for TCLP lead for Sample No. Stockpile-1 were 10.60 micrograms per liter ($\mu\text{g/L}$) and 12.30 $\mu\text{g/L}$ (laboratory duplicate). This concentration exceeded the TCLP maximum concentration of 5 $\mu\text{g/L}$ for classification as a hazardous waste in accordance with Washington State Dangerous Waste Regulations (Dangerous Waste Regulations – Chapter 173-303 WAC). Therefore, the resultant stockpile from the December 27 and 28, 1999 interim excavation phase was classified as a hazardous waste.

The Final stockpile was sampled on December 29, 1999. The stockpile comprised an estimated 176 cubic yards of material. Three composite samples were collected from this stockpile (sample nos. Stockpile 4, 5, and 6). Sample nos. Stockpile-4, -5, and -6 were analyzed for the presence of diesel- and oil-range petroleum hydrocarbons using Method NWTPH-Dx and for lead using Toxicity Characteristics Leaching Procedure (TCLP) EPA Method 1311. Sample no. Stockpile-4 was further analyzed for the presence of VOCs using EPA Method 8021B, gasoline-range petroleum hydrocarbons using NWTPH-Gx, polychlorinated biphenyls using EPA Method 8082, total RCRA 8 metals using EPA Method 7000 series, and for total lead using EPA Method 7420. The analytical results are summarized in Table 4. The laboratory analytical reports are included in Appendix D.

The analytical results for Sample nos. Stockpile-4, -5, and -6 indicated there were no maximum concentrations exceeded or constituents present that would classify the Final stockpile as a hazardous waste. Therefore, the material could be disposed of as non-hazardous petroleum contaminated soil.

The soil stockpiles were placed along the northern side of the project area on an asphalt-paved parking lot. The soil was stockpiled into three separate stockpiles. One of the stockpiles was classified as hazardous waste based the presence of lead that exceeded the maximum lead concentration for toxicity threshold criterion per WAC 173-360. The remaining two stockpiles were found to be non-hazardous waste based on TCLP results. The soil stockpiles were placed on a layer of 10-mil polyethylene sheeting and then covered and secured with another layer of 10-mil polyethylene sheeting.

5.4 Soil Disposal

A Notification of Dangerous Waste Activity was submitted to the Washington State Department of Ecology (Ecology) on behalf of JSH Properties, Inc. in order to obtain a RCRA Identification Number for the project area so that the December 27 and 28, 1999 interim excavation phase stockpile could be transported and disposed of as hazardous waste to an approved facility. The following RCRA ID Number was issued by Ecology on January 20, 2000:

WAH000010397

The Interim stockpile classified as hazardous waste and was accepted for disposal at the Chemical Waste Management landfill in Arlington, Oregon. ESI transported the Interim excavation phase stockpile to this facility on January 26 and 28, 1999. The quantity of soil transported to and accepted by the Chemical Waste Management facility was 73.29 tons. The hazardous waste manifests are included in Appendix E.

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Kennewick Plaza Shopping Center
Kennewick, Washington

The analytical results for the Interim stockpile classified as non-hazardous waste were submitted to Rabanco Regional Disposal Company (Rabanco) for acceptance to their landfill in Roosevelt, Washington. ESI transported the Final stockpile to this facility on January 26 and 27. The quantity of soil transported to and accepted by the Rabanco facility was 288.2 tons. The weight ticket records for disposal are included in Appendix E.

Approximately 40 to 60 tons of hazardous Interim were identified as missing during the course of loading out and transporting the stockpiled soil. The soil was being hauled-out and transported to the approved facilities on January 26, 27, and 28, 2000. ESI, as ATC's subcontractor, subcontracted to Acme Materials & Construction (Acme) to load and transport the non-hazardous soil to the Rabanco landfill. ESI, as a registered hazardous waste transporter, loaded and transported the hazardous waste soil to the Chemical Waste Management facility.

Initially, ESI had noted that there were approximately four truckloads of hazardous waste soil on-site before any loading and transport had begun. ESI hauled out the first truckload on January 26, 2000 and returned to the site and loaded a second truckload. ESI left the site on the morning of January 27, 2000, with the second truckload. Due to mechanical problems, ESI returned to the site late (approximately 7 p.m.) on January 27, 2000. At this time, ESI noted that there was less than a truckload of hazardous soil remaining, leaving at least one or two truckloads missing. Emerald estimated the quantity of missing soil to be 40 to 60 tons of material.

ESI interviewed their subcontractor, Acme, regarding the potential for their truckers to have hauled from the hazardous stockpile. Before any hauling activities began, ESI provided explicit instructions to Acme regarding the locations of the hazardous and non-hazardous stockpiles. Acme provided a letter to ESI stating that they did not haul from the hazardous stockpile. The estimated quantity of non-hazardous soil received by Rabanco coincides with the estimated quantity of non-hazardous soil present at the start of the haul out activities. Nonetheless, Rabanco was notified by ESI of the possibility that hazardous soil may have been delivered to their facility.

Based on the evidence, the following scenarios are probable:

- *The hazardous soil was transported to Rabanco.*
The evidence against this are the estimates of non-hazardous soil on-site before haul-out activities coinciding with the landfill receipts and the letter from Acme stating they hauled only non-hazardous soil.
- *The estimates of on-site soil were miscalculated.*
The evidence against this is the experience of ESI personnel in estimating volume of soil with respect to truckloads. The estimated on-site soil corresponds closely with ATC's estimate of the volume of soil removed.
- *Soil was removed by unidentified parties to be used potentially as fill material off-site.*
The removal of hazardous soil would have to have happened between approximately 2:00 p.m. on January 27, 2000, when Acme left the site, and 7:00 p.m. that same day, when ESI returned to the site and noticed that some of the hazardous soil was missing. The soil was attractive as suitable fill material but had a noticeable petroleum odor.

In response to the discovery of missing soil, ESI and ATC performed the following:

- Interviewed Kennewick Plaza tenants who may have noticed soil haul-out activities between approximately 2:00 p.m. on January 27, 2000, and 7:00 p.m. that same day. These interviews yielded no significant information
- Searched construction sites in the neighborhood that may have accepted fill material.
- Notified Rabanco as to the potential for hazardous soil being delivered to their facility.
- Obtained a letter from Acme stating they did not haul-out any hazardous soil from the site. A copy of this letter is included in Appendix F.
- Notified the Washington State Department of Ecology– Central Regional Office (Yakima, WA) by telephone on January 31, 2000 (Brian Dick). All available information was provided to Ecology.
- Notified the Benton-Franklin Health District.
- Filed a press release. The Tri-Cities Herald published a story in their February 6, 2000 edition. A copy of the story is included in Appendix F.
- Notified the Kennewick Police department.

The Kennewick Police Department provided ESI with a status letter (Ofc. Therese Kickbush, Kennewick Police Department, April 24, 2000). A copy of this letter is included in Appendix F. According to the letter, the police report is dated February 4, 2000 and the case number is 00-003017. To date, the case remains open but on an inactive status pending new information.

As of the writing of this report, the discovery of the missing soil remains unresolved.

6.0 SUBSURFACE INVESTIGATION – MARCH 2000

Based on the findings of the subsurface investigations and the remedial excavation conducted in December of 1999, the prospective purchaser of the project area (Franklin-Kennewick, L.L.C.) required further characterization as a condition of purchase. The prospective purchaser's consultant, Hart-Crowser, Inc., issued a memorandum dated February 16, 2000 that discussed ATC's findings and made recommendations for further investigation as subject property. In response to the Hart Crowser memorandum, ATC conducted additional subsurface soil investigation at the former garage area. The purpose of this investigation was to address the major concerns expressed in the referenced memorandum. In general, these concerns focused on confirming the nature and extent of any post-remediation contamination at the site and determining whether that contamination posed a risk to human health and the environment. To accomplish this task, ATC conducted a supplementary subsurface investigation at the site. The characterization of that investigation and its findings are presented in the following sections of this report.

6.1 Soil Test Pits

On March 15 and 16, 2000, ESI, under the direction of ATC, excavated seven test pits (SX-1 through S-7) in the area of the former auto service garage. Test pit locations and test pit logs are presented in Figure 6 and Appendix G, respectively. The test pits were approximately 20 feet long and were excavated to depths ranging from 8 to 10 feet bgs. Three soil samples were collected from each test pit at depths ranging from 1.5 to 10 feet bgs. Samples were collected from the side walls and the bottom of the excavations. Soil sampling locations were selected based on OVM readings, changes in stratigraphy, or professional judgement. A total of 21 soil samples were collected.

Shallow soil samples (less than 4 feet bgs) were collected using a stainless-steel spoon and pan. The spoon was used to remove the soil insitu and transfer the soil to the pan. Samples collected below 4 feet were extracted using a backhoe bucket. A stainless-steel spoon was then used to transfer soil from the bucket to the stainless steel pan. Under both sampling methods, aliquots of soil were then removed from the pan and transferred to glass jars provided by the laboratory. Samples were placed in an iced cooler and transported to the laboratory following chain of custody protocols.

Soil samples were sent to Sound Analytical and analyzed for the following analytes:

- Diesel- and oil-range petroleum hydrocarbons - Method NWTPH-Dx;
- Polynuclear aromatic hydrocarbons (PAHs) - EPA Method 8270;
- Total lead - EPA Method 6010; and
- pH - EPA Method 9045.

The shallowest soil samples from each test pit were analyzed for the following analytes:

- Polychlorinated biphenyls (PCBs) - EPA Test Method 8082; and
- Priority pollutant metals - EPA Test Method 6010.

Samples with greater than 200 mg/kg diesel- and oil-range petroleum hydrocarbons were analyzed for the following analytes:

- Volatile aromatic and aliphatic hydrocarbons fractions, Benzene, Toluene, Ethyl benzene, and Xylenes (BTEX), and Methyl Tertiary Butyl Ether (MTBE) - Ecology Test Method for Volatile Petroleum Hydrocarbons (VPHs); and
- Extractable aromatic and aliphatic hydrocarbons fractions - Ecology Test Method for Extractable Petroleum Hydrocarbons (EPHs)

The analytical results for the test pit samples are summarized in Tables 5 and 6. The laboratory reports are found in Appendix G.

6.2. Soil Borings

On March 20, 2000, Cascade Drilling, Inc. under the direction of ATC, drilled four hollow-stem auger borings (HSA-1 through HSA-4) in the area of the former auto service garage. Boring locations and logs are presented in Figure 7 and Appendix B, respectively. The borings were drilled to depths ranging from 16.5 to 31 feet bgs. Five to eight soil samples were collected from each soil boring at depths ranging from 5 to 30 feet bgs. Samples were collected by driving a split-spoon sampler over the desired sampling depth interval. A stainless-steel spoon was used to remove aliquots of soil from the sampler and transfer the soil to glass jars provided by the laboratory. Sample depths were based on OVM readings, changes in stratigraphy, or professional judgement. A total of 29 soil samples were collected. Samples were placed in an iced cooler and transported to the laboratory following chain of custody protocols.

Soil samples were sent to Sound Analytical to be analyzed for diesel- and oil-range petroleum hydrocarbons. Soil samples containing greater than 200 mg/kg diesel- and oil-range petroleum hydrocarbons were analyzed for VPHs, EPHs, and PAHs.

The analytical results for the test pit samples are summarized in Table 7. The laboratory reports are found in Appendix G.

6.3 Soil and Groundwater Conditions

Beneath asphalt paving, fill material typically ranges in depth from near surface to 3 feet bgs. However, in test pit SX-1 (discussed in Section 6.1), bricks were discovered at a depth of 6 feet bgs. In addition, as discussed in Section 5.2, used oil and air filters were discovered at 5 feet bgs in area of soil probe B-1. Fill material is generally composed of brown to gray, medium-dense, dry to damp, very silty, fine sand. Below the fill, and to a depth of at least 30 feet bgs, the soil is composed of an olive-gray, dry to damp, loose to medium-dense, silty, fine to coarse sandy, cobbly to very cobbly, fine to coarse gravel. This soil is characteristic of Pleistocene out-burst flood deposits that were deposited by waters originating from historic glacial ice-margin Lake Missoula (and other glacial lakes) in Montana. Soil boring and test pit logs are presented in Appendix B and G.

Groundwater was not intercepted in soil borings or test pits. The deepest surface investigation at the site was at soil boring HSA-1 which was drilled to a depth of 31 feet bgs. Perched groundwater was not encountered at depths above 31 feet. Based on a review of Ecology wells logs, wells outside subject property intercepted groundwater at depths ranging from 67 to 465 feet bgs. Groundwater zones appear to primarily be confined to gravel deposits (60 to 180 feet) and fractured basalt (greater than 180 feet).

6.4 Soil Quality Results

6.4.1 Petroleum Hydrocarbons

Petroleum hydrocarbons were detected in 5 out of a total of 21 test pit samples analyzed. Positive petroleum hydrocarbon results (i.e., greater than practical quantification limit) ranged from 53 to 1,640 mg/kg (combined diesel and heavy oil range). The highest concentration of petroleum hydrocarbons was detected in test pit SX-7 at a depth of 2.5 feet bgs (sample S-7-S1). Only two samples had petroleum hydrocarbon concentrations that exceeded the MTCA Method A soil cleanup levels for diesel and oil (200 mg/kg).

At the soil borings HSA-1 through HSA-4, positive petroleum hydrocarbons were detected in 13 out of a total of 28 samples analyzed. Petroleum hydrocarbon results ranged from 43 to 5,800 mg/kg. The highest petroleum hydrocarbon concentration occurred at soil boring HSA-3 at a depth of 16 to 16.5 feet bgs (sample HSA-3 (16-16.5)). Seven samples had diesel and/or heavy oil range petroleum hydrocarbon concentrations that exceeded the MTCA Method A soil cleanup levels for diesel and oil (200 mg/kg).

6.4.2 VPHs and EPHs – Interim TPH Policy

In response to soil samples with petroleum hydrocarbon concentrations that exceeded the MTCA Method A soil cleanup levels, ATC utilized Ecology's Interim TPH Policy (Ecology, 1997, 1998) in order to apply MTCA Method B soil cleanup standards to petroleum hydrocarbon contamination at the site. Method B cleanup standards are less stringent than Method A cleanup standards. The Interim TPH policy utilizes fate, transport, and toxicity information for individual compounds and groups of chemical fractions that comprise petroleum hydrocarbons to assess the risk that non-carcinogenic and carcinogenic petroleum hydrocarbons pose to human health via direct contact and to groundwater quality. VPH and EPH analytical methods that identify the petroleum hydrocarbon carbon-range fractions present in sample media were developed in association with the Interim TPH Cleanup Policy.

6.4.2.1 Soil Quality

The nine soil samples with petroleum hydrocarbon concentrations in excess of 200 mg/kg were analyzed for VPH and EPH aromatic and aliphatic fractions, along with benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary-butyl ether (MTBE). VPHs, BTEX, and MTBE were not detected in the nine samples analyzed, while EPHs were detected in all nine samples. Total EPH concentrations ranged from 95.2 to 2,428 mg/kg. The highest concentration of EPHs was detected in sample HSA-3 (16-16.5) collected at a depth of 16 feet bgs.

6.4.2.2 Soil Direct Contact: Non-Carcinogenic Effects

Using the results for individual aliphatic and aromatic fractions reported as part of the EPH analyses, the non-carcinogenic health effects of diesel- and oil-range petroleum hydrocarbons in soil samples were evaluated. Non-carcinogenic health effects are assessed by determining the Hazard Quotient (HQ) for total aliphatic and aromatic fractions. If the sum of the HQ's, known as the Hazard Index (HI), is less than one, there is no risk of non-carcinogenic health effects from direct contact with contaminated soil. The HI's for all nine soil samples analyzed were less than one. The highest HI (0.51) was calculated for sample HSA-3 (16-16.5) which had a TPH concentration of 5,800 mg/kg. The HIs for all nine samples are presented in Table 8.

6.4.2.3 Soil Direct Contact: Carcinogenic and Non-Carcinogenic PAHs

Under the Interim TPH Policy, carcinogenic risk from exposure to petroleum contaminated soil is evaluated by calculating the risk posed by exposure to carcinogenic PAH (C-PAHs). For sites where residential cleanup standards apply, the risk posed by direct exposure to C-PAHs cannot exceed 1 in 1,000,000. C-PAHs were detected in 9 out of a total of 29 soil samples analyzed from the site. Positive C-PAH results ranged in concentration from 0.011 to 0.556 mg/kg. The highest concentration was detected in sample SX-7-S1. Calculated risk for the nine subject samples ranged from 4.85×10^{-7} to 3.77×10^{-6} . Three samples had calculated risk values that slightly exceeded 1 in 1,000,000: SX-2-S1 (2.28×10^{-6}), SX-7-S1 (3.77×10^{-6}), and HSA-4 (5-5.5) (1.89×10^{-6}).

Non-carcinogenic PAHs (N-PAHs) were detected in 9 of a total of 29 samples analyzed. Concentrations of individual N-PAHs were all less than 1 mg/kg. The highest concentrations of N-PAHs were detected in samples SX-7-S2 and SX-7-S1. All N-PAH concentrations were less than applicable MTCA Method B soil cleanup standards by a factor of 10,000 or more.

6.4.2.4 Soil to Groundwater Pathway

As part of Ecology's Interim TPH Policy, the potential impact of petroleum contaminated soil on groundwater quality must be evaluated. To accomplish this task, Ecology developed a model to predict the impact to groundwater from petroleum hydrocarbon contaminated soil. The model uses the molecular weight and solubility of VPH and EPH aliphatic and aromatic fractions in conjunction with Raoult's Law and a default assumption regarding dilution of contaminated groundwater in the aquifer below the contaminated soil to estimate the concentration of TPHs in the groundwater. Results of the soil to groundwater transport pathway modeling for samples SX-2-S1, SX-7-S1, HSA-1 (16-16.5), HSA-1 (17-17.5), HSA-1 (18-18.5), HSA-3(14-14.5), HSA-3 (16-16.5), HSA-3 (25-25.5), and HSA-4 (5-5.5) are presented in Table 9 and discussed below.

For the nine subject samples, the concentrations of TPHs in the groundwater below the source, using a dilution factor (DF) of 20 (Ecology default value), are less than 0.00 mg/L. Even with a dilution factor of 1, predicted petroleum hydrocarbon concentrations are less than 0.1 mg/L. The groundwater cleanup level under the Interim TPH policy is 1.0 mg/L. Results from the soil to groundwater modeling show that for the subject site, the maximum concentration of petroleum hydrocarbons reaching the groundwater is "solubility limited." In other words, even at a DF equal to 1, the solubility of aliphatic and aromatic fractions in site soils will limit the concentration of petroleum hydrocarbons in the groundwater to a level lower than the Method A TPH groundwater cleanup level (i.e., < 1.0 mg/L).

6.4.3 Polychlorinated Biphenyls (PCBs)

The shallowest soil samples from each test pit were analyzed for PCBs. PCBs were not detected in the samples.

6.4.4 Metals

Test pit samples were analyzed for arsenic, cadmium, chromium, copper, lead, nickel, selenium, and zinc. Soil boring samples were not analyzed for metals. The following metals were detected in the test pit samples:

- Arsenic was detected in five out of a total of 21 samples analyzed. Positive results ranged from 2.7 to 49 mg/kg. The highest arsenic concentration was detected in sample SX-1-S1 at a depth of 2.5 bgs;
- Cadmium was detected in two samples, SX-2-S1 (2.7 mg/kg) and SX-7-S1 (2.4 mg/kg), at depths of 2 and 2.5 feet bgs, respectively. The higher concentration occurred in sample SX-2-S1 at a depth of 2.0 feet bgs;
- Chromium was detected in 7 out of a total of 21 samples analyzed. Positive results ranged in concentration from 11 to 18 mg/kg. The highest concentration occurred in sample SX-2-S1 at a depth of 2.0 feet bgs;
- Copper was detected in 7 out of a total of 21 samples analyzed. Positive results ranged in concentration from 13 to 33 mg/kg. The highest concentration occurred in sample SX-2-S1 at a depth of 2.0 feet bgs;
- Lead was detected in all 21 samples analyzed. Positive results ranged in concentration from 6.3 to 320 mg/kg. The highest concentration occurred in sample SX-1-S1 at a depth 2.5 feet bgs;
- Nickel was detected in 6 out of a total of 21 samples analyzed. Positive results ranged in concentration from 12 to 15 mg/kg. The highest concentration occurred in sample SX-2-S1 at a depth of 2.0 feet bgs;
- Selenium was detected in 1 out of a total of 21 samples analyzed. Sample SX-7-S1 had a selenium concentration 14 mg/kg at a depth of 2.5 feet bgs;

- Zinc was detected in 7 out of a total of 21 samples analyzed. Positive results ranged in concentration from 50 to 120 mg/kg. The highest concentration occurred in sample SX-2-S1 at a depth of 2.0 feet bgs;

With the exception of the arsenic and lead concentrations in sample SX-1-S1 and the cadmium concentrations in samples SX-2-S1 and SX-7-S1, the concentrations of all metals in the remaining samples were below applicable MTCA Method A soil levels.

For sites where the concentrations of a contaminant in small number of samples exceeds the applicable cleanup level, MTCA allows statistical methods to be used to determine compliance with cleanup levels with the following caveat:

- The upper 95% confidence limit (UCL) on the true population mean, calculated from the sampling data, cannot exceed the cleanup level;
- No sample concentration can exceed twice the cleanup level; and
- Less than 10 percent of the samples can exceed the cleanup level.

The data sets for arsenic and cadmium could not be analyzed statistically because a majority of the sample results were non-detected. However, the data set for lead can be statistically analyzed. Results from this analysis indicate that the UCL for lead is 126 mg/kg. This value is less than the MTCA Method A lead cleanup level (250 mg/kg); therefore, concentrations of lead in the soils at the site are in compliance with MTCA Method A cleanup standards.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The impacted area discovered during this investigation and remediated during this cleanup action appeared to be the result of the dumping of waste oil and other petroleum products. This dumping probably occurred during the time when the former auto service garage occupied this portion of the project area. Based on our results from initial and supplementary investigations, the dumping appeared to be concentrated in the area that was excavated as part of the cleanup action.

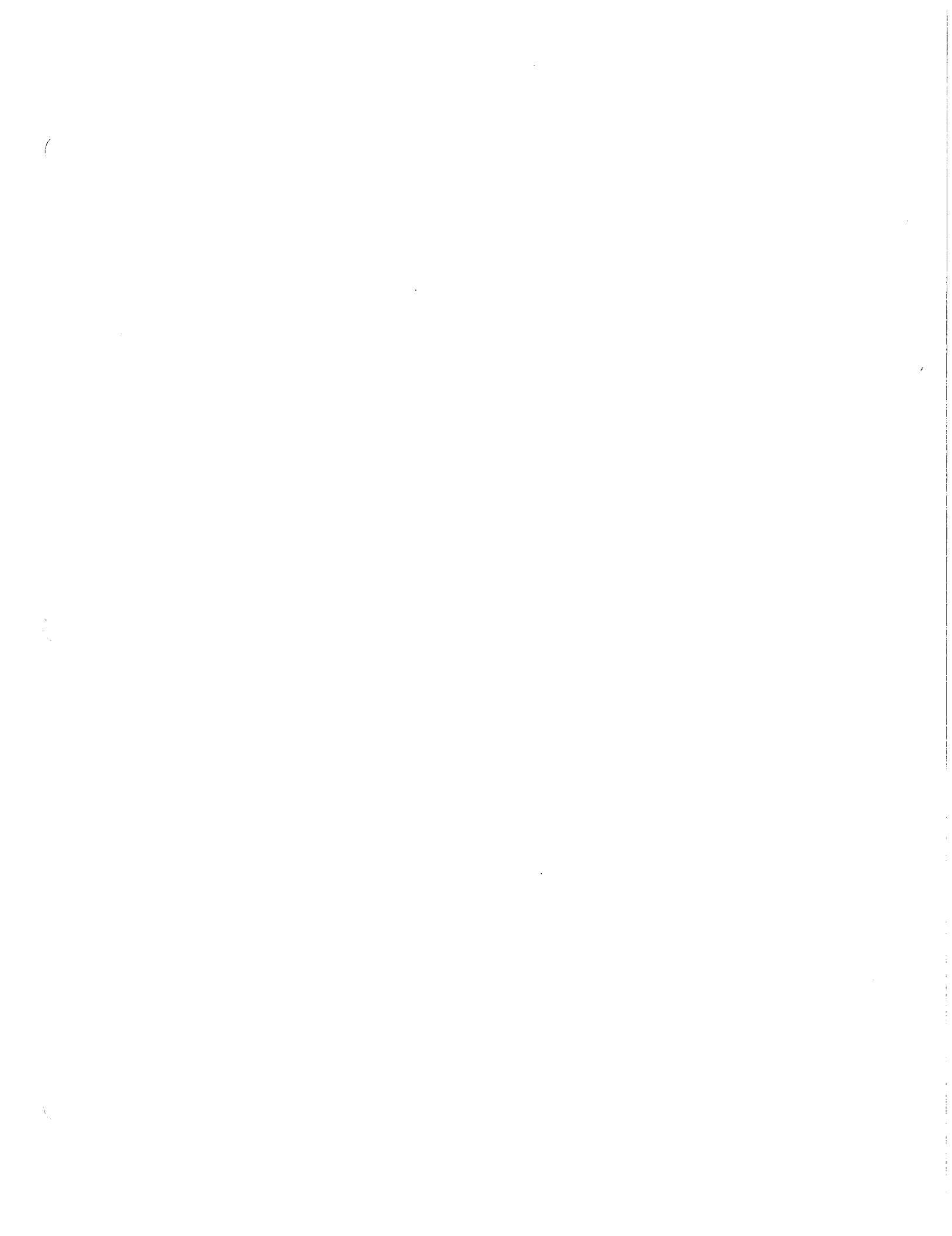
The cleanup levels selected for this site investigation and cleanup action are based on the existing MTCA Method A and B cleanup levels. In all cases, the concentration of petroleum hydrocarbons detected in the soil were less than applicable MTCA Method A cleanup levels or MTCA Method B cleanup standards. In addition, the concentration of petroleum hydrocarbons in the soil were found to be protective of groundwater.

Results from ATC's March 2000 supplementary investigation indicate that locally, near surface (less than 2.5 feet bgs) soil concentrations of arsenic, cadmium, and lead exceed applicable MTCA Method A soil cleanup levels. The source of these metals is unknown but may be associated with historical activities at the former auto service garage or may have been brought in with fill material during construction of the station or asphalt parking lot. ATC shows statistically that lead concentrations in surface soils at the site are in compliance with MTCA cleanup standards; therefore, ATC recommends no further action be taken for lead contaminated soil. Since cadmium was detected in only two samples and since the concentrations exceed the MTCA Method A cleanup level by less than a factor of two, ATC suggests no further action in regards to cadmium contaminated soil. Since arsenic was only detected in five out of a total of 21 samples, and only one sample result exceeded the arsenic MTCA cleanup level, ATC believes that the

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elevated concentration of arsenic in sample SX-1-S1 is a local anomaly and not representative of the soil quality throughout the site. This assumption is based on the distribution of arsenic and other metals (e.g., lead) at the site. Therefore, ATC recommends a limited remedial action be performed to remove arsenic contaminated soil in the area of test pit SX-1-S1.

ATC recommends that this report be submitted to the Washington State Department of Ecology (Ecology) as part of the reporting requirements for site discovery and independent cleanup actions in accordance with the Model Toxics Control Act Cleanup Regulation - Chapter 173-340.



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TABLE 1.
SOIL ANALYTICAL RESULTS - SUBSURFACE INVESTIGATION -DECEMBER 1999

Boring No.	Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)		
		Gasoline	Diesel	Oil
B-1*	7 - 8	na	ND	ND
	10 - 11	na	ND	450
	13 - 14	na	ND	4,000
	16 - 17	na	ND	ND
B-2**	10 - 11	ND	ND	ND
	13 - 14	ND	ND	ND
B-3**	10 - 11	ND	ND	ND
B-4**	10 - 11	ND	ND	ND
B-5**	10 - 11	ND	ND	ND
Current MTCA Cleanup Levels		100 (A)	200 (A)	200 (A)
Proposed MTCA Cleanup Levels		100 (A)	2,000 (A)	2,000 (A)

Notes:

- * B-1 samples were analyzed using Method NWTPH-Dx/Dx Extended for the presence of diesel- and oil-range hydrocarbons. Method Detection Limits were 20 mg/kg for diesel-range and 40 mg/kg for oil-range.
- ** B-2, B-3, B-4, and B-5 samples were analyzed using Method NWTPH-HCID for the qualitative presence of gasoline-, diesel-, and oil-range hydrocarbons. Method Detection Limits were 20 mg/kg for gasoline-range, 50 mg/kg for diesel-range and 100 mg/kg for oil-range.

ND = indicates sample was not detected above the laboratory analytical detection limit (laboratory analytical detection limits are less than the MTCA Method A cleanup levels for the target compounds listed in this table).

na = sample not analyzed for the indicated analyte.

(A) = MTCA Method A Cleanup Level (Model Toxics Control Act Cleanup Regulation – Chapter 173-340 WAC)

mg/kg = milligrams per kilogram or parts per million

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TABLE 2.
SOIL ANALYTICAL RESULTS - INTERIM EXCAVATION SAMPLES - DECEMBER 28, 1999

Sample No.	Location	Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)		
			Gasoline	Diesel	Oil
SW-East-1 (12)	East sidewall	12	ND	ND	ND
SW-West-1 (12)	West sidewall	12	ND	ND	3,500
SW-North-1 (12)	North sidewall	12	ND	ND	3,100
SW-South-1 (12)	South sidewall	12	ND	ND	3,000 (3,700)
Bottom-1 (15)	Bottom	15	ND	ND	3,100
Current MTCA Cleanup Levels			100 (A)	200 (A)	200 (A)
Proposed MTCA Cleanup Levels			100 (A)	2,000 (A)	2,000 (A)

Notes:

ND = indicates sample was not detected above the laboratory analytical detection limit (laboratory analytical detection limits are less than the MTCA Method A cleanup levels for the target compounds listed in this table).

(A) = MTCA Method A Cleanup Level (Model Toxics Control Act Cleanup Regulation – Chapter 173-340 WAC)

mg/kg = milligrams per kilogram or parts per million

Analytical results in parenthesis are laboratory duplicate analysis for the same sample.

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TABLE 3.
SOIL ANALYTICAL RESULTS - FINAL EXCAVATION SAMPLES - DECEMBER 29, 1999

Sample No.	Location	Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)			Total Lead (mg/kg)
			Gasoline	Diesel	Oil	
SW-West-2 (12)	West sidewall	12	ND	ND	ND	14
SW-North-2 (12)	North sidewall	12	ND	ND	ND	9.5 (8.6)
SW-South-2 (12)	South sidewall	12	ND	ND	ND	20
Bottom-2 (16)	Bottom	16	ND	ND	1,300	31
Current MTCA Cleanup Levels			100 (A)	200 (A)	200 (A)	250 (A)
Proposed MTCA Cleanup Levels			100 (A)	2,000 (A)	2,000 (A)	250 (A)

Notes:

ND = indicates sample was not detected above the laboratory analytical detection limit (laboratory analytical detection limits are less than the MTCA Method A cleanup levels for the target compounds listed in this table).

(A) = MTCA Method A Cleanup Level (Model Toxics Control Act Cleanup Regulation – Chapter 173-340 WAC)

mg/kg = milligrams per kilogram or parts per million

Analytical results in parenthesis are laboratory duplicate analysis for the same sample.

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TABLE 4.
SOIL ANALYTICAL RESULTS - STOCKPILE SAMPLES

Sample No.	Excavation Stockpile	Gasoline (mg/kg)	Diesel (mg/kg)	Oil (mg/kg)	Total Lead (mg/kg)	TCLP Lead (µg/L)	PCBs (mg/kg)
Stockpile-1	Interim	320 (280)	ND	24,000 (19,000)	1,600	10.60 (12.30)	5.7*
Stockpile-4	Final	ND	ND	380	420 (470)	0.53 (0.61)	0.87*
Stockpile-5	Final	na	ND	ND	na	ND	na
Stockpile-6	Final	na	ND	3,700	na	ND	na

Notes:

* Aroclor 1248

ND = indicates sample was not detected above the laboratory analytical detection limit (laboratory analytical detection limits are less than the MTCA Method A cleanup levels for the target compounds listed in this table).

na = sample not analyzed for the indicated analyte.

mg/kg = milligrams per kilogram or parts per million

µg/L = micrograms per kilogram or parts per billion

Analytical results in parenthesis are laboratory duplicate analysis for the same sample.

Table 5. Summary of Organic Results for Test Pits at Former Garage Area

Sample Number	Date Sampled	Depth (in feet)	PID ppm	TPH-D (mg/kg)	TPH-O (mg/kg)	TEPHs (mg/kg)	TCPAHs (mg/kg)	NAPH (mg/kg)	2-MNAPH (mg/kg)	ANAPH (mg/kg)	PHAN (mg/kg)	ANTHR (mg/kg)	FLUOR (mg/kg)	PYR (mg/kg)	BZGHI (mg/kg)
SX-1-S1	03/16/00	2.5	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-1-S2	03/16/00	5.5	0	71	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-1-S3	03/16/00	9.5	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-2-S1	03/16/00	2.0	0	22	240	63.8	0.373	0.018	0.042	0.022	0.041	0.011	0.110	0.087	0.063
SX-2-S2	03/16/00	5.0	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-2-S3	03/16/00	9.0	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-3-S1	03/16/00	2.5	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-3-S2	03/16/00	6.0	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-3-S3	03/16/00	9.5	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-4-S1	03/15/00	2.0	0	nd	nd	-	0.232	nd	nd	nd	0.093	0.022	0.12	0.071	0.022
SX-4-S2	03/15/00	5.0	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-4-S3	03/15/00	9.0	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-5-S1	03/15/00	3.0	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-5-S2	03/15/00	5.0	0	nd	nd	-	0.098	nd	nd	nd	0.017	nd	0.044	0.026	0.010
SX-5-S3	03/15/00	10.0	0	nd	nd	-	0.183	nd	nd	nd	0.038	0.009	0.080	0.049	0.018
SX-6-S1	03/16/00	1.5	0	nd	53	-	0.011	nd	0.032	nd	0.033	nd	0.013	0.009	nd
SX-6-S2	03/16/00	6.5	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-6-S3	03/16/00	10.0	0	nd	nd	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
SX-7-S1	03/15/00	2.5	0	340	1,300	488	0.556	nd	nd	nd	0.190	0.042	0.400	0.290	0.052
SX-7-S2	03/15/00	5.0	0	27	160	-	0.381	nd	nd	nd	0.100	0.031	0.180	0.120	0.055
SX-7-S3	03/15/00	8.0	0	nd	nd	-	0.069	nd	nd	nd	nd	nd	0.019	0.014	0.012
Cleanup Level Method A															
				200	200	na	na	na	na	na	na	na	na	na	na
Cleanup Level Method B															
				na	na	(a)	na	3,200	3,200 (b)	3,200 (b)	2,400 (c)	24,000	3,200	2,400	2,400 (c)

(a) = see Interim TPH spreadsheets and laboratory data for results for specific fractions

(b) = No IRIS or HEAST Toxic data, assumed cleanup level similar to naphthalene

(c) = No IRIS or HEAST Toxic data, assumed cleanup level similar to pyrene

na = Not applicable

nd = not detected

TPH-D = Total Petroleum Hydrocarbons (diesel range)

TPH-O = Total Petroleum Hydrocarbons (heavy oil range)

TEPH = Total Extractable Petroleum Hydrocarbons

TCPAHs = Total Carcinogenic Poly-Aromatic Hydrocarbons

- = Not analyzed

Bold = Indicates cleanup level exceeded

NAPH = Naphthalene

2-MNAPH = 2-Methylnaphthalene

ANAPH = Acenaphthylene

PHAN = Phenanthrene

ANTHR = Anthracene

FLUOR = Fluoranthene

PYR = Pyrene

BZGHI = Benzo (ghi) perylene

Table 6. Summary of Inorganic Results for Test Pits at Former Garage Area

Sample Number	Date Sampled	Depth (In. feet)	Arsenic (mg/Kg)	Cadmium (mg/Kg)	Chromium (mg/Kg)	Copper (mg/Kg)	Lead (mg/Kg)	Nickel (mg/Kg)	Selenium (mg/Kg)	Zinc (mg/Kg)	pH
SX-1-S1	3/16/00	2.5	49	nd	17	13	320	12	nd	61	7.88
SX-1-S2	3/16/00	5.5	nd	nd	nd	nd	15	nd	nd	nd	7.70
SX-1-S3	3/16/00	9.5	nd	nd	nd	nd	6.3	nd	nd	nd	7.43
SX-2-S1	3/16/00	2.0	nd	2.7	18	33	240	15	nd	120	8.39
SX-2-S2	3/16/00	5.0	nd	nd	nd	nd	7.1	nd	nd	nd	9.03
SX-2-S3	3/16/00	9.0	nd	nd	nd	nd	12	nd	nd	nd	8.85
SX-3-S1	3/16/00	2.5	nd	nd	17	13	40	12	nd	58	8.28
SX-3-S2	3/16/00	6.0	nd	nd	nd	nd	9.6	nd	nd	nd	9.42
SX-3-S3	3/16/00	9.5	nd	nd	nd	nd	5.8	nd	nd	nd	9.43
SX-4-S1	3/15/00	2.0	2.7	nd	11	13	41	nd	nd	50	7.98
SX-4-S2	3/15/00	5.0	nd	nd	nd	nd	11	nd	nd	nd	9.10
SX-4-S3	3/15/00	9.0	nd	nd	nd	nd	13	nd	nd	nd	9.00
SX-5-S1	3/15/00	3.0	10	nd	16	13	33	12	nd	58	8.43
SX-5-S2	3/15/00	5.0	nd	nd	nd	nd	9.9	nd	nd	nd	9.60
SX-5-S3	3/15/00	10.0	nd	nd	nd	nd	15	nd	nd	nd	9.50
SX-6-S1	3/16/00	1.5	4.5	nd	15	16	85	13	nd	70	8.26
SX-6-S2	3/16/00	6.5	nd	nd	nd	nd	7.5	nd	nd	nd	9.48
SX-6-S3	3/16/00	10.0	nd	nd	nd	nd	10	nd	nd	nd	8.74
SX-7-S1	3/15/00	2.5	5.8	2.4	15	18	120	12	14	82	8.36
SX-7-S2	3/15/00	5.0	nd	nd	nd	nd	45	nd	nd	nd	8.93
SX-7-S3	3/15/00	8.0	nd	nd	nd	nd	12	nd	nd	nd	9.22
Cleanup Level Method A			20.0	2.0	100.0	na	250.0	na	na	na	na
Cleanup Level Method B			na	na	na	2,960	na	1,600	400	2,400	na

na = Not applicable

nd = not detected

Bold = Indicates cleanup level exceeded

Table 7. Summary of Organic Results for Soil Borings at Former Garage Area

Sample Number	Date Sampled	Depth (in feet)	PID ppm	TPH-D (mg/kg)	TPH-O (mg/kg)	Total EPHs ^(c) (mg/kg)	Total CPAHs (mg/kg)	Fluorene (mg/kg)	Phenanthrene (mg/kg)	Anthracene (mg/kg)	Fluoranthene (mg/kg)	Pyrene (mg/kg)
HSA-1 (5-6)	03/20/00	5-6	0	nd	nd	-	-	-	-	-	-	-
HSA-1 (10-11)	03/20/00	10-11	0	nd	nd	-	-	-	-	-	-	-
HSA-1 (14-15)	03/20/00	14-15	0	nd	nd	-	-	-	-	-	-	-
HSA-1 (16-16.5)	03/20/00	16-16.5	0	65	230	231	nd	nd	nd	nd	nd	nd
HSA-1 (17-17.5)	03/20/00	17-17.5	0	210	930	497	nd	nd	nd	nd	nd	nd
HSA-1 (18-18.5)	03/20/00	18-18.5	0	72	310	95.2	nd	nd	nd	nd	nd	nd
HSA-1 (20-21)	03/20/00	20-21	0	nd	nd	-	-	-	-	-	-	-
HSA-1 (25-26)	03/20/00	25-26	0	nd	nd	-	-	-	-	-	-	-
HSA-1 (30-31)	03/20/00	30-31	0	nd	nd	-	-	-	-	-	-	-
HSA-2 (5-6)	03/20/00	5-6	0	nd	nd	-	-	-	-	-	-	-
HSA-2 (10-11)	03/20/00	10-11	0	nd	nd	-	-	-	-	-	-	-
HSA-2 (15-15.4)	03/20/00	15-1-4	0	nd	nd	-	-	-	-	-	-	-
HSA-2 (14-14.5)	03/20/00	14-14.5	0	nd	nd	-	-	-	-	-	-	-
HSA-2 (16-16.5)	03/20/00	16-16.5	0	nd	nd	-	-	-	-	-	-	-
HSA-3 (5-6)	03/20/00	5-6	0	nd	43	-	-	-	-	-	-	-
HSA-3 (10-10.5)	03/20/00	10-10.5	0	nd	nd	-	-	-	-	-	-	-
HSA-3 (14-14.5)	03/20/00	14-14.5	0	160	750	200	nd	nd	nd	nd	nd	nd
HSA-3 (16-16.5)	03/20/00	16-16.5	0	1,100	4,700	2,428	nd	nd	nd	nd	nd	nd
HSA-3 (18-18.5)	03/20/00	18-18.5	0	31	130	-	-	-	-	-	-	-
HSA-3 (20-20.5)	03/20/00	20-20.5	0	27	120	-	-	-	-	-	-	-
HSA-3 (25-25.5)	03/20/00	25-25.5	0	64	280	147	nd	nd	nd	nd	nd	nd
HSA-3 (30-30.5)	03/20/00	30-30.5	0	nd	nd	-	-	-	-	-	-	-
HSA-4 (5-5.5)	03/20/00	5-5.5	0	130	690	662	0.219	0.024	0.11	0.026	0.13	0.097
HSA-4 (10-11)	03/20/00	10-11	0	26	140	-	-	-	-	-	-	-
HSA-4 (14-14.5)	03/20/00	14-14.5	0	25	100	-	-	-	-	-	-	-
HSA-4 (18-18.5)	03/20/00	18-18.5	0	nd	nd	-	-	-	-	-	-	-
HSA-4 (20-20.5)	03/20/00	20-20.5	0	nd	nd	-	-	-	-	-	-	-
HSA-4 (22.5)	03/20/00	22.5	0	nd	nd	-	-	-	-	-	-	-
HSA-Stockpile	03/20/00	na	0	130	720	-	-	-	-	-	-	-
Cleanup Level Method A				200	200	na	na	na	na	na	na	na
Cleanup Level Method B				na	na	(a)	na	3,200 (b)	2,400 (c)	24,000	3,200	2,400

(a) = see Interim TPH spreadsheets and laboratory data for results for specific fractions
 (b) = No IRIS or HEAST Toxic data, assumed cleanup level similar to naphthalene
 (c) = No IRIS or HEAST Toxic data, assumed cleanup level similar to pyrene
 na = Not applicable
 nd = not detected
 - = Not analyzed
 TPH - D = Total Petroleum Hydrocarbons (diesel range)
 TPH - O = Total Petroleum Hydrocarbons (heavy oil range)
 TEPH = Total Extractable Petroleum Hydrocarbons
 TOPAHs = Total Carcinogenic Poly-Aromatic Hydrocarbons
Bold = Indicates cleanup level exceeded

Table 8. Non-Carcinogen-Human Health Soil Contact - Residential Scenario - Method B

Sample Number: SX-2-S1

Compound	Original (1) Soil Conc. (mg/Kg)	O _{RFD}	Factor	Residential Multiplier	Calculated (2) HQ from ITPH
Total aliphatic	58.00	0.06	1.25E-05	2.08E-04	0.01
Total aromatic	5.80	0.03			
Benzene					
Ethylbenzene		0.10	1.25E-05	1.25E-04	0.00
Toluene		0.20	1.25E-05	6.25E-05	0.00
Xylene		2.00	1.25E-05	6.25E-06	0.00
Total aromatic+B-E-X	5.80	0.03	1.25E-05	4.17E-04	0.00
Total Conc.	63.80			Hazard Index	0.01

(1) Concentration from initial run of Interim TPH Policy using initial soil concentrations

(2) HQ from initial run of Interim TPH Policy using initial soil concentrations

Sample Number: SX-7-S1

Compound	Original (1) Soil Conc. (mg/Kg)	O _{RFD}	Factor	Residential Multiplier	Calculated (2) HQ from ITPH
Total aliphatic	428.00	0.06	1.25E-05	2.08E-04	0.09
Total aromatic	60.40	0.03			
Benzene					
Ethylbenzene		0.10	1.25E-05	1.25E-04	0.00
Toluene		0.20	1.25E-05	6.25E-05	0.00
Xylene		2.00	1.25E-05	6.25E-06	0.00
Total aromatic+B-E-X	60.40	0.03	1.25E-05	4.17E-04	0.03
Total Conc.	488.40			Hazard Index	0.11

(1) Concentration from initial run of Interim TPH Policy using initial soil concentrations

(2) HQ from initial run of Interim TPH Policy using initial soil concentrations

Sample Number: HSA-1 (16-16.5)

Compound	Original (1) Soil Conc. (mg/Kg)	O _{RFD}	Factor	Residential Multiplier	Calculated (2) HQ from ITPH
Total aliphatic	104.00	0.06	1.25E-05	2.08E-04	0.02
Total aromatic	27.00	0.03			
Benzene					
Ethylbenzene		0.10	1.25E-05	1.25E-04	0.00
Toluene		0.20	1.25E-05	6.25E-05	0.00
Xylene		2.00	1.25E-05	6.25E-06	0.00
Total aromatic+B-E-X	27.00	0.03	1.25E-05	4.17E-04	0.01
Total Conc.	131.00			Hazard Index	0.03

(1) Concentration from initial run of Interim TPH Policy using initial soil concentrations

(2) HQ from initial run of Interim TPH Policy using initial soil concentrations

Sample Number: HSA-1 (17-17.5)

Compound	Original (1) Soil Conc. (mg/Kg)	O _{RFD}	Factor	Residential Multiplier	Calculated (2) HQ from ITPH
Total aliphatic	424.00	0.06	1.25E-05	2.08E-04	0.09
Total aromatic	73.00	0.03			
Benzene					
Ethylbenzene		0.10	1.25E-05	1.25E-04	0.00
Toluene		0.20	1.25E-05	6.25E-05	0.00
Xylene		2.00	1.25E-05	6.25E-06	0.00
Total aromatic+B-E-X	73.00	0.03	1.25E-05	4.17E-04	0.03
Total Conc.	497.00			Hazard Index	0.12

(1) Concentration from initial run of Interim TPH Policy using initial soil concentrations

(2) HQ from initial run of Interim TPH Policy using initial soil concentrations

Sample Number: HSA-1 (18-18.5)

Compound	Original (1) Soil Conc. (mg/Kg)	O _{RFD}	Factor	Residential Multiplier	Calculated (2) HQ from ITPH
Total aliphatic	86.00	0.06	1.25E-05	2.08E-04	0.02
Total aromatic	9.20	0.03			
Benzene					
Ethylbenzene		0.10	1.25E-05	1.25E-04	0.00
Toluene		0.20	1.25E-05	6.25E-05	0.00
Xylene		2.00	1.25E-05	6.25E-06	0.00
Total aromatic+B-E-X	9.20	0.03	1.25E-05	4.17E-04	0.00
Total Conc.	95.20			Hazard Index	0.02

(1) Concentration from initial run of Interim TPH Policy using initial soil concentrations

(2) HQ from initial run of Interim TPH Policy using initial soil concentrations

Sample Number: HSA-3 (14-14.5)

Compound	Original (1) Soil Conc. (mg/Kg)	O _{RFD}	Factor	Residential Multiplier	Calculated (2) HQ from ITPH
Total aliphatic	185.00	0.06	1.25E-05	2.08E-04	0.04
Total aromatic	15.00	0.03			
Benzene					
Ethylbenzene		0.10	1.25E-05	1.25E-04	0.00
Toluene		0.20	1.25E-05	6.25E-05	0.00
Xylene		2.00	1.25E-05	6.25E-06	0.00
Total aromatic+B-E-X	15.00	0.03	1.25E-05	4.17E-04	0.01
Total Conc.	200.00			Hazard Index	0.04

(1) Concentration from initial run of Interim TPH Policy using initial soil concentrations

(2) HQ from initial run of Interim TPH Policy using initial soil concentrations

Sample Number: HSA-3 (16-16.5)

Compound	Original (1) Soil Conc. (mg/Kg)	O _{RFD}	Factor	Residential Multiplier	Calculated (2) HQ from ITPH
Total aliphatic	2391.00	0.06	1.25E-05	2.08E-04	0.50
Total aromatic	36.60	0.03			
Benzene					
Ethylbenzene		0.10	1.25E-05	1.25E-04	0.00
Toluene		0.20	1.25E-05	6.25E-05	0.00
Xylene		2.00	1.25E-05	6.25E-06	0.00
Total aromatic+B-E-X	36.60	0.03	1.25E-05	4.17E-04	0.02
Total Conc.	2427.60			Hazard Index	0.51

(1) Concentration from initial run of Interim TPH Policy using initial soil concentrations

(2) HQ from initial run of Interim TPH Policy using initial soil concentrations

Sample Number: HSA-3 (25-25.5)

Compound	Original (1) Soil Conc. (mg/Kg)	O _{RFD}	Factor	Residential Multiplier	Calculated (2) HQ from ITPH
Total aliphatic	135.00	0.06	1.25E-05	2.08E-04	0.03
Total aromatic	12.00	0.03			
Benzene					
Ethylbenzene		0.10	1.25E-05	1.25E-04	0.00
Toluene		0.20	1.25E-05	6.25E-05	0.00
Xylene		2.00	1.25E-05	6.25E-06	0.00
Total aromatic+B-E-X	12.00	0.03	1.25E-05	4.17E-04	0.01
Total Conc.	147.00			Hazard Index	0.03

(1) Concentration from initial run of Interim TPH Policy using initial soil concentrations

(2) HQ from initial run of Interim TPH Policy using initial soil concentrations

Sample Number: HSA-4 (5-5.5)

Compound	Original (1) Soil Conc. (mg/Kg)	O _{RFD}	Factor	Residential Multiplier	Calculated (2) HQ from ITPH
Total aliphatic	252.00	0.06	1.25E-05	2.08E-04	0.05
Total aromatic	410.00	0.03			
Benzene					
Ethylbenzene		0.10	1.25E-05	1.25E-04	0.00
Toluene		0.20	1.25E-05	6.25E-05	0.00
Xylene		2.00	1.25E-05	6.25E-06	0.00
Total aromatic+B-E-X	410.00	0.03	1.25E-05	4.17E-04	0.17
Total Conc.	662.00			Hazard Index	0.22

(1) Concentration from initial run of Interim TPH Policy using initial soil concentrations

(2) HQ from initial run of Interim TPH Policy using initial soil concentrations

Table 9. Soil to Groundwater Pathway Calculations

Sample Number: SX-2-S1

Compound	Soil (mg/kg)	MW (g/mol)	Moles (mmol/kg)	Mole Fraction	Solubility (mg/L)	Effective Solubility (mg/L)	DF	Conc. @ Well (mg/L)
Aliphatics								
EC 5-6		81	0.0	0.00	28	0.00	20	0.000
EC >6-8		100	0.0	0.00	4.2	0.00	20	0.000
EC >8-10		130	0.0	0.00	0.33	0.000	20	0.0000
EC >10-12		160	0.0	0.00	0.026	0.0000	20	0.00000
EC >12-16		200	0.0	0.00	0.00059	0.00000	20	0.00000
EC >16-21		270	0.0	0.00	1.00E-06	0.0000000	20	0.00E+00
EC >21-34	58	325	0.2	7.38	1.00E-06	0.0000074	20	3.69E-07
Aromatics								
Benzene		78	0.0	0.00	1780	0.0	20	0.000
Toluene		92	0.0	0.00	520	0.0	20	0.000
EC >8-10		120	0.0	0.00	65	0.0	20	0.000
EC >10-12		130	0.0	0.00	25	0.0	20	0.000
EC >12-16		150	0.0	0.00	5.80	0.00	20	0.000
EC >16-21		190	0.0	0.00	0.51	0.000	20	0.0000
EC >21-35	5.8	240	0.0	1.00	0.01	0.010000	20	0.00050
	64		0.0	1.0				0.00

Sample Number: SX-7-S1

Compound	Soil (mg/kg)	MW (g/mol)	Moles (mmol/kg)	Mole Fraction	Solubility (mg/L)	Effective Solubility (mg/L)	DF	Conc. @ Well (mg/L)
Aliphatics								
EC 5-6		81	0.0	0.00	28	0.00	20	0.000
EC >6-8		100	0.0	0.00	4.2	0.00	20	0.000
EC >8-10		130	0.0	0.00	0.33	0.000	20	0.0000
EC >10-12		160	0.0	0.00	0.026	0.0000	20	0.00000
EC >12-16		200	0.0	0.00	0.00059	0.00000	20	0.00000
EC >16-21	58	270	0.2	0.45	1.00E-06	0.0000005	20	2.26E-08
EC >21-34	370	325	1.1	2.39	1.00E-06	0.0000024	20	1.20E-07
Aromatics								
Benzene		78	0.0	0.00	1780	0.0	20	0.000
Toluene		92	0.0	0.00	520	0.0	20	0.000
EC >8-10		120	0.0	0.00	65	0.0	20	0.000
EC >10-12		130	0.0	0.00	25	0.0	20	0.000
EC >12-16		150	0.0	0.00	5.80	0.00	20	0.000
EC >16-21	8.4	190	0.0	0.09	0.51	0.047	20	0.0024
EC >21-35	52	240	0.2	0.46	0.01	0.004555	20	0.00023
	488		0.5	1.0				0.00

Sample Number: HSA-1 (16-16.5)

Compound	Soil (mg/kg)	MW (g/mol)	Moles (mmol/kg)	Mole Fraction	Solubility (mg/L)	Effective Solubility (mg/L)	DF	Conc. @ Well (mg/L)
Aliphatics								
EC 5-6		81	0.0	0.00	28	0.00	20	0.000
EC >6-8		100	0.0	0.00	4.2	0.00	20	0.000
EC >8-10		130	0.0	0.00	0.33	0.000	20	0.0000
EC >10-12		160	0.0	0.00	0.026	0.0000	20	0.00000
EC >12-16		200	0.0	0.00	0.00059	0.00000	20	0.00000
EC >16-21	34	270	0.1	0.53	1.00E-06	0.0000005	20	2.64E-08
EC >21-34	170	325	0.5	2.19	1.00E-06	0.0000022	20	1.10E-07
Aromatics								
Benzene		78	0.0	0.00	1780	0.0	20	0.000
Toluene		92	0.0	0.00	520	0.0	20	0.000
EC >8-10		120	0.0	0.00	65	0.0	20	0.000
EC >10-12		130	0.0	0.00	25	0.0	20	0.000
EC >12-16		150	0.0	0.00	5.80	0.00	20	0.000
EC >16-21		190	0.0	0.00	0.51	0.000	20	0.0000
EC >21-35	27	240	0.1	0.47	0.01	0.004718	20	0.00024
	231		0.2	1.0				0.00

Sample Number: HSA-1 (17-17.5)

Compound	Soil (mg/kg)	MW (g/mol)	Moles (mmol/kg)	Mole Fraction	Solubility (mg/L)	Effective Solubility (mg/L)	DF	Conc. @ Well (mg/L)
Aliphatics								
EC 5-6		81	0.0	0.00	28	0.00	20	0.000
EC >6-8		100	0.0	0.00	4.2	0.00	20	0.000
EC >8-10		130	0.0	0.00	0.33	0.000	20	0.0000
EC >10-12		160	0.0	0.00	0.026	0.0000	20	0.00000
EC >12-16		200	0.0	0.00	0.00059	0.00000	20	0.00000
EC >16-21	74	270	0.3	0.46	1.00E-06	0.0000005	20	2.32E-08
EC >21-34	350	325	1.1	1.82	1.00E-06	0.0000018	20	9.12E-08
Aromatics								
Benzene		78	0.0	0.00	1780	0.0	20	0.000
Toluene		92	0.0	0.00	520	0.0	20	0.000
EC >8-10		120	0.0	0.00	65	0.0	20	0.000
EC >10-12		130	0.0	0.00	25	0.0	20	0.000
EC >12-16		150	0.0	0.00	5.80	0.00	20	0.000
EC >16-21	11	190	0.1	0.10	0.51	0.050	20	0.0025
EC >21-35	62	240	0.3	0.44	0.01	0.004376	20	0.00022
			0.6	1.0				0.00

Sample Number: HSA-1 (18-18.5)

Compound	Soil (mg/kg)	MW (g/mol)	Moles (mmol/kg)	Mole Fraction	Solubility (mg/L)	Effective Solubility (mg/L)	DF	Conc. @ Well (mg/L)
Aliphatics								
EC 5-6		81	0.0	0.00	28	0.00	20	0.000
EC >6-8		100	0.0	0.00	4.2	0.00	20	0.000
EC >8-10		130	0.0	0.00	0.33	0.000	20	0.0000
EC >10-12		160	0.0	0.00	0.026	0.0000	20	0.00000
EC >12-16		200	0.0	0.00	0.00059	0.00000	20	0.00000
EC >16-21	12	270	0.0	0.54	1.00E-06	0.0000005	20	2.68E-08
EC >21-34	74	325	0.2	2.75	1.00E-06	0.0000028	20	1.38E-07
Aromatics								
Benzene		78	0.0	0.00	1780	0.0	20	0.000
Toluene		92	0.0	0.00	520	0.0	20	0.000
EC >8-10		120	0.0	0.00	65	0.0	20	0.000
EC >10-12		130	0.0	0.00	25	0.0	20	0.000
EC >12-16		150	0.0	0.00	5.80	0.00	20	0.000
EC >16-21		190	0.0	0.00	0.51	0.000	20	0.0000
EC >21-35	9.2	240	0.0	0.46	0.01	0.004631	20	0.00023
	95		0.1	1.0				0.00

Sample Number: HSA-3 (14-14.5)

Compound	Soil (mg/kg)	MW (g/mol)	Moles (mmol/kg)	Mole Fraction	Solubility (mg/L)	Effective Solubility (mg/L)	DF	Conc. @ Well (mg/L)
Aliphatics								
EC 5-6		81	0.0	0.00	28	0.00	20	0.000
EC >6-8		100	0.0	0.00	4.2	0.00	20	0.000
EC >8-10		130	0.0	0.00	0.33	0.000	20	0.0000
EC >10-12		160	0.0	0.00	0.026	0.0000	20	0.00000
EC >12-16		200	0.0	0.00	0.00059	0.00000	20	0.00000
EC >16-21	25	270	0.1	0.60	1.00E-06	0.0000006	20	2.99E-08
EC >21-34	160	325	0.5	3.17	1.00E-06	0.0000032	20	1.59E-07
Aromatics								
Benzene		78	0.0	0.00	1780	0.0	20	0.000
Toluene		92	0.0	0.00	520	0.0	20	0.000
EC >8-10		120	0.0	0.00	65	0.0	20	0.000
EC >10-12		130	0.0	0.00	25	0.0	20	0.000
EC >12-16		150	0.0	0.00	5.80	0.00	20	0.000
EC >16-21		190	0.0	0.00	0.51	0.000	20	0.0000
EC >21-35	15	240	0.1	0.40	0.01	0.004030	20	0.00020
	200		0.2	1.0				0.00

Sample Number: HSA-3 (16-16.5)

Compound	Soil (mg/kg)	MW (g/mol)	Moles (mmol/kg)	Mole Fraction	Solubility (mg/L)	Effective Solubility (mg/L)	DF	Conc. @ Well (mg/L)
Aliphatics								
EC 5-6		81	0.0	0.00	28	0.00	20	0.000
EC >6-8		100	0.0	0.00	4.2	0.00	20	0.000
EC >8-10		130	0.0	0.00	0.33	0.000	20	0.0000
EC >10-12		160	0.0	0.00	0.026	0.0000	20	0.00000
EC >12-16	11	200	0.1	0.04	0.00059	0.00003	20	0.00000
EC >16-21	280	270	1.0	0.83	1.00E-06	0.0000008	20	4.15E-08
EC >21-34	2100	325	6.5	5.17	1.00E-06	0.0000052	20	2.59E-07
Aromatics								
Benzene		78	0.0	0.00	1780	0.0	20	0.000
Toluene		92	0.0	0.00	520	0.0	20	0.000
EC >8-10		120	0.0	0.00	65	0.0	20	0.000
EC >10-12		130	0.0	0.00	25	0.0	20	0.000
EC >12-16		150	0.0	0.00	5.80	0.00	20	0.000
EC >16-21	4.6	190	0.0	0.02	0.51	0.010	20	0.0005
EC >21-35	32	240	0.1	0.11	0.01	0.001067	20	0.00005
	2428		1.2	1.0				0.00

Sample Number: HSA-3 (25-25.5)

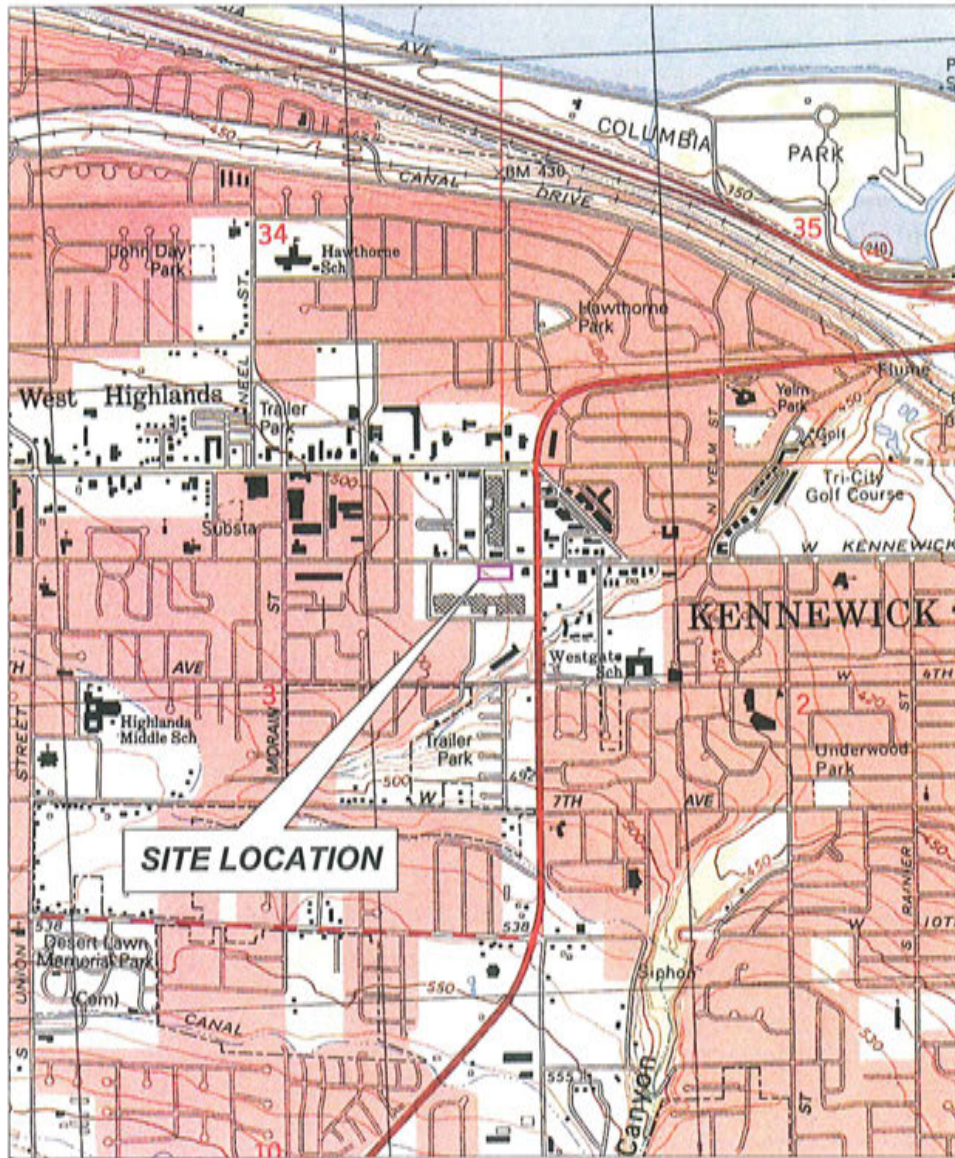
Compound	Soil (mg/kg)	MW (g/mol)	Moles (mmol/kg)	Mole Fraction	Solubility (mg/L)	Effective Solubility (mg/L)	DF	Conc. @ Well (mg/L)
Aliphatics								
EC 5-6		81	0.0	0.00	28	0.00	20	0.000
EC >6-8		100	0.0	0.00	4.2	0.00	20	0.000
EC >8-10		130	0.0	0.00	0.33	0.000	20	0.0000
EC >10-12		160	0.0	0.00	0.026	0.0000	20	0.00000
EC >12-16		200	0.0	0.00	0.00059	0.00000	20	0.00000
EC >16-21	15	270	0.1	0.53	1.00E-06	0.0000005	20	2.63E-08
EC >21-34	120	325	0.4	3.50	1.00E-06	0.0000035	20	1.75E-07
Aromatics								
Benzene		78	0.0	0.00	1780	0.0	20	0.000
Toluene		92	0.0	0.00	520	0.0	20	0.000
EC >8-10		120	0.0	0.00	65	0.0	20	0.000
EC >10-12		130	0.0	0.00	25	0.0	20	0.000
EC >12-16		150	0.0	0.00	5.80	0.00	20	0.000
EC >16-21		190	0.0	0.00	0.51	0.000	20	0.0000
EC >21-35	12	240	0.1	0.47	0.01	0.004737	20	0.00024
	147		0.1	1.0				0.00

Sample Number: HSA-4 (5-5.5)

Compound	Soil (mg/kg)	MW (g/mol)	Moles (mmol/kg)	Mole Fraction	Solubility (mg/L)	Effective Solubility (mg/L)	DF	Conc. @ Well (mg/L)
Aliphatics								
EC 5-6		81	0.0	0.00	28	0.00	20	0.000
EC >6-8		100	0.0	0.00	4.2	0.00	20	0.000
EC >8-10		130	0.0	0.00	0.33	0.000	20	0.0000
EC >10-12		160	0.0	0.00	0.026	0.0000	20	0.00000
EC >12-16		200	0.0	0.00	0.00059	0.00000	20	0.00000
EC >16-21	32	270	0.1	0.06	1.00E-06	0.0000001	20	3.13E-09
EC >21-34	220	325	0.7	0.36	1.00E-06	0.0000004	20	1.79E-08
Aromatics								
Benzene		78	0.0	0.00	1780	0.0	20	0.000
Toluene		92	0.0	0.00	520	0.0	20	0.000
EC >8-10		120	0.0	0.00	65	0.0	20	0.000
EC >10-12		130	0.0	0.00	25	0.0	20	0.000
EC >12-16		150	0.0	0.00	5.80	0.00	20	0.000
EC >16-21	60	190	0.3	0.17	0.51	0.085	20	0.0043
EC >21-35	350	240	1.5	0.77	0.01	0.007705	20	0.00039
	662		1.9	1.0				0.00

R 29 E.

T 8 N.



SOURCE: USGS 7.5-MINUTE TOPOGRAPHIC QUADRANGLE MAP
KENNEWICK, WASH.; 1992



PROJECT NO.: 76.18452.0201 Tasks 6

DESIGNED BY: NRG SCALE: 1:24,000

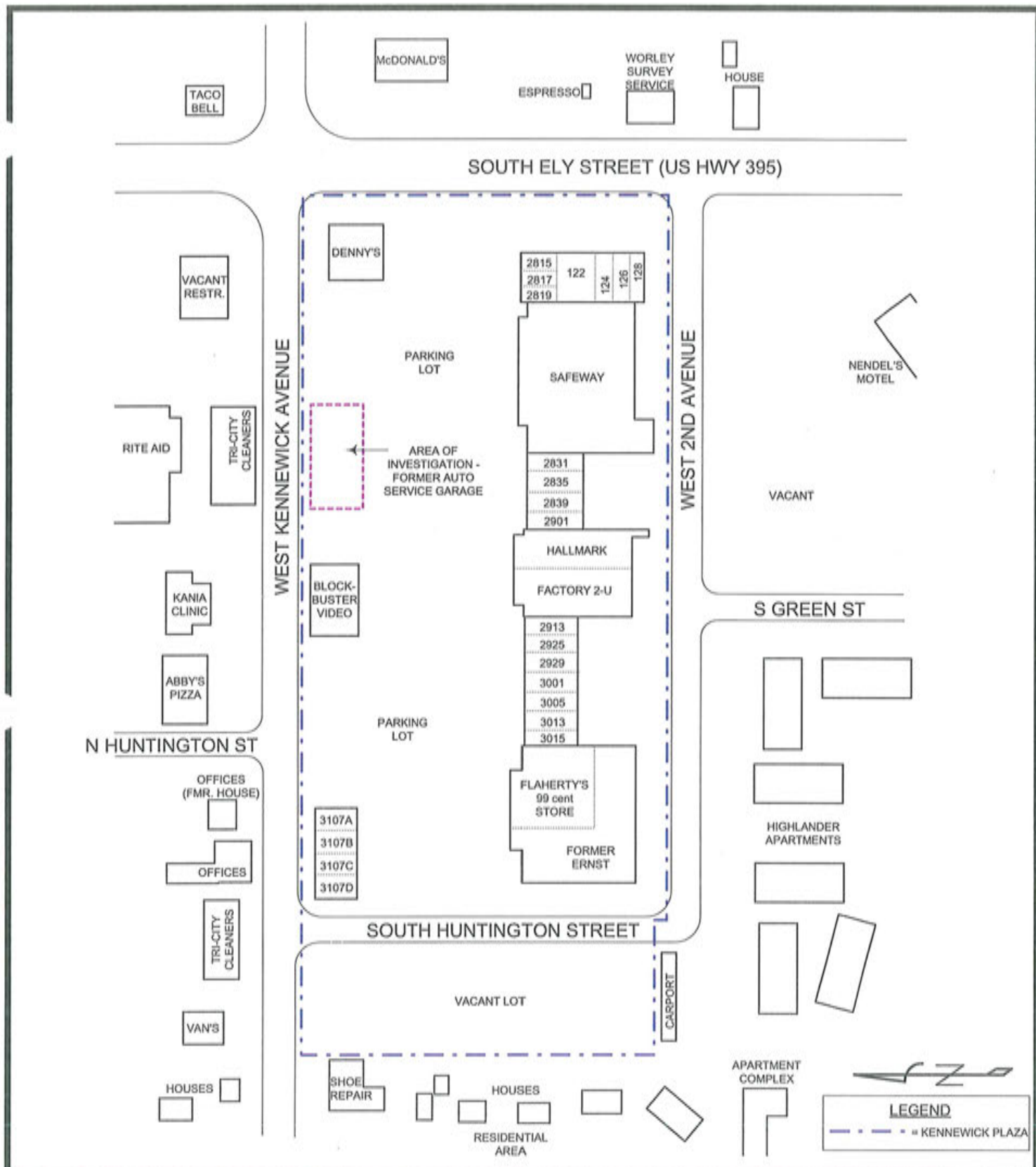
DRAWN BY: NRG

DATE: 4/27/00

FILE: 0201 Task 6 topo
Fig1.VSD

FIGURE 1
TOPOGRAPHIC MAP

**SITE CHARACTERIZATION AND
INDEPENDENT CLEANUP ACTION
KENNEWICK PLAZA
WEST KENNEWICK AVENUE AND SOUTH ELY STREET
KENNEWICK, WASHINGTON**



PROJECT NO.: 76.18452.0201 Task 6

DESIGNED BY: NRG

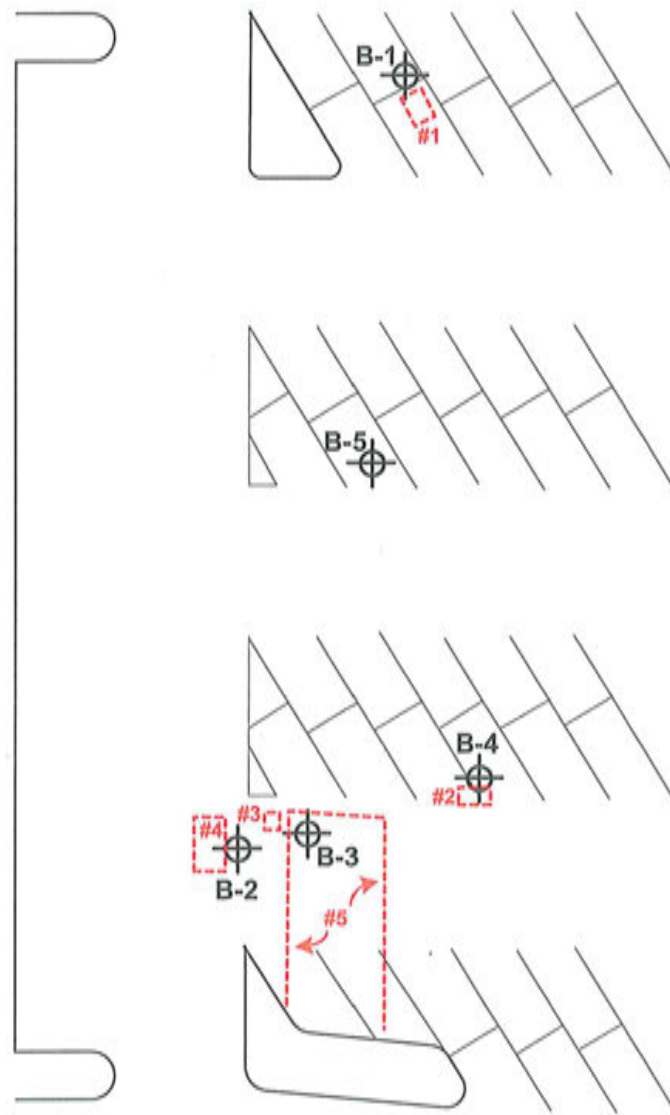
SCALE: ~ 1" = 200'

DRAWN BY: NRG

DATE: 4/27/00

FILE: 0201 Task 6 sitemap Fig2.VSD

FIGURE 2
SITE PLAN
SITE CHARACTERIZATION AND
INDEPENDENT CLEANUP ACTION
KENNEWICK PLAZA
WEST KENNEWICK AVENUE AND SOUTH ELY STREET
KENNEWICK, WASHINGTON



LEGEND

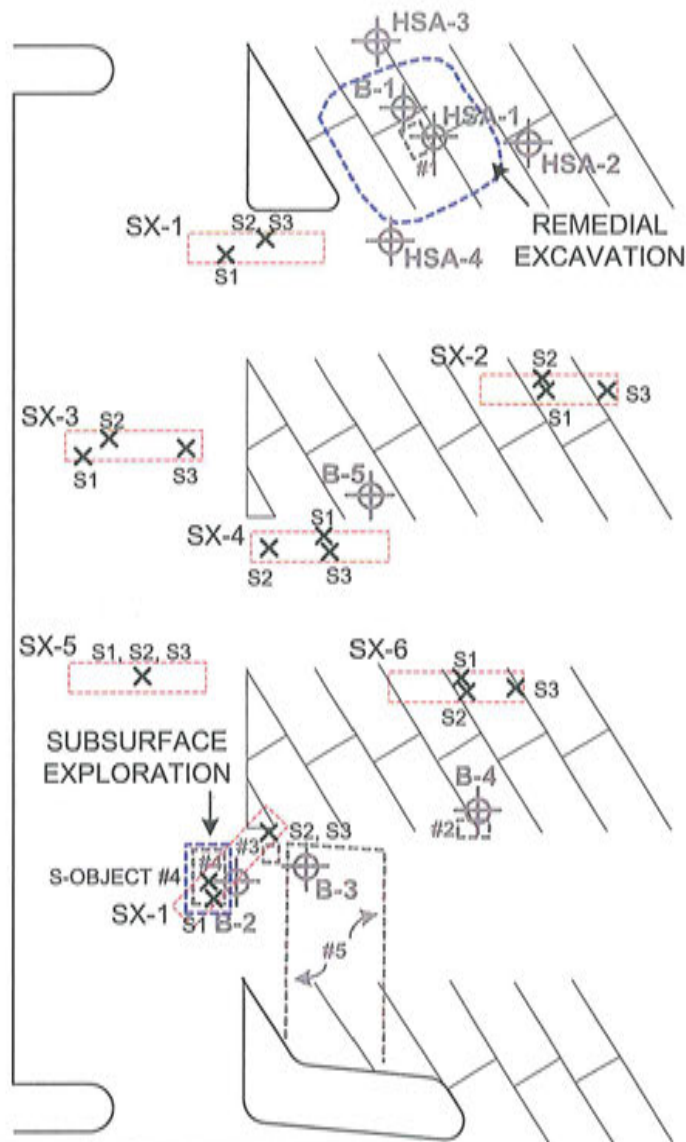
#3 [] SUBSURFACE FEATURE FROM GEOPHYSICAL EXPLORATION

B-2 [] PROBE BORING LOCATION



PROJECT NO.: 76.18452.0201 Task 6		
DESIGNED BY: NRG	SCALE: ~ 1" = 30'	
DRAWN BY: NRG	DATE: 4/27/00	FILE: 0201 Task 6 geoph/probe Fig3.VSD

FIGURE 3
SAMPLE LOCATION PLAN -
SUBSURFACE INVESTIGATION - DEC. 1999
 SITE CHARACTERIZATION AND
 INDEPENDENT CLEANUP ACTION
 KENNEWICK PLAZA
 WEST KENNEWICK AVENUE AND SOUTH ELY STREET
 KENNEWICK, WASHINGTON



LEGEND

- TEST PIT LOCATION
- SUBSURFACE EXPLORATION AND REMEDIAL EXCAVATION
- X SAMPLE LOCATION
- #3 SUBSURFACE FEATURE FROM GEOPHYSICAL EXPLORATION
- ⊕ BORING LOCATION

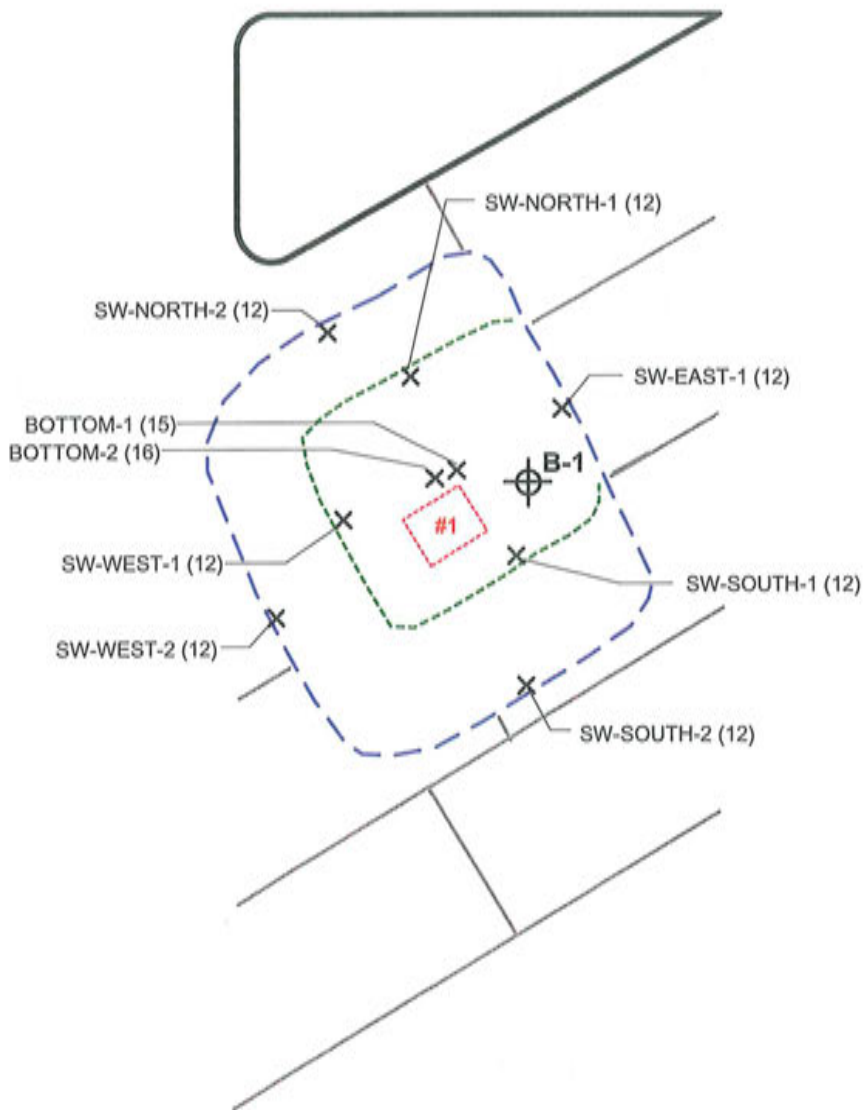


PROJECT NO.: 76.18452.0201 Task 6






DESIGNED BY: NRG	SCALE: ~ 1" = 30'	
DRAWN BY: NRG	DATE: 4/27/00	FILE: 0201 Task 6 test pit Fig6.VSD

**FIGURE 6
LOCATION PLAN - TEST PITS
MARCH 2000**

**SITE CHARACTERIZATION AND
INDEPENDENT CLEANUP ACTION
KENNEWICK PLAZA
WEST KENNEWICK AVENUE AND SOUTH ELY STREET
KENNEWICK, WASHINGTON**



LEGEND

-  INTERIM REMEDIAL EXCAVATION ON 12/28/99
-  FINAL REMEDIAL EXCAVATION ON 12/29/99
-  SAMPLE LOCATION
-  SUBSURFACE FEATURE FROM GEOPHYSICAL EXPLORATION
-  PROBE BORING LOCATION



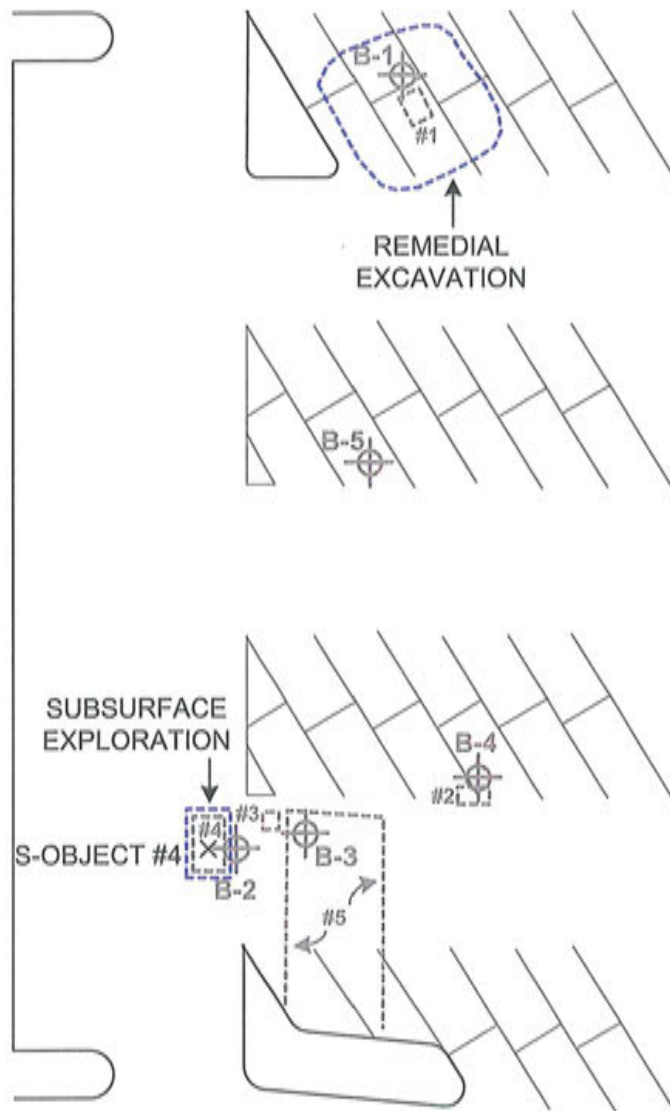
PROJECT NO.: 76.18452.0201 Task 6

DESIGNED BY: NRG SCALE: ~ 1" = 10'

DRAWN BY: NRG DATE: 4/27/00

FILE: 0201 Task 6 remexcw
Fig5.VSD

FIGURE 5
**SAMPLE LOCATION PLAN -
 REMEDIAL EXCAVATION - DECEMBER 1999**
 SITE CHARACTERIZATION AND
 INDEPENDENT CLEANUP ACTION
 KENNEWICK PLAZA
 WEST KENNEWICK AVENUE AND SOUTH ELY STREET
 KENNEWICK, WASHINGTON



LEGEND

	SUBSURFACE EXPLORATION AND REMEDIAL EXCAVATION
	SAMPLE LOCATION
	SUBSURFACE FEATURE FROM GEOPHYSICAL EXPLORATION
	PROBE BORING LOCATION

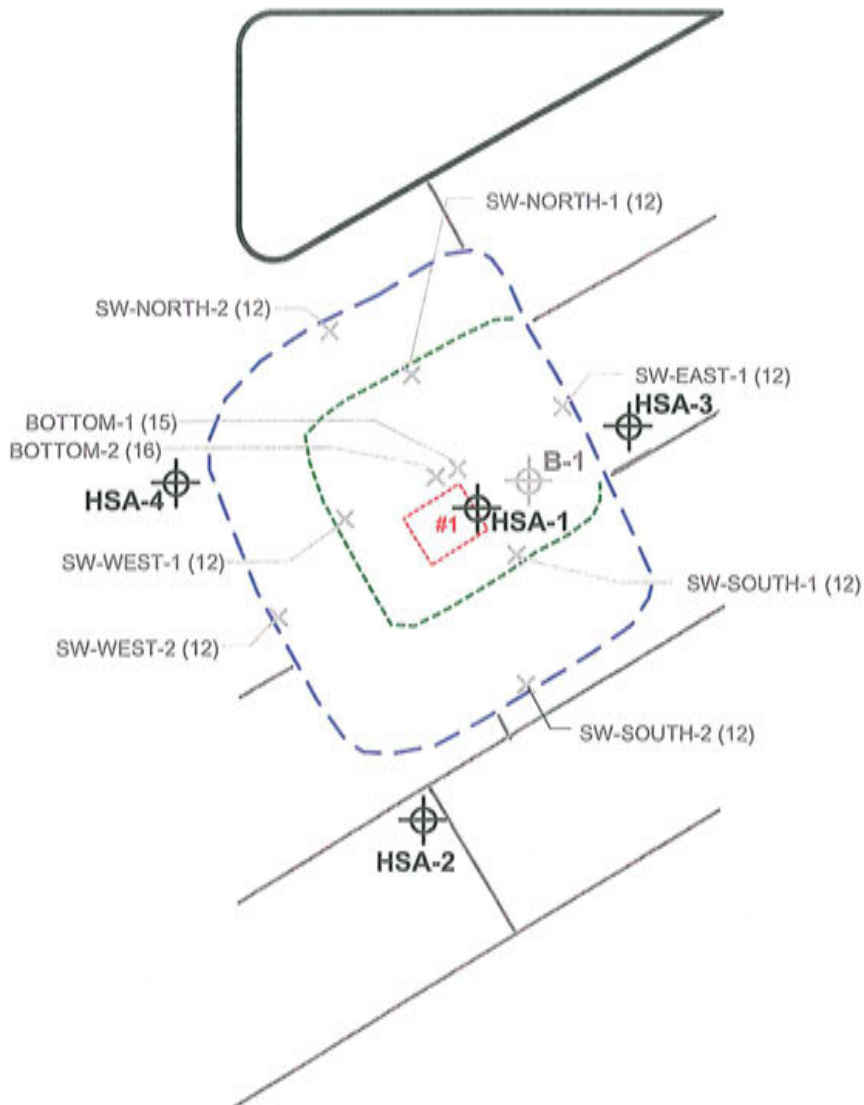


FIGURE 4
LOCATION PLAN - SUBSURFACE EXPLORATION AND
REMEDIAL EXCAVATION - DECEMBER 1999






SITE CHARACTERIZATION AND
INDEPENDENT CLEANUP ACTION
KENNEWICK PLAZA
WEST KENNEWICK AVENUE AND SOUTH ELY STREET
KENNEWICK, WASHINGTON



PROJECT NO.: 76.18452.0201 Task 6		
DESIGNED BY: NRG	SCALE: ~ 1" = 30'	
DRAWN BY: NRG	DATE: 4/27/00	FILE: 0201 Task 6 expl excav locs Fig4.VSD



LEGEND

-  INTERIM REMEDIAL EXCAVATION ON 12/28/99
-  FINAL REMEDIAL EXCAVATION ON 12/29/99
-  SAMPLE LOCATION
-  SUBSURFACE FEATURE FROM GEOPHYSICAL EXPLORATION
-  BORING LOCATION



PROJECT NO.: 76.18452.0201 Task 6

DESIGNED BY: NRG

SCALE: ~ 1" = 10'

DRAWN BY: NRG

DATE: 4/27/00

FILE: 0201 Task 6
HSA Boring Fig7.VSD

FIGURE 7
SAMPLE LOCATION PLAN -
HSA BORINGS - MARCH 2000
 SITE CHARACTERIZATION AND
 INDEPENDENT CLEANUP ACTION
 KENNEWICK PLAZA
 WEST KENNEWICK AVENUE AND SOUTH ELY STREET
 KENNEWICK, WASHINGTON



APOLLO GEOPHYSICS CORPORATION

Engineering, Geology, Environmental, Construction & Mining

Monday, December 13, 1999

Neil Gilham
ATC Associates, Inc.
6347 Seaview Avenue NW
Seattle, Washington 98107

AGC's File No.: **99.439**

Re: **UST Locate
Kennewick Plaza
Kennewick, Washington**

Dear Mr. Gilham,

This letter reports the results of geophysical exploration for underground storage tanks (USTs) at the above referenced site. The site is located at the Kennewick Plaza between the Denny's and Blockbuster Video, in Kennewick, Washington. A two-person field crew from APOLLO GEOPHYSICS completed the geophysical field program on Tuesday, December 7, 1999.

We investigated the site with an Electromagnetic (EM) instrument, which locates buried metal objects. We traversed the site with the EM instrument on approximate 5-foot line spacings, which produced target areas for the Ground Penetrating Radar (GPR). We further investigated the target areas using GPR, which enabled us to identify the targets as potential USTs, underground utilities, or demolition debris. Ground Penetrating Radar established a relative depth, size and ground projection of the object (i.e. to determine if the object was indicative or was not indicative of a UST). Small objects in the near surface, 1 to 2 feet, will respond the same as a larger object (UST) at depth.

♦ A COST-EFFECTIVE WOMAN OWNED BUSINESS with PROFESSIONAL ASSURANCE ♦

PO BOX 65169 • Seattle, Washington USA 98155-9169 • FAX (206) 365-3058 • Web Site www.apollogeophysics.com
Seattle (206) 365-3063 • Spokane (509) 326-2010 • Portland (503) 234-4001 • Toll Free (888) 484-5400

RESULTS OF THE GEOPHYSICAL SURVEY

We traversed the site with an EM instrument, which found several EM target areas. The approximate locations of the EM target areas are presented on the Site Plan in Figure 1. The EM target areas were traversed with a GPR instrument to evaluate their potential as USTs.

On the east side of the project area, we traversed across EM target area #1 with the GPR instrument. We found one potential UST, possibly an old heating oil tank. However, the weak return on the GPR may indicate the potential UST is in bad condition. The EM target area #4, on the northeast side of the site, also appears to be a potential UST, possibly crushed. These areas should be further evaluated with direct exploration.

The EM target areas #2 and #3, on the west side of the project area, appear to have limited evidence of potential USTs. We do not believe them to be potential USTs, but due to the contrast between the native soil and the GPR signal, we recommend the areas for direct exploration.

EM target area #5 appears to be an old building footprint with a considerable amount of debris. The northeast portion of the feature area may possibly be a hydraulic lift. We recommend area #5 for direct exploration.

All EM target areas and recommended direct exploration locations were marked in the field with environmentally degradable paint and the approximate locations are shown on the attached Site Plan in Figure 1. Suspected pipes, demolition debris, etc., were not marked in the field.

The GPR Imagery presents a less than optimum signal return in the attached figures, which we can only attribute to cultural interference and/or geologic conditions. This did not impact our ability to interpret the data in the field. The 'GPR Imagery' presented in Figures 2 through 5 have a horizontal and vertical scale of approximately 1 inch equals 4 feet. With regard to the estimated vertical scale, the normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship. Therefore it should be expected that the vertical scale is an estimate only and may vary from the shown scale.

ELECTROMAGNETIC

The electromagnetic, or EM device, transmits and receives an electromagnetic signal. The EM signal is transmitted through the ground, which in turn radiates a signal that is dependent on the ground conductivity and which is also received at the receiver. The two signals, the transmitted and ground response EM waves, are balanced for a zero response in the instrument. When the ground conditions change, for example, when the transmitted signal encounters buried metal, the balance or null point changes, and the instrument responds with an audible signal. Depending on the size of the metal object, the penetration is up to 10 feet in depth. The EM survey was limited in areas, where reinforcing steel was present in the concrete or immediately adjacent to any above ground metal objects on the site.

GROUND PENETRATING RADAR

APOLLO GEOPHYSICS uses a PE1000 with either a 450 or 110 MHz antenna for shallow UST Locates. The radar antenna transmits an electromagnetic step-pulse at a frequency of 450/110 MHz at a selected stack rate of 32/64. When the signal encounters a change in electrical properties/permittivity, a portion of the signal energy is reflected back to the surface. The character of the reflection is used to define the source of the reflection. The reflected signal is received by the antenna, processed by a DSP radar processor with signal gain control and the raw data is recorded by the outboard 80486 computer with 16 MB RAM & 300 MB Hard Drive. The radar data is displayed by the computer on a 16.5 cm Color Active Matrix LCD VGA screen in real-time. The radar displays the data in real-time, which enables us to review the data in the field for on the spot evaluation. The recorded raw data, as recorded by the computer, is then later processed to remove unwanted peripheral effects by proprietary GPR software.

A typical circular UST will produce, in cross-section, a hyperbolic reflection. A traverse parallel to the centerline of the UST will show a horizontal (if there is no velocity or elevation change along the traverse) reflection, with a partial hyperbolic signature at both ends of the UST. The hyperbolic signature is the result of "seeing" the tank before the center of the antenna is over the tank.

WARRANTY OF SERVICES

Electromagnetic methods may define UST's constructed of non-ferrous metals, but not fiberglass or plastic materials. Ground Penetrating Radar may define fiberglass or plastic UST's or drums provided they fall within the exploration grid of the GPR.

All geophysical information presented is based upon geophysical measurements made by generally accepted methods and field procedures and APOLLO GEOPHYSICS' interpretation of these data. The geophysical results are, therefore, interpretative in nature and are considered to be a reasonably accurate presentation of existing conditions within the limitations of the methods employed. Services performed by APOLLO GEOPHYSICS under this agreement are conducted in a manner consistent with, but no less than, that level of care skill ordinarily exercised by members of the profession currently practicing under similar conditions. We cannot guarantee the accuracy or correctness of any interpretation, and we shall not be liable or responsible for any loss, cost, damages or expenses incurred or sustained by the Client resulting from any interpretation made by any of our officers, agents or employees. No other warranty, expressed or implied, is made. APOLLO GEOPHYSICS recognizes that subsurface conditions may vary from those encountered at the location where geophysical or other explorations are made. The data interpretations and recommendations made by APOLLO GEOPHYSICS are based solely on the information available to them at the time of performance; and APOLLO GEOPHYSICS shall not be responsible for the interpretation, by others, of the information developed.

*Kennewick, Washington
Kennewick Plaza
UST Locate*

*December 13, 1999
AGC's File No.: 99.439
Page 5*

We trust this will complete your requirements for this project and look forward to working with you on future projects. If you have any further questions or need further assistance, please don't hesitate to call.

Sincerely,

APOLLO GEOPHYSICS CORPORATION

Lynn M. Ringstad

Lynn M. Ringstad
Project Geologist/Geophysicist

Matthew C. Ringstad

Matthew C. Ringstad
Project Geophysicist

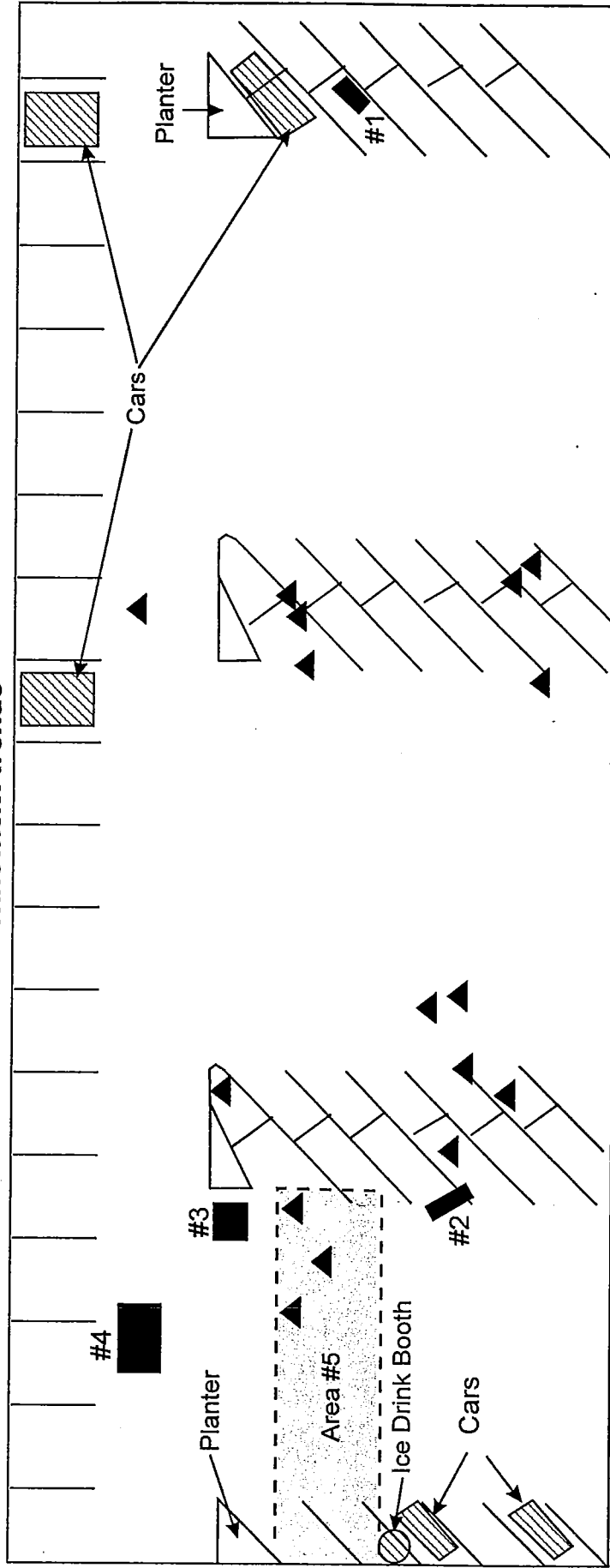
Apollo Geophysics Corporation
www.apollogeophysics.com



Schematic Site Plan

Not To Scale

West Kennewick Avenue



LEGEND

- APPROXIMATE LOCATION OF EM ANOMALY
- #1
- APPROXIMATE DESIGNATION AND LOCATION OF RECOMMENDED DIRECT EXPLORATION



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CONSTRUCTION & MINING

UST Locate - Kennewick Plaza
Kennewick, Washington

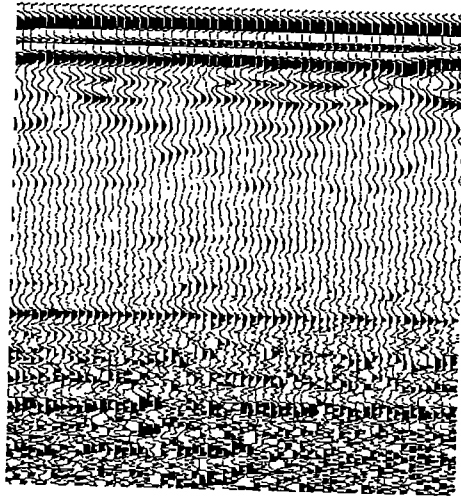
FIGURE
1

FILE NO. 99.439

DATE
December 1999

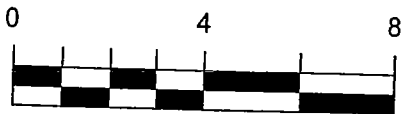
Note: The locations of all features shown are approximate.

UST Locate - GPR Imagery - Target #1



↑
top of
suspected
UST

← →
limits of
suspected UST



Approximate Scale 1" = 4'

NOTE: The normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted, that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship.



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UST Locate - Kennewick Plaza
Kennewick, Washington

FIGURE
2

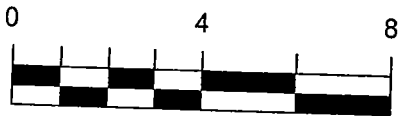
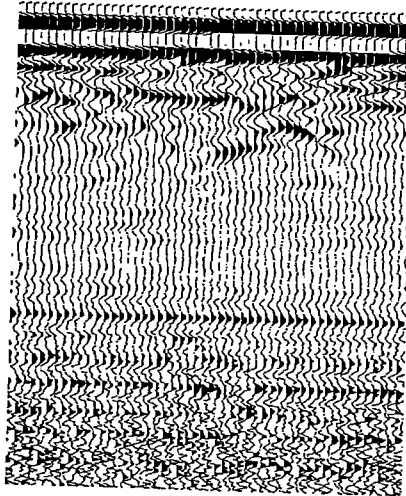
FILE NO.

99.439

DATE

December 1999

UST Locate - GPR Imagery - Target #2



Approximate Scale 1" = 4'

NOTE: The normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted, that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship.



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CONSTRUCTION & MINING

UST Locate - Kennewick Plaza
Kennewick, Washington

FIGURE
3

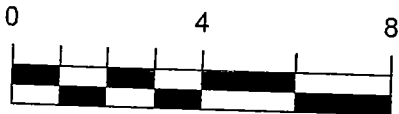
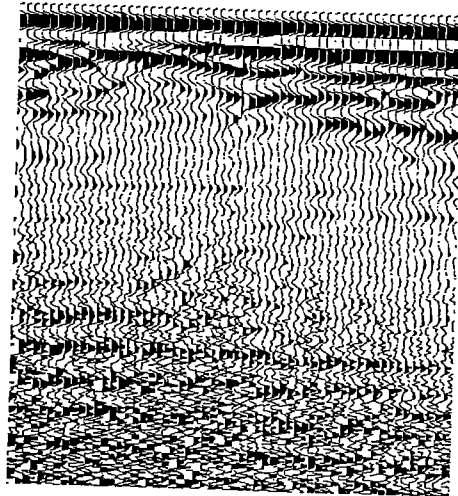
FILE NO.

99.439

DATE

December 1999

UST Locate - GPR Imagery - Target #3



Approximate Scale 1" = 4'

NOTE: The normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted, that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship.



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UST Locate - Kennewick Plaza
Kennewick, Washington

FIGURE
4

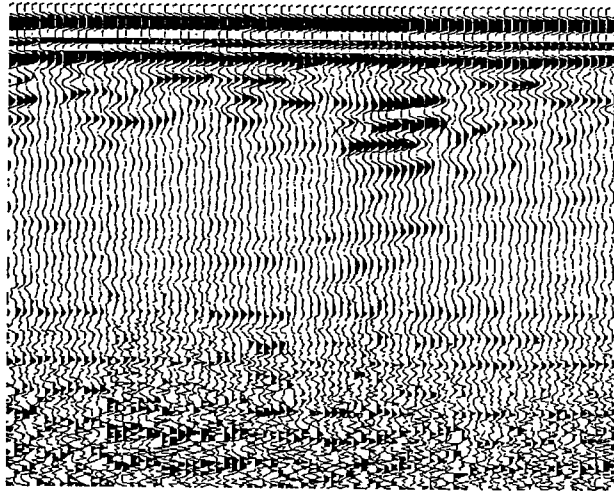
FILE NO.

99.439

DATE

December 1999

UST Locate - GPR Imagery - Target #4



Approximate Scale 1" = 4'

NOTE: The normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted, that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship.



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CONSTRUCTION & MINING

UST Locate - Kennewick Plaza
Kennewick, Washington

FIGURE
5

FILE NO.

99.439

DATE

December 1999

ATC Environmental, Inc.

WELL LOG

BORING NO: B-1

PROJECT NO: 76.18452.0201

PROJECT NAME: JSH Kennewick Plaza

CLIENT: JSH Properties

PROJECT LOCATION: Kennewick, WA

DRILLING CONTRACTOR: TEG

DRILLING MTHD: Strataprobe

SAMPLE MTHD: Split-barrel sampler

DATE STARTED: Dec 9, 1999

DATE FINISHED: Dec 9, 1999

DRILLER: _____

INSPECTOR: Neil Gilham

DEPTH (FT)	SPT BLOWS PER 5"	REC (%)	PID (ppm)	PORT	SURFACE ELEVATION: NA	WELL CONST	REMARKS
					LITHOLOGIC DESCRIPTION		
0.0					Asphalt - 3 in.		
					Sandy silt, dark grayish brown, SM.		
5.0	1	90			Sandy gravel with cobbles, grayish brown, dry to slightly damp, GM.		B-1 (4.0-5.0)
	2	90					B-1 (7.0-8.0)
10.0	3	90					B-1 (10.0-11.0)
	4	50					B-1 (13.0-14.0)
15.0	5	90					B-1 (16.0-17.0)
	6	90					B-1 (17.0-18.0)
20.0							
25.0							
30.0							

BOTTOM OF TEST BORING: 18.00'

SPT = STANDARD PENETRATION TEST
 REC = SAMPLE RECOVERY
 ND = NON-DETECTABLE
 FID = FLAME IONIZATION DETECTOR
 PID = PHOTO-IONIZATION DETECTOR

WELL CONSTRUCTION

WELL DIAM.:

CASING MATERIAL:

SCREEN MATERIAL:

SLOT SIZE:

METHOD:

OUTER CASING

GROUT

BENTONITE

SAND

SCREEN

ATC Environmental, Inc.

WELL LOG

BORING NO: B-2

PROJECT NO: 76.18452.0201

PROJECT NAME: JSH Kennewick Plaza

CLIENT: JSH Properties

PROJECT LOCATION: Kennewick, WA

DRILLING CONTRACTOR: TEG

DRILLING MTHD: Strataprobe

SAMPLE MTHD: Split-barrel sampler

DATE STARTED: Dec 9, 1999

DATE FINISHED: Dec 9, 1999

DRILLER: _____

INSPECTOR: Neil Gilham

DEPTH (FT)	SPT BLOWS PER 6"	REC (%)	PID (ppm)	METHOD	SURFACE ELEVATION: NA	WELL CONST	REMARKS
					LITHOLOGIC DESCRIPTION		
0.0					Asphalt - 3 in.		
					Sandy silt, dark grayish brown, SM.		
5.0	1	50			Silty sandy gravel with cobbles dark grayish brown, moist, GM.		B-2 (4.0-5.0)
	2	30					B-2 (7.0-8.0)
10.0	3	30			Becomes less silty and slightly damp. GM		B-2 (10.0-11.0)
	4	70					B-2 (13.0-14.0)
15.0	5	70					B-2 (16.0-17.0)
20.0							
25.0							
30.0							

BOTTOM OF TEST BORING: 17.00'

SPT = STANDARD PENETRATION TEST
 REC = SAMPLE RECOVERY
 ND = NON-DETECTABLE
 FID = FLAME IONIZATION DETECTOR
 PID = PHOTO-IONIZATION DETECTOR

WELL CONSTRUCTION

WELL DIAM.: _____
 CASING MATERIAL: _____
 SCREEN MATERIAL: _____
 SLOT SIZE: _____
 METHOD: _____

- OUTER CASING
- GROUT
- BENTONITE
- SAND
- SCREEN

ATC Environmental, Inc.

WELL LOG

BORING NO: B-3
 PROJECT NO: 76.18452.0201

PROJECT NAME: JSH Kennewick Plaza CLIENT: JSH Properties
 PROJECT LOCATION: Kennewick, WA DRILLING CONTRACTOR: TEG
 DRILLING MTHD: Stratoprobe SAMPLE MTHD: Split-barrel sampler
 DATE STARTED: Dec 9, 1999 DATE FINISHED: Dec 9, 1999 DRILLER: _____ INSPECTOR: Neil Gilham

DEPTH (FT)	SPT BLOWS PER 5"	REC (%)	PID (ppm)	LITHOLOGY	SURFACE ELEVATION: NA	WELL CONST	REMARKS
					LITHOLOGIC DESCRIPTION		
0.0					Asphalt - 3 in. Sandy silt, dark olive brown, moist, SM.		
1		30			Sandy gravel with cobbles dark grayish brown, dry to slightly damp, GM.		B-3 (3.0-4.0)
5.0							B-3 (7.0-8.0)
10.0							B-3 (10.0-11.0)
15.0							B-3 (12.0-13.0)
20.0							
25.0							
30.0							

BOTTOM OF TEST BORING: 13.00' SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR	WELL CONSTRUCTION WELL DIAM.: _____ CASING MATERIAL: _____ SCREEN MATERIAL: _____ SLOT SIZE: _____ METHOD: _____	<input type="checkbox"/> OUTER CASING <input checked="" type="checkbox"/> GROUT <input checked="" type="checkbox"/> BENTONITE <input checked="" type="checkbox"/> SAND <input checked="" type="checkbox"/> SCREEN	PAGE: 1 OF: 1
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ATC Environmental, Inc.

WELL LOG

BORING NO: B-4

PROJECT NO: 76.18452.0201

PROJECT NAME: JSH Kennewick Plaza

CLIENT: JSH Properties

PROJECT LOCATION: Kennewick, WA

DRILLING CONTRACTOR: TEG

DRILLING MTHD: Stratoprobe

SAMPLE MTHD: Split-barrel sampler

DATE STARTED: Dec 9, 1999

DATE FINISHED: Dec 9, 1999

DRILLER: _____

INSPECTOR: Neil Gilham

DEPTH (FT)	SPT BLOWS PER 5"	REC (%)	PID (ppm)	METHOD	SURFACE ELEVATION: NA	WELL CONST	REMARKS	
					LITHOLOGIC DESCRIPTION			
0.0					Asphalt - 3 in. Sandy silt, dark olive brown, moist, SM.			
1		30			Sandy gravel with cobbles dark grayish brown, dry to slightly damp, GM.		B-3 (3.0-4.0)	
5.0							B-3 (7.0-8.0)	
10.0							B-3 (10.0-11.0)	
13.0							B-3 (12.0-13.0)	
15.0								
20.0								
25.0								
30.0								
BOTTOM OF TEST BORING: 13.00'					WELL CONSTRUCTION WELL DIAM.: _____ CASING MATERIAL: _____ SCREEN MATERIAL: _____ SLOT SIZE: _____ METHOD: _____			
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR					<input checked="" type="checkbox"/> OUTER CASING <input checked="" type="checkbox"/> GROUT <input checked="" type="checkbox"/> BENTONITE <input checked="" type="checkbox"/> SAND <input checked="" type="checkbox"/> SCREEN			PAGE: 1 OF: 1

ATC Environmental, Inc.

WELL LOG

BORING NO: B-5

PROJECT NO: 76.18452.0201

PROJECT NAME: JSH Kennewick Plaza

CLIENT: JSH Properties

PROJECT LOCATION: Kennewick, WA

DRILLING CONTRACTOR: TEG

DRILLING MTHD: Strataprobe

SAMPLE MTHD: Split-barrel sampler

DATE STARTED: Dec 9, 1999

DATE FINISHED: Dec 9, 1999

DRILLER: _____

INSPECTOR: Neil Gilham

DEPTH (FT)	SPT BLOWS PER 6"	REC (%)	PID (ppm)	METHOD	SURFACE ELEVATION: NA	WELL CONST	REMARKS
					LITHOLOGIC DESCRIPTION		
0.0					Asphalt - 3 in.		
					Sandy silt, dark olive brown, moist, SM.		
5.0	1	80			Sandy gravel with cobbles dark grayish brown, dry to slightly damp, GM.		B-5 (4.0-5.0)
	2	80					B-5 (7.0-8.0)
10.0	3	80					B-5 (10.0-11.0)
	4	80					B-5 (13.0-14.0)
15.0							
20.0							
25.0							
30.0							
BOTTOM OF TEST BORING: 14.00'					WELL CONSTRUCTION WELL DIAM.: _____ CASING MATERIAL: _____ SCREEN MATERIAL: _____ SLOT SIZE: _____ METHOD: _____		
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR					<input type="checkbox"/> OUTER CASING <input checked="" type="checkbox"/> GROUT <input checked="" type="checkbox"/> BENTONITE <input checked="" type="checkbox"/> SAND <input checked="" type="checkbox"/> SCREEN		

ATC Associates Inc.

BORING LOG

BORING NO: HSA-1

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza

CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA

DRILLING CONTRACTOR: Cascade Drilling

DRILLING MTHD: Hollow-stem auger

SAMPLE MTHD: Split-barrel

DATE STARTED: Mar 20, 2000

DATE FINISHED: Mar 20, 2000

DRILLER: _____

INSPECTOR: Neil Gilham

DEPTH (FT)	SPT BLDS	SPT BLOWS PER 6"	REC (%)	PID (ppm)	P P R O F I L E	SURFACE ELEVATION: 490'		REMARKS
						LITHOLOGIC DESCRIPTION		
30.0	9	100	30	0		(Continued from previous page) (6W): SAND, gravel, cobbles, trace silt, olive gray, damp		HSA-1 (30-31)
35.0								
40.0								
45.0								
50.0								
55.0								
60.0								
BOTTOM OF TEST BORING: 31.00'								
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR								

ATC Associates Inc.

BORING LOG

BORING NO: HSA-1

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza

CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA

DRILLING CONTRACTOR: Cascade Drilling

DRILLING MTHD: Hollow-stem auger

SAMPLE MTHD: Split-barrel

DATE STARTED: Mar 20, 2000

DATE FINISHED: Mar 20, 2000

DRILLER: _____

INSPECTOR: Neil Gilham

DEPTH (FT)	SAMPLE	SPT BLOMS PER 5"	REC (%)	PID (ppm)	PROFIT	SURFACE ELEVATION: 490'		REMARKS
						LITHOLOGIC DESCRIPTION		
0.0						Asphalt - 3 in.		HSA-1 (5-6)
						(SW): SAND, fine to medium, olive gray, damp (excavation backfill)		
5.0	1	18 25 33	100	0				
10.0	2	17 17 15	100	0				
15.0	3	13 17	100	0				
	4	100	50	0		(GW): SAND, gravel, cobbles, trace silt, olive gray, damp		
	5	100	50	0				
	6	80	50	0				
20.0	7	30 50	100	0				
25.0	8	100	50	0				
30.0								HSA-1 (25-26)
BOTTOM OF TEST BORING: 31.00'								
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR								

ATC Associates Inc.

BORING LOG

PROJECT NAME: JSH - Kennewick Plaza CLIENT: JSH Properties, Inc.
 PROJECT LOCATION: Kennewick, WA DRILLING CONTRACTOR: Cascade Drilling
 DRILLING MTHD: Hollow-stem auger SAMPLE MTHD: Split-barrel
 DATE STARTED: Mar 20, 2000 DATE FINISHED: Mar 20, 2000 DRILLER: _____ INSPECTOR: Neil Gilham

DEPTH (FT)	SAMPLE	SPT BLOWS PER 6"	REC (%)	PID (ppm)	FID (ppm)	SURFACE ELEVATION: 490'		REMARKS
						LITHOLOGIC DESCRIPTION		
0.0						Asphalt - 4 in.		
						(GW): GRAVEL, sand, cobbles, trace silt, olive gray, damp		
5.0	1	50	50	0				HSA-2 (5-6)
10.0	2	85	40	0				HSA-2 (10-11)
15.0	3	75	40	0				HSA-2 (14-14.5)
	4		20	0				HSA-2 (15-15.4)
	5	100	25	0				HSA-2 (16-16.5)
20.0								Refusal at 16.5 Ft. - augers grinding on large rock
25.0								
30.0								

BOTTOM OF TEST BORING: 16.50'

SPT = STANDARD PENETRATION TEST
 REC = SAMPLE RECOVERY
 ND = NON-DETECTABLE
 FID = FLAME IONIZATION DETECTOR
 PID = PHOTO-IONIZATION DETECTOR

ATC Associates Inc.

BORING LOG

BORING NO: HSA-3

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA DRILLING CONTRACTOR: Cascade Drilling

DRILLING MTHD: Hollow-stem auger SAMPLE MTHD: Split-barrel

DATE STARTED: Mar 20, 2000 DATE FINISHED: Mar 20, 2000 DRILLER: _____ INSPECTOR: Neil Gilham

DEPTH (FT)	FID (%)	SPT BLOWS PER 5"	REC (%)	PID (ppm)	PROFILE	SURFACE ELEVATION: 490'		REMARKS
						LITHOLOGIC DESCRIPTION		
0.0						Asphalt - 3 in.		HSA-3 (5-6) HSA-3 (10-10.5) HSA-3 (14-14.5) HSA-3 (16-16.5) HSA-3 (18-18.5) HSA-3 (20-20.5) HSA-3 (25-25.5)
						(GW): GRAVEL, sand, cobbles, trace silt, olive gray, damp		
5.0	1	50	25	0				
10.0	2	60	25	0				
15.0	3	75	80	0				
	4	100	80	0				
	5	75	80	0				
20.0	6	100	70	0				
25.0	7	100	60	0				
30.0								

BOTTOM OF TEST BORING: 30.50'

SPT = STANDARD PENETRATION TEST
 REC = SAMPLE RECOVERY
 ND = NON-DETECTABLE
 FID = FLAME IONIZATION DETECTOR
 PID = PHOTO-IONIZATION DETECTOR

ATC Associates Inc.

BORING LOG

BORING NO: HSA-3

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza

CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA

DRILLING CONTRACTOR: Cascade Drilling

DRILLING MTHD: Hollow-stem auger

SAMPLE MTHD: Split-barrel

DATE STARTED: Mar 20, 2000

DATE FINISHED: Mar 20, 2000

DRILLER: _____

INSPECTOR: Neil Gilham

DEPTH (FT)	SPT BLOWS PER 6"	REC (%)	PID (ppm)	FID	SURFACE ELEVATION: 490'		REMARKS
					LITHOLOGIC DESCRIPTION		
30.0	8	100	60	0	ND	(Continued from previous page) (GW): GRAVEL, sand, cobbles, trace silt, olive gray, damp	HSA-3 (30-30.5)
35.0							
40.0							
45.0							
50.0							
55.0							
60.0							
BOTTOM OF TEST BORING: 30.50'							
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR							

ATC Associates Inc.

BORING LOG

BORING NO: HSA-4

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA DRILLING CONTRACTOR: Cascade Drilling

DRILLING MTHD: Hollow-stem auger SAMPLE MTHD: Split-barrel

DATE STARTED: Mar 20, 2000 DATE FINISHED: Mar 20, 2000 DRILLER: _____ INSPECTOR: Neil Gilham

DEPTH (FT)	SPT BLOWS PER 6"	REC (%)	PID (ppm)	POROSITY	SURFACE ELEVATION: 490'		REMARKS
					LITHOLOGIC DESCRIPTION		
0.0					Asphalt - 3 in.		
5.0	1	100	20	0	(GW): GRAVEL, sand, cobbles, trace silt, olive gray, damp		HSA-4 (5-5.5)
10.0	2	20/30	50	0			HSA-4 (10-11)
15.0	3	20	0				HSA-4 (14-14.4)
	4	<5					no sample - insufficient recovery
20.0	5	60	50	0			HSA-4 (18-18.5)
	6	100	40	0			HSA-4 (20-20.5)
25.0							HSA-4 (22.5)
							Refusal at 22.5 ft.
30.0							
BOTTOM OF TEST BORING: 22.50'							
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR							



TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

800 Sleater-Kinney SE, PMB #262
Lacey, Washington 98503-1127

Mobile Environmental Laboratories
Environmental Sampling Services

Telephone: 360-459-4670
Fax: 360-459-3432

December 13, 1999

Neil Gilham
ATC Associates
6347 Seaview Ave. NW
Seattle, WA 98107

Dear Mr. Gilham:

Please find enclosed the analytical data report for the Kennewick Plaza Project in Kennewick, Washington. StrataProbe services were conducted on December 9, 1999. Soil samples were analyzed for Hydrocarbon Identification by NWTPH-HCID and Diesel and Oil by NWTPH-Dx/Dx Extended on December 10, 1999.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

TEG Northwest appreciates the opportunity to have provided analytical services to ATC Associates for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Michael A. Korosec
President

SOUND ANALYTICAL SERVICES, INC.

Volatile Organics by USEPA Method 5030/8260B Modified data for ITS520 continued...

Analyte	Result (ug/kg)	PQL	MDL
1,1,2-Trichloroethane	ND	0.4	0.2
Tetrachloroethene	ND	0.4	0.2
1,3-Dichloropropane	ND	0.4	0.2
Dibromochloromethane	ND	0.4	0.2
1,2-Dibromoethane	ND	0.4	0.2
Chlorobenzene	ND	0.4	0.2
Ethylbenzene	ND	0.4	0.2
1,1,1,2-Tetrachloroethane	ND	0.4	0.2
m,p-Xylene	ND	0.8	0.4
o-Xylene	ND	0.4	0.2
Styrene	ND	0.4	0.2
Bromoform	ND	0.4	0.2
Isopropylbenzene	ND	0.4	0.2
Bromobenzene	ND	0.4	0.2
n-Propylbenzene	ND	0.4	0.2
1,1,2,2-Tetrachloroethane	ND	0.4	0.2
1,2,3-Trichloropropane	ND	0.4	0.2
2-Chlorotoluene	ND	0.4	0.2
1,3,5-Trimethylbenzene	ND	0.4	0.2
4-Chlorotoluene	ND	0.4	0.2
t-Butylbenzene	ND	0.4	0.2
1,2,4-Trimethylbenzene	ND	0.4	0.2
sec-Butylbenzene	ND	0.4	0.2
1,3-Dichlorobenzene	ND	0.4	0.2
4-Isopropyltoluene	ND	0.4	0.2
1,4-Dichlorobenzene	ND	0.4	0.2
n-Butylbenzene	ND	0.4	0.2
1,2-Dichlorobenzene	ND	0.4	0.2
1,2-Dibromo-3-chloropropane	ND	0.4	0.2
1,2,4-Trichlorobenzene	ND	0.4	0.2
Hexachlorobutadiene	ND	0.4	0.2
Naphthalene	ND	0.4	0.2
1,2,3-Trichlorobenzene	ND	0.4	0.2

SOUND ANALYTICAL SERVICES, INC.

Volatile Organics by USEPA Method 5030/8260B Modified data for 86206-01 continued...

Analyte	Result (ug/kg)	PQL	MDL	
1,1,2-Trichloroethane	ND	0.37	0.18	
Tetrachloroethene	8.8	0.37	0.18	
1,3-Dichloropropane	ND	0.37	0.18	
Dibromochloromethane	ND	0.37	0.18	
1,2-Dibromoethane	ND	0.37	0.18	
Chlorobenzene	0.19	0.37	0.18	J
Ethylbenzene	ND	0.37	0.18	
1,1,1,2-Tetrachloroethane	ND	0.37	0.18	
m,p-Xylene	0.39	0.73	0.37	J
o-Xylene	0.32	0.37	0.18	J
Styrene	ND	0.37	0.18	
Bromoform	ND	0.37	0.18	
Isopropylbenzene	ND	0.37	0.18	
Bromobenzene	ND	0.37	0.18	
n-Propylbenzene	ND	0.37	0.18	
1,1,2,2-Tetrachloroethane	ND	0.37	0.18	
1,2,3-Trichloropropane	ND	0.37	0.18	
2-Chlorotoluene	ND	0.37	0.18	
1,3,5-Trimethylbenzene	0.21	0.37	0.18	J
4-Chlorotoluene	ND	0.37	0.18	
t-Butylbenzene	ND	0.37	0.18	
1,2,4-Trimethylbenzene	0.36	0.37	0.18	J
sec-Butylbenzene	ND	0.37	0.18	
1,3-Dichlorobenzene	ND	0.37	0.18	
4-Isopropyltoluene	ND	0.37	0.18	
1,4-Dichlorobenzene	1.3	0.37	0.18	
n-Butylbenzene	ND	0.37	0.18	
1,2-Dichlorobenzene	ND	0.37	0.18	
1,2-Dibromo-3-chloropropane	ND	0.37	0.18	
1,2,4-Trichlorobenzene	ND	0.37	0.18	
Hexachlorobutadiene	ND	0.37	0.18	
Naphthalene	ND	0.37	0.18	
1,2,3-Trichlorobenzene	ND	0.37	0.18	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - ITS520
Date Received:	-
Date Prepared:	12/15/99
Date Analyzed:	12/15/99
% Solids	
Dilution Factor	1

Volatile Organics by USEPA Method 5030/8260B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	94.7		80	120
Fluorobenzene	97.3		80	120
Toluene-D8	97.8		80	120
Ethylbenzene-d10	98.2		80	120
Bromofluorobenzene	78.4	N	80	120

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorodifluoromethane	ND	0.4	0.2	
Chloromethane	ND	0.4	0.2	
Vinyl chloride	ND	0.4	0.2	
Bromomethane	ND	0.4	0.2	
Chloroethane	ND	0.4	0.2	
Trichlorofluoromethane	ND	0.4	0.2	
1,1-Dichloroethene	ND	0.4	0.2	
Methylene chloride	ND	0.4	0.2	
trans-1,2-Dichloroethene	ND	0.4	0.2	
1,1-Dichloroethane	ND	0.4	0.2	
2,2-Dichloropropane	ND	0.4	0.2	
cis-1,2-Dichloroethene	ND	0.4	0.2	
Bromochloromethane	ND	0.4	0.2	
Chloroform	ND	0.4	0.2	
1,1,1-Trichloroethane	ND	0.4	0.2	
Carbon Tetrachloride	ND	0.4	0.2	
1,1-Dichloropropene	ND	0.4	0.2	
Benzene	ND	0.4	0.2	
1,2-Dichloroethane	ND	0.4	0.2	
Trichloroethene	ND	0.4	0.2	
1,2-Dichloropropane	ND	0.4	0.2	
Dibromomethane	ND	0.4	0.2	
Bromodichloromethane	ND	0.4	0.2	
cis-1,3-Dichloropropene	ND	0.4	0.2	
Toluene	ND	0.4	0.2	
trans-1,3-Dichloropropene	ND	0.4	0.2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	TEG Northwest, Inc.
Client ID:	B-1 (13-14)
Lab ID:	86206-01
Date Received:	12/15/99
Date Prepared:	12/15/99
Date Analyzed:	12/16/99
% Solids	97.08
Dilution Factor	1

Volatile Organics by USEPA Method 5030/8260B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	101		80	120
Fluorobenzene	100		80	120
Toluene-D8	107		80	120
Ethylbenzene-d10	88.6		80	120
Bromofluorobenzene	50	N	80	120

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorodifluoromethane	ND	0.37	0.18	
Chloromethane	ND	0.37	0.18	
Vinyl chloride	ND	0.37	0.18	
Bromomethane	ND	0.37	0.18	
Chloroethane	ND	0.37	0.18	
Trichlorofluoromethane	ND	0.37	0.18	
1,1-Dichloroethene	ND	0.37	0.18	
Methylene chloride	0.64	0.37	0.18	
trans-1,2-Dichloroethene	ND	0.37	0.18	
1,1-Dichloroethane	ND	0.37	0.18	
2,2-Dichloropropane	ND	0.37	0.18	
cis-1,2-Dichloroethene	0.25	0.37	0.18	J
Bromochloromethane	ND	0.37	0.18	
Chloroform	ND	0.37	0.18	
1,1,1-Trichloroethane	ND	0.37	0.18	
Carbon Tetrachloride	ND	0.37	0.18	
1,1-Dichloropropene	ND	0.37	0.18	
Benzene	ND	0.37	0.18	
1,2-Dichloroethane	ND	0.37	0.18	
Trichloroethene	0.83	0.37	0.18	
1,2-Dichloropropane	ND	0.37	0.18	
Dibromomethane	ND	0.37	0.18	
Bromodichloromethane	ND	0.37	0.18	
cis-1,3-Dichloropropene	ND	0.37	0.18	
Toluene	0.33	0.37	0.18	J
trans-1,3-Dichloropropene	ND	0.37	0.18	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID: 5113.06-MW2-8.5'
Lab ID: 86188-01
Date Prepared: 12/15/99
Date Analyzed: 12/16/99
QC Batch ID: ITS520

Volatile Organics by USEPA Method 5030/8260B Modified

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
1,1-Dichloroethene	0	1.66	1.38	83.2	1.33	80.1	-3.8	
Benzene	0	1.66	1.36	82.2	1.33	80	-2.7	
Trichloroethene	0	1.66	1.46	88.4	1.43	85.9	-2.9	
Toluene	0	1.66	1.66	100	1.54	92.7	-7.6	
Chlorobenzene	0	1.66	1.54	92.9	1.5	89.8	-3.4	

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE: (253) 922-2310 - FAX: (253) 922-5047

DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be $\leq 40\%$.
- C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be $> 40\%$. The higher result was reported unless anomalies were noted.
- M: GC/MS confirmation was performed. The result derived from the original analysis was reported.
- D: The reported result for this analyte was calculated based on a secondary dilution factor.
- E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- N: See analytical narrative.
- ND: Not Detected
- PQL: Practical Quantitation Limit
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2: Contaminant does not appear to be "typical" product.
- X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.
- X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.
- X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike recovery was not determined due to the required dilution.
- X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.
- X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.
- X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
- X8: Surrogate recovery was not determined due to the required dilution.
- X9: Surrogate recovery outside advisory QC limits due to matrix interference.

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

800 Sleater-Kinney SE, PMB #262
Lacey, Washington 98503-1127

Mobile Environmental Laboratories Telephone: 360-459-4670
Environmental Sampling Services Fax: 360-459-3432

January 7, 2000

Neil Gilham
ATC Associates
6347 Seaview Ave. NW
Seattle, WA 98107

Dear Mr. Gilham:

Please find enclosed the analytical data report for the Kennewick Project in Kennewick, Washington. Soil samples were analyzed for Gasoline by NWTPH-Gx, Diesel and Oil by NWTPH-Dx/Dx Extended, Specific Halogenated Hydrocarbons and BTEX by Method 8021B, PCB's by Method 8082, Total Pb by Method 7420, TCLP Pb by Method 1311, and RCRA 8 Metals by Method 7000 series on December 28, 1999 – January 4, 2000.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

TEG Northwest appreciates the opportunity to have provided analytical services to ATC Associates for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Michael A. Korosec
President

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PLAZA PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 18452.0201

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)
Method Blank	12/10/99	112	nd	nd
B1 (7 - 8)	12/10/99	87	nd	nd
B1 (10 - 11)	12/10/99	68	nd	450
B1 (13 - 14)	12/10/99	90	nd	4000
B1 (16 - 17)	12/10/99	97	nd	nd
Method Detection Limits			20	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Michael Dee

DATA REVIEWED BY: Sherry Chilcutt



TRANSGLOBAL
ENVIRONMENTAL
GEOSCIENCES

CHAIN-OF-CUSTODY RECORD

CLIENT: ATC ASSOCIATES INC.

ADDRESS: 6347 SEAVIEW AVE NW, SEATTLE, WA 98107

PHONE 206.781.1449

FAX: 206.781.1543

DATE: 12/9/99 PAGE 2 OF 2


PROJECT NAME: KENNEWICK PLAZA

LOCATION: KENNEWICK, WA

CLIENT PROJECT #: 18452, 0201 PROJECT MANAGER: NEIL GILHAM

COLLECTOR: NEIL GILHAM

DATE OF COLLECTION: 12/9/99

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	PH	TOTAL LEAD	ORGANIC LEAD	HEX CHROME	PEST/PCBS 8080	PAH 610/8100	TPH 8015 (diesel)	TPH 8015 (gasoline)	TPH 418.1	Semi Vol 625/8270	VOA 602/8020	VOA 624/8240	VOA 601/8010	ASBESTOS	MUTR-DX EXT.	MUTR-HC ID	FIELD NOTES	Total Number of Containers	Laboratory Note Number
B-4 (12-13)		1230	Soil	4 oz. JAR																			1	
B-5 (4-5)		1300	"	"																			1	
B-5 (7-8)		1310	"	"																			1	
B-5 (10-11)		1315	"	"																			1	
B-5 (13-14)		1320	"	"																			1	
																								

RELINQUISHED BY (Signature) _____ DATE/TIME _____ RECEIVED BY (Signature) _____ DATE/TIME _____

RELINQUISHED BY (Signature) Neil Gilham DATE/TIME 1435 12/9/99 RECEIVED BY (Signature) Neil Gilham DATE/TIME 1705 12-9-99

LABORATORY NOTES:

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SEALS Y/N/A

SEALS INTACT? Y/N/A

RECEIVED GOOD COND./COLD

NOTES:

SAMPLE DISPOSAL INSTRUCTIONS

TEG DISPOSAL @ \$2.00 each Return Pickup

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4^o C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

TPH-Gasoline, TPH-Diesel

(Gasoline and/or Diesel, Modified EPA 8015, NWTPH-Gx and NWTPH-Dx)

A check standard is run at the beginning of the day. 1) A close standard is run at the end of the day. 2) Both open and close standards must be within 15% of the continuing calibration curve value. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135% unless high sample concentrations interfere with the determination of the recovery percentage. A duplicate sample is run at a rate of 1 per 10 samples. At least 1 method blank is run per 20 samples analyzed.

**TPH-Hydrocarbon Identification
(NWTPH-HCID)**

Calibration standards are run at the beginning of the day. The standards must be within 15% of the continuing calibration curve value. Check standards are run at the close of the day. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. A duplicate sample is run at a rate of 1 per 10 samples. At least 1 method blank is run per 20 samples analyzed.

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 76.18452.0202

Analyses of Gasoline Range Hydrocarbons (GRH) in Soil by (NWTPH-Gx).

Sample Number	Date Analyzed	Surrogate Recovery (%)	GRH (mg/kg)
Method Blank	12/28/99	110	nd
Stockpile 1	12/28/99	int	320
Stockpile 1 Dup	12/28/99	int	280
Method Detection Limits			10

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65% TO 135%

ANALYSES PERFORMED BY: Michael Dee *Michael Dee*

DATA REVIEWED BY: Michael Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PLAZA PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 18452.0201

Hydrocarbon Identification by NWTPH-HCID for Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (mg/kg)	Diesel (mg/kg)	Heavy Oil (mg/kg)
Method Blank	12/10/99	129	nd	nd	nd
B2 (10 - 11)	12/10/99	90	nd	nd	nd
B2 (13 - 14)	12/10/99	109	nd	nd	nd
B3 (10 - 11)	12/10/99	81	nd	nd	nd
B4 (10 - 11)	12/10/99	119	nd	nd	nd
B5 (10 - 11)	12/10/99	83	nd	nd	nd
Method Detection Limits			20	50	100

"nd" Indicates not detected at listed detection limits.

"D" Indicates detected above the listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Michael Dee

DATA REVIEWED BY: Sherry Chilcutt



TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

800 Sleater-Kinney SE, PMB #262
Lacey, Washington 98503-1127

Mobile Environmental Laboratories Telephone: 360-459-4670
Environmental Sampling Services Fax: 360-459-3432

December 30, 1999

Neil Gilham
ATC Associates
6347 Seaview Ave. NW
Seattle, WA 98107

Dear Mr. Gilham:

Please find enclosed the analytical data report for the Kennewick Project in Kennewick, Washington. StrataProbe services were conducted on December 28, 1999. Soil samples were analyzed for Gasoline by NWTPH-Gx, Diesel and Oil by NWTPH-Dx/Dx Extended, and Specific Halogenated Hydrocarbons and BTEX by Method 8021B on December 29, 1999.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

TEG Northwest appreciates the opportunity to have provided analytical services to ATC Associates for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Michael A. Korosec
President

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4⁰ C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

TPH-Gasoline, TPH-Diesel

(Gasoline and/or Diesel, Modified EPA 8015, NWTPH-Gx and NWTPH-Dx)

A check standard is run at the beginning of the day. 1) A close standard is run at the end of the day. 2) Both open and close standards must be within 15% of the continuing calibration curve value. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135% unless high sample concentrations interfere with the determination of the recovery percentage. A duplicate sample is run at a rate of 1 per 10 samples. At least 1 method blank is run per 20 samples analyzed.

Purgeable Volatile Halocarbons**(Chlorinated Hydrocarbons, EPA 601/8021B)**

A calibration standard is run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

PCBs, Polychlorinated Biphenyls**(EPA 8082)**

A method blank and a calibration standard are run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The check standard may be run at the end of the day. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. Samples which measure above the linear range of the calibration curve must be diluted to fall into the upper half of the linear range. A duplicate sample is run at a rate of 1 per 10 samples. At least 1 method blank is run per 20 samples analyzed.

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Client Project #76.18452.0202

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Soil

Sample Description	Method	Stockpile-4	Stockpile-4
	Blank		Dup.
Date Sampled	--	12/29/99	12/29/99
Date Analyzed	12/30/99	12/30/99	12/30/99
	MDL (mg/kg)	(mg/kg)	(mg/kg)
Vinyl chloride	0.25	nd	nd
Benzene	0.05	nd	nd
Toluene	0.05	nd	nd
Ethylbenzene	0.05	nd	nd
Total Xylenes	0.05	nd	nd
1,1-Dichloroethene	0.05	nd	nd
Methylene chloride	0.05	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.05	nd	nd
1,1-Dichloroethane	0.05	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.05	nd	nd
Chloroform	0.05	nd	nd
1,1,1-Trichloroethane (TCA)	0.05	nd	nd
Carbon tetrachloride	0.05	nd	nd
1,2-Dichloroethane	0.05	nd	nd
Trichloroethene (TCE)	0.05	nd	nd
1,1,2-Trichloroethane	0.05	nd	nd
Tetrachloroethene (PCE)	0.05	nd	nd
1,1,1,2-Tetrachloroethane	0.05	nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd	nd
Surrogate Recovery (%)	108	93	95

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm

DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Project No. 76.18452.0202

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Soil

Sample Description	Method Blank	Dup	
		Stockpile 1	Stockpile 1
Date Sampled	12/27/99	12/27/99	12/27/99
Date Analyzed	12/28/99	12/28/99	12/28/99
	MDL (mg/kg)	(mg/kg)	(mg/kg)
Vinyl chloride	0.25	nd	nd
Benzene	0.05	nd	nd
Toluene	0.05	nd	nd
Ethylbenzene	0.05	nd	nd
Total Xylenes	0.05	nd	1.00
1,1-Dichloroethene	0.05	nd	nd
Methylene chloride	0.05	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.05	nd	nd
1,1-Dichloroethane	0.05	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.05	nd	nd
Chloroform	0.05	nd	nd
1,1,1-Trichloroethane (TCA)	0.05	nd	nd
Carbon tetrachloride	0.05	nd	nd
1,2-Dichloroethane	0.05	nd	nd
Trichloroethene (TCE)	0.05	nd	nd
1,1,2-Trichloroethane	0.05	nd	nd
Tetrachloroethene (PCE)	0.05	nd	nd
1,1,1,2-Tetrachloroethane	0.05	nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd	nd
Surrogate Recovery (%)	93	96	98

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSES PERFORMED BY: Michael Dee
 DATA REVIEWED BY: Sherry Chilcutt

Michael Dee

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Client Project #76.18452.0202

QA/QC Data - EPA 8021B Analyses

Sample Description: Stockpile-4							
	Matrix Spike			Matrix Spike Duplicate			RPD (%)
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Benzene	1.00	0.81	81	1.00	0.97	97	17.98
Toluene	1.00	0.83	83	1.00	0.88	88	5.85
1,1-Dichloroethene	1.00	0.91	91	1.00	0.83	83	9.20
Trichloroethene (TCE)	1.00	0.82	82	1.00	0.88	88	7.06
Surrogate Spike			103			111	

Laboratory Control Sample			
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Benzene	1.00	0.96	96
Toluene	1.00	0.86	86
1,1-Dichloroethene	1.00	1.13	113
Trichloroethene (TCE)	1.00	0.88	88
Surrogate Spike			89

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%
 ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
 DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Client Project #76.18452.0202

Analyses of Gasoline (NWTPH-Gx) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (mg/kg)
Method Blank	12/30/99	82	nd
SW-WEST-2 (12)	12/30/99	93	nd
SW-NORTH-2 (12)	12/30/99	107	nd
SW-SOUTH-2 (12)	12/30/99	108	nd
BOTTOM-2 (16)	12/30/99	119	nd
STOCKPILE-4	12/30/99	102	nd
Method Detection Limits			10

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65% TO 135%

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm

DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 76.18452.0202

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)
Method Blank	12/28/99	96	nd	nd
Stockpile 1	12/28/99	int	nd	24000
Stockpile 1 Dup	12/28/99	int	nd	19000
Method Detection Limits			20	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Michael Dee *M. Dee*

DATA REVIEWED BY: Michael Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Client Project #76.18452.0202

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)
Method Blank	12/30/99	89	nd	nd
SW-WEST-2 (12)	12/30/99	118	nd	nd
SW-NORTH-2 (12)	12/30/99	111	nd	nd
SW-NORTH-2 (12) Dup.	12/30/99	135	nd	nd
SW-SOUTH-2 (12)	12/30/99	125	nd	nd
BOTTOM-2 (16)	12/30/99	112	nd	1300
STOCKPILE-4	12/30/99	93	nd	380
STOCKPILE-5	12/30/99	109	nd	nd
STOCKPILE-6	12/30/99	134	nd	3700
S-OBJECT #4	12/30/99	109	nd	790
Method Detection Limits			20	40

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm

DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 76.18452.0202

TCLP Metals in Soil by EPA-Method 1311

Sample Number	Date Analyzed	Lead (Pb) EPA 7420 (mg/l)
Method Blank	12/30/99	nd
Stockpile 1	12/30/99	10.60
Stockpile 1 Dup	12/30/99	12.30
Method Detection Limits		0.20

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Michael Dee
DATA REVIEWED BY: Michael Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 76.18452.0202

QA/QC Data - TCLP EPA-Method 1311 Analyses

Sample Number	Date Analyzed	Lead (Pb) EPA 7420 (mg/l)
Matrix Spike Level	12/30/99	5.00
Sample + Matrix Spike	12/30/99	17.20
Percent Recovery (%)		132
Method Detection Limits		0.20

"nd" Indicates not detected at listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Michael Dee
DATA REVIEWED BY: Michael Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 76.18452.0202

**Sample Preparation Information for
Toxicity Characteristic Leaching
Procedure (TCLP) by EPA Method 1311**

Sample Number:	Stockpile
% Solids:	100
No. of Extractions:	1
Type of Extraction:	Rotary
Extraction Fluid:	#1
Date Extracted:	12/29/99

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Client Project #76.18452.0202

TCLP Metals in Soil by EPA-Method 1311

Sample Number	Date Analyzed	Lead (Pb) EPA 7420 (mg/l)
Method Blank	1/4/00	nd
Stockpile-4	1/4/00	0.53
Stockpile-4 Dup.	1/4/00	0.61
Stockpile 5	1/4/00	nd
Stockpile 6	1/4/00	nd
Method Detection Limits		0.20

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Client Project #76.18452.0202

QA/QC Data - TCLP EPA-Method 1311 Analyses

Sample Number	Date Analyzed	Lead (Pb) EPA 7420 (mg/l)
Matrix Spike Level	1/4/00	10.00
Sample Stockpile 6+ Matrix Spike	1/4/00	8.86
Percent Recovery (%)		89
Method Detection Limits		0.20

"nd" Indicates not detected at listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Client Project #76.18452.0202

**Sample Preparation Information for
Toxicity Characteristic Leaching
Procedure (TCLP) by EPA Method 1311**

Sample Number: Stockpile-4
% Solids: 100
No. of Extractions: 1
Type of Extraction: Rotary
Extraction Fluid: #1
Date Extracted: 1/3/00

**Sample Preparation Information for
Toxicity Characteristic Leaching
Procedure (TCLP) by EPA Method 1311**

Sample Number: Stockpile-5
% Solids: 100
No. of Extractions: 1
Type of Extraction: Rotary
Extraction Fluid: #1
Date Extracted: 1/3/00

**Sample Preparation Information for
Toxicity Characteristic Leaching
Procedure (TCLP) by EPA Method 1311**

Sample Number: Stockpile-6
% Solids: 100
No. of Extractions: 1
Type of Extraction: Rotary
Extraction Fluid: #1
Date Extracted: 1/3/00

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Client Project #76.18452.0202

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Lead (Pb)
		EPA 7420 (mg/kg)
Method Blank	12/30/99	nd
SW-WEST-2 (12)	12/30/99	14
SW-NORTH-2 (12)	12/30/99	9.5
SW-NORTH-2 (12) Dup.	12/30/99	8.6
SW-SOUTH-2 (12)	12/30/99	11
BOTTOM-2 (16)	12/30/99	20
S-OBJECT #4	12/30/99	31
Method Detection Limits		5

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Client Project #76.18452.0202

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number:							
Matrix Spike			Matrix Spike Duplicate			RPD	
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	RPD (%)	
Lead	250	355	142	250	310	124	13.53

Laboratory Control Sample			
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Lead	250	220	88

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
 ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
 DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 76.18452.0202

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Lead (Pb)	Cadmium (Cd)	Arsenic (As)
		EPA 7420 (mg/kg)	EPA 7130 (mg/kg)	EPA 7061 (mg/kg)
Method Blank	12/28/99	nd	nd	nd
Stockpile 1	12/28/99	1600	nd	nd
Stockpile 1 Dup	12/28/99	1400	nd	nd
Method Detection Limits		5	1	20

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Michael Dee
DATA REVIEWED BY: Sherry Chilcutt

Michael Dee

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number:							
Matrix Spike				Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Lead	250	320	128	250	270	108	16.95
Cadmium	25	24	96	25	25	100	4.08

Laboratory Control Sample			
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead	250	250	100
Cadmium	25	26	104

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Michael Dee
DATA REVIEWED BY: Sherry Chilcutt

Michael Dee

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 76.18452.0202

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Chromium (Cr)
		EPA 7190 (mg/kg)
Method Blank	12/28/99	nd
Stockpile 1	12/28/99	36
Stockpile 1 Dup	12/28/99	41
Method Detection Limits		5

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Michael Dee
DATA REVIEWED BY: Sherry Chilcutt

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Project No. 76.18452.0202

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number:							
Matrix Spike			Matrix Spike Duplicate			RPD	
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	RPD (%)	
Chromium	250	245	98	250	250	100	2.02

Laboratory Control Sample			
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Chromium	250	270	108

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
 ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Michael Dee
 DATA REVIEWED BY: Sherry Chilcutt

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Client Project #76.18452.0202

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Mercury (Hg)	Silver (Ag)
		EPA 7471 (mg/kg)	EPA 7760 (mg/kg)
Method Blank	1/3/00	nd	nd
Stockpile-4	1/3/00	nd	nd
Method Detection Limits		1	20

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Project No. 76.18452.0202

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number:							
Matrix Spike			Matrix Spike Duplicate			RPD	
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	RPD (%)	
Mercury	2.50	2.67	107	2.50	2.61	104	2.27

Laboratory Control Sample			
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Mercury	2.50	2.99	120

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
 ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Chantel Kamm
 DATA REVIEWED BY: Sherry Chilcutt

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 76.18452.0202

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Mercury (Hg)	Silver (Ag)
		EPA 7471 (mg/kg)	EPA 7760 (mg/kg)
Method Blank	1/3/00	nd	nd
Stockpile 1	1/3/00	nd	nd
Stockpile 1 Dup	1/3/00	nd	nd
Method Detection Limits		1	20

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Chantel Kamm
DATA REVIEWED BY: Sherry Chilcutt

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Client Project #76.18452.0202

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number: STOCKPILE-4							
Matrix Spike			Matrix Spike Duplicate			RPD	
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	RPD (%)	
Mercury	2.50	2.67	107	2.50	2.61	104	2.27

Laboratory Control Sample			
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Mercury	2.50	2.99	120

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
 ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
 DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Project No. 76.18452.0202

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Barium (Ba)	Selenium (Se)
		EPA 7080 (mg/kg)	EPA 7741 (mg/kg)
Method Blank	1/5/00	nd	nd
Stockpile 1	1/5/00	nd	nd
Method Detection Limits		50	20

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Chantel Kamm

DATA REVIEWED BY: Sherry Chilcutt

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Client Project #76.18452.0202

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number: STOCKPILE-4							
Matrix Spike			Matrix Spike Duplicate			RPD	
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Selenium	500	480	96	500	467	93	2.75
Laboratory Control Sample							
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)				
Selenium	500	467	93				

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
 ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
 DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Client Project #76.18452.0202

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Lead (Pb)	Cadmium (Cd)	Chromium (Cr)	Arsenic (As)
		EPA 7420 (mg/kg)	EPA 7130 (mg/kg)	EPA 7190 (mg/kg)	EPA 7061 (mg/kg)
Method Blank	12/30/99	nd	nd	nd	nd
STOCKPILE-4	12/30/99	420	nd	nd	nd
STOCKPILE-4 Dup.	12/30/99	470	nd	nd	nd
Method Detection Limits		5	1	20	20

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Client Project #76.18452.0202

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number: STOCKPILE-4							
Matrix Spike			Matrix Spike Duplicate			RPD	
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	RPD (%)	
Lead	250	355	142	250	310	124	13.53
Cadmium	25	22	88	25	21	84	4.65
Chromium	250	245	98	250	250	100	2.02

Laboratory Control Sample			
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Lead	250	220	88
Cadmium	25	25	100
Chromium	250	270	108

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
 ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
 DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.
Client Project #76.18452.0202

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Barium (Ba)	Selenium (Se)
		EPA 7080 (mg/kg)	EPA 7741 (mg/kg)
Method Blank	1/5/00	nd	nd
Stockpile-4	1/5/00	nd	nd
Method Detection Limits		50	20

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Michael Dee, Chantel Kamm
DATA REVIEWED BY: Mike Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
 Kennewick, Washington
 ATC Associates, Inc.
 Project No. 76.18452.0202

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number:							
Matrix Spike			Matrix Spike Duplicate			RPD	
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	RPD (%)	
Selenium	500	480	96	500	467	93	2.75

Laboratory Control Sample			
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Selenium	500	467	93

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
 ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Chantel Kamm
 DATA REVIEWED BY: Sherry Chilcutt

TEG NW SEATTLE CHEMISTRY LABORATORY
 (425) 957-9872, fax (425) 957-9904

TEG Job Number: S91228-1
 Client: ATC ASSOCIATES
 Client Job Name: KENNEWICK
 Client Job Number: 76.18452.0202

Analytical Results

8082(PCBs), mg/kg		MTH BLK	LCS STOCKPILE-1	MTH BLK	LCS
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	12/28/99	12/28/99	12/28/99	12/28/99
Date analyzed	Limits	12/28/99	12/28/99	12/28/99	12/28/99
Moisture, %				10%	
A1221	0.50	nd		nd	nd
A1232	0.50	nd		nd	nd
A1242 (A1016)	0.20	nd		nd	nd
A1248	0.20	nd		5.7	nd
A1254	0.20	nd		nd	nd
A1260	0.20	nd	89%	nd	nd
					77%

Surrogate recoveries:

Tetrachloro-m-xylene	112%	111%	105%	98%	110%
Decachlorobiphenyl	103%	108%	108%	96%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
 na - not analyzed
 C - coelution with sample peaks
 M - matrix interference
 J - estimated value
 Results reported on dry-weight basis
 Acceptable Recovery limits: 65% TO 135%
 Acceptable RPD limit: 35%

TEG NW SEATTLE CHEMISTRY LABORATORY
 (425) 957-9872, fax (425) 957-9904

TEG Job Number: S91228-1
 Client: ATC ASSOCIAT
 Client Job Name: KENNEWICK
 Client Job Number: 76.18452.0202

Analytical Results		MS	MSD	RPD	
8082(PCBs), mg/kg		STOCKPILE-4	STOCKPILE-4	STOCKPILE-4	STOCKPILE-4
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	12/28/99	12/28/99	12/28/99	12/28/99
Date analyzed	Limits	12/28/99	12/28/99	12/28/99	12/28/99
Moisture, %		10%			
A1221	0.50	nd			
A1232	0.50	nd			
A1242 (A1016)	0.20	nd			
A1248	0.20	0.87			
A1254	0.20	nd			
A1260	0.20	nd	85%	85%	1%
Surrogate recoveries:					
Tetrachloro-m-xylene		114%	125%	121%	
Decachlorobiphenyl		111%	120%	120%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
 na - not analyzed
 C - coelution with sample peaks
 M - matrix interference
 J - estimated value
 Results reported on dry-weight basis
 Acceptable Recovery limits: 65% TO 135%
 Acceptable RPD limit: 35%

CLIENT: ATC ASSOCIATES INC.
 ADDRESS: 6347 SEAVIEW AVE NW SEATTLE WA 98107
 PHONE: 206 781 1449 FAX: 206 781 1543

DATE: 12/27/99 PAGE 1 OF 1
 PROJECT NAME: ARMENIUMICK
 LOCATION: _____

CLIENT PROJECT #: 2618452-0202 PROJECT MANAGER: NEIL GILHAM

COLLECTOR: NEIL GILHAM DATE OF COLLECTION: 12/27/99

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES												FIELD NOTES	Total Number of Containers	Laboratory Note Number
					VOA 601/8010	VOA 602/8020	VOA 624/8240	Seml Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (total)	PAH 610/8100	PEST/PCBS 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD			
1	1500	"	SOIL	408 JAR	✓													2	
2	"	"	"	"														2	
3	"	"	"	"														2	

ACQUIRED BY (Signature) _____ DATE/TIME: 12/27/99
 RECEIVED BY (Signature) Julia Muelle DATE/TIME: 12/28/99
 VIA FED EX

SAMPLE RECEIPT
 TOTAL NUMBER OF CONTAINERS: _____
 CHAIN OF CUSTODY SEALS Y/N/A: _____
 SEALS INTACT? Y/N/A: _____
 RECEIVED GOOD COND./COLD: _____
 NOTES: _____

LABORATORY NOTES:
Spoke w/ N. Gilham
8021B of For 8240

SAMPLE DISPOSAL INSTRUCTIONS

REG DISPOSAL \$2.00 each Return Pickup

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

800 Sleater-Kinney SE, PMB #262
Lacey, Washington 98503-1127

Mobile Environmental Laboratories Telephone: 360-459-4670
Environmental Sampling Services Fax: 360-459-3432

December 22, 1999

Neil Gilham
ATC Associates
6347 Seaview Ave. NW
Seattle, WA 98107

Dear Mr. Gilham:

Please find enclosed the analytical data report for the Kennewick Plaza Project in Kennewick, Washington. One soil sample was analyzed for VOC's by Method 8260 on December 16, 1999.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

TEG Northwest appreciates the opportunity to have provided analytical services to ATC Associates for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Michael A. Korosec
President

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4^o C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

TPH-Gasoline, TPH-Diesel

(Gasoline and/or Diesel, Modified EPA 8015, NWTPH-Gx and NWTPH-Dx)

A check standard is run at the beginning of the day. 1) A close standard is run at the end of the day. 2) Both open and close standards must be within 15% of the continuing calibration curve value. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135% unless high sample concentrations interfere with the determination of the recovery percentage. A duplicate sample is run at a rate of 1 per 10 samples. At least 1 method blank is run per 20 samples analyzed.

Purgeable Volatile Halocarbons
(Chlorinated Hydrocarbons, EPA 601/8021B)

A calibration standard is run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.

Analyses of Gasoline (NWTPH-Gx) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (mg/kg)
Method Blank	12/29/99	107	nd
SW EAST - 1 (12)	12/29/99	140	nd
SW WEST - 1 (12)	12/29/99	77	nd
SW NORTH - 1 (12)	12/29/99	110	nd
SW SOUTH - 1 (12)	12/29/99	135	nd
SW SOUTH - 1 (12) Dup	12/29/99	80	nd
BOTTOM - 1 (15)	12/29/99	65	nd
Method Detection Limits			10

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65% TO 135%

ANALYSES PERFORMED BY: Michael Dee

DATA REVIEWED BY: Michael Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

KENNEWICK PROJECT
Kennewick, Washington
ATC Associates, Inc.

Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)
Method Blank	12/29/99	102	nd	nd
SW EAST - 1 (12)	12/29/99	110	nd	nd
SW WEST - 1 (12)	12/29/99	dil	nd	3500
SW NORTH - 1 (12)	12/29/99	dil	nd	3100
SW SOUTH - 1 (12)	12/29/99	dil	nd	3000
SW SOUTH - 1 (12) Dup	12/29/99	dil	nd	3700
BOTTOM - 1 (15)	12/29/99	dil	nd	3100
Method Detection Limits			20	40

"dil" Indicates dilution prevents determination.
"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Michael Dee

DATA REVIEWED BY: Michael Korosec





JAN 23 2000

L

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

January 20, 2000

**ACKNOWLEDGMENT OF NOTIFICATION
OF HAZARDOUS WASTE ACTIVITY
(VERIFICATION)**

This is to acknowledge that you have filed a Notification of Hazardous Waste Activities form for the installation located at the address shown below to comply with section 3010 of the Resource Conservation and Recovery Act (RCRA). Your RCRA Identification Number must be included on all shipping manifests for transporting hazardous wastes; on all Annual Reports that generators of hazardous waste, and owners and operators of hazardous waste treatment, storage and disposal facilities must file with the Department of Ecology; on all applications for a Federal Hazardous Waste Permits; and on all other hazardous waste management reports and documents required under subtitle C of RCRA.

RCRA ID Number	→	WAH 000 010 397
Installation Address	→	Kennewick Plaza c/o JSH Properties Inc 2831 W Kennewick Ave Kennewick, WA 99336
Mailing Address	→	6347 Seaview Ave NW Seattle, WA 98107



Emergency Contact Telephone Number

30178411-47241

NRW

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. W.A.H. 0-0-0-0-1-0-3-9-7-1-3-0-0-3

Manifest Document No. 1-3-0-0-3

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
KENNEWICK PLUMBI
2831 W KENNEWICK AVE. KENNEWICK WA 99536

4. Generator's Phone (425) 747 1625

5. Transporter 1 Company Name EMERALD SERVICES

6. US EPA ID Number W.A.D. 5-9-2-4-1-1-3

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT OF THE NW
17629 CEDAR SPRINGS LANE
AZLETON OR 97812

10. US EPA ID Number W.R.D. 9-9-4-0-7-0-0-3

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

HM	No.	Type	13. Total Quantity	14. Unit W/Vol	Waste No.
a.	X	HAZARDOUS WASTE SOLID, N.O.S (LEAD)	55700		
		9 UN 277 PL TI	26 # 171		
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a) PROFILE # 012453 SOLID LEAD

K. Handling Codes for Wastes Listed Above
5596CP 2798T

15. Special Handling Instructions and Additional Information
TB # 32-16951

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

Printed/Typed Name: Agent for J.S.H. Property
Signature: [Signature]
Month Day Year: 10 11 2000

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: [Name]
Signature: [Signature]
Month Day Year: 10 11 2000

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: [Name]
Signature: [Signature]
Month Day Year: [Blank]

19. Discrepancy Indication Space
Sec. 16 date added per Mark McCullough, West Pac. EMS 1-27-00
Sec. 13: Weight corrected per Mark McCullough, West Pac. EMS 1-27-00

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: [Name]
Signature: [Signature]
Month Day Year: 10 11 2000

Emergency Contact Telephone Number

348867

VCM

1800 424 9300

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. WA.H.00.00.10.39.7
Manifest Document No. 1.3.2.2.4

2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
KENNEWICK PLAZA
2831 W. KENNEWICK AVE. KENNEWICK, WA 99336
4. Generator's Phone (425) 747 1825

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name EMERALD SERVICES
6. US EPA ID Number WA.D.05.8.36.9.6.4.7

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name
8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT OF THE NW
17629 CEDAR SPRINGS LANE
ARLINGTON, OR 97812
10. US EPA ID Number OR.D.C.89.4.5.2.3.5.3

G. State Facility's ID

H. Facility's Phone

HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers		13. Total Quantity	14. Unit Wt/Vol	Waste No.
	No.	Type	No.	Type			
a.	9	HAZARDOUS WASTE SOLID, N.O.S. (LEAD) 9 NH 3077 PG III ERG # 171	1	DT	46500 55460	D	DC08
b.					BMS 1-2800		
c.							
d.							

J. Additional Descriptions for Materials Listed Above
a) PROFILE # CL 2433 SOIL W/LEAD

K. Handling Codes for Wastes Listed Above
46500 23 2ST
SU2A

15. Special Handling Instructions and Additional Information
JOB 32-46951

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

Printed/Typed Name RAY NAVARRO, Agent for J.S.H. Property
Signature Ray Navarro
Month Day Year 10/26/00

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year 12/12/00

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space
BMS 1-2800. Sec. 13 weight corrected per Mark McCullough, West Pac.

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name Nicole D. Rouska
Signature Nicole D. Rouska
Month Day Year 01/27/00

GENERATOR

TRANSPORTER

FACTOR

CITY

Emergency Contact Telephone Number

1-800-424-1366

ADK

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. **0397**
 W.A.H.O.O.O.O. ~~0397~~

Manifest Document No. **13224**

2. Page 1 of 1
 Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
KENNEWICK PLACE
2831 W. KENNEWICK AVE KENNEWICK, WA 99336

4. Generator's Phone **(425) 747 1825**

5. Transporter 1 Company Name **EMERALD SERVICES**

6. US EPA ID Number **WA0058364647**

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT OF FINE NW
17629 CEDAR SPRINGS LAKE
ARLINGTON OR 97812

10. US EPA ID Number **OR0029452355**

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)
HAZARDOUS WASTE SOLID A.D.S. (LEAD)
9 NH3077 P III
ENV. #171

A. State Manifest Document Number

B. State Generator's ID

C. State Transporter's ID

D. Transporter's Phone **(706) 832-3000**

E. State Transporter's ID

F. Transporter's Phone

G. State Facility's ID

H. Facility's Phone **(503) 682-2541**

	HM	12. Containers		13. Total Quantity	14. Unit Wt/Vol	Waste No.
		No.	Type			
a.	Y	1	DT	44120	SS	DC08
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
0) PROFILE # CL2453 SOIL w/ LEAD

K. Handling Codes for Wastes Listed Above
44,120P 22.06GT
LSU3B

15. Special Handling Instructions and Additional Information
JOB# 30-46951

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.
 If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated, to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name **Agent for S.S.H Properties - RAY NAVARRO** Signature **Ray Navarro** Month Day Year **10 13 00**

17. Transporter 1 Acknowledgement of Receipt of Materials
 Printed/Typed Name **Robert Shelton** Signature **[Signature]** Month Day Year **10 12 00**

18. Transporter 2 Acknowledgement of Receipt of Materials
 Printed/Typed Name _____ Signature _____ Month Day Year _____

19. Discrepancy Indication Space **Sec. 13. Weight corrected per lower bin volume, with fac. ENIS 1-22-00**

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
 Printed/Typed Name **Nicole P. Rouška** Signature **Nicole Rouška** Month Day Year **10 13 00**

GENERATOR
TRANSPORTER
FACILITY



RABANCO REGIONAL DISPOSAL CO.
 P.O. Box 338
 Roosevelt, WA 98358
 (509) 384-5641



TICKET NUMBER 532899 *** COMPLETED HEIGHT TICKET ***

TRUCK ID: ADM562 Ken-Mkt-Acme ACCOUNT: 10498 Emerald Services
 COMMUNITY: 34 PCS 54 S. Dawson
 SOURCE: Kennewick, WA Seattle, WA 98134
 JUL ID: 94-1212
 CONTAINER #: SEAL #:

EMPTY WEIGHT: 39540 LBS CUSTOMER WEIGHT: 0 LBS

WEIGHT	TIME	DATE	NET
91020 LBS	10:44	01/27/00	
39540 LBS	11:05	01/27/00	NET WEIGHT: 51500 LBS / 25,990 TONS

Signature

Neighbor - GRILL Driver

I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE DRIVER COPY



RABANCO REGIONAL DISPOSAL CO.
 P.O. Box 338
 Roosevelt, WA 98355
 (509) 384-5641



TICKET NUMBER 552981 *** COMPLETED WEIGHT TICKET ***

TRUCK ID: RCM11 Ken-Whit-Race ACCOUNT: 10498 Emerald Services
 COMMODITY: 24 PCS 54 S. Dawson
 SOURCE: Kennewick, WA Seattle, WA 98134
 JOB ID: 99-1212 SEAL #:
 CONTAINER #:

CUSTOMER TICKET #: CUSTOMER WEIGHT: 0 LBS
 COMMENTS:

IN:	WEIGHT	TIME	DATE	NET
	91500 LBS	13:43	01/27/00	
OUT:	37940 LBS	14:23	01/27/00	WEIGHT: 53540 LBS / 26.820 TONS

[Signature]
 Highmaster - GRILL Driver

I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE. DRIVER COPY



RABANCO REGIONAL DISPOSAL CO.

P.O. Box 338
Roosevelt, WA 98056
(509) 384-5641



TICKET NUMBER 553016

*** COMPLETED WEIGHT TICKET ***

TRUCK ID: ACME61

ACCOUNT: 10498 Emerald Services

COMMODITY: 34 PCS

54 S. Dawson
Seattle, WA 98134

SOURCE: Kennenich, WA

JOB ID: 99-1212

CONTAINER #:

SEAL #:

CUSTOMER TICKET #:

CUSTOMER HEIGHT: 0 LBS

COMMENTS:

	WEIGHT	TIME	DATE
IN:	95940 LBS	14:40	01/27/00
OUT:	39280 LBS	15:05	01/27/00
			NET
			HEIGHT: 56850 LBS / 25.434 TONS

Marty [Signature]
Driver

WasteMaster - MICKIE



I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

DRIVER COPY



RABANCO REGIONAL DISPOSAL CO.

P.O. Box 538
Roosevelt, WA 99358
(509) 384-5641



TICKET NUMBER 553025

*** COMPLETED HEIGHT TICKET ***

TRUCK ID: G0ME62 Ken-Whit-Rcbe

ACCOUNT: 10490 Emerald Services
54 S. Dawson
Seattle, WA 98134

COMMODITY: 34 PCS
SOURCE: Kennewick, WA
JOB ID: 99-1212
CONTAINER #:

SEAL #:

CUSTOMER TICKET #:
COMMENTS:

CUSTOMER WEIGHT: 0 LBS

WEIGHT	TIME	DATE
IN: 81950 LBS	15:41	01/27/00
OUT: 38920 LBS	15:57	01/27/00

NET WEIGHT: 43040 LBS / 21.520 TONS

Weightmaster - MICKIE

Driver

DRIVER COPY

I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

Raymond

[Handwritten signature]



RABANCO REGIONAL DISPOSAL CO.

P.O. Box 338
Roosevelt, WA 98956
(509) 894-5641



TICKET NUMBER 552848

*** COMPLETED HEIGHT TICKET ***

TRUCK ID: RCH113 Ken-Whit-Rose

ACCOUNT: 10490 Emerald Services

CONDUITY: 34 PUS

SOURCE: Kennewick, WA

JOB ID: 98-1212

CONTAINER #:

54 S. Dawson
Seattle, WA 98134

SEQ. #:

CUSTOMER TICKET #:

CUSTOMER WEIGHT: 0 LBS

COMMENTS:

103.76

IN:	WEIGHT	TIME	DATE	NET
99820 LBS	10:55	01/26/00		
GUT:	36500 LBS	11:13	01/26/00	WEIGHT: 63320 LBS / 31.660 TONS

Mike Kelly
Driver

Weightmaster - GRIL



I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

DRIVER COPY



RABANCO REGIONAL DISPOSAL CO.
 P.O. Box 338
 Roosevelt, WA 98956
 (509) 384-5641



*** COMPLETED HEIGHT TICKET ***

TICKET NUMBER 852608

ACCOUNT: 10490 Emerald Services
 54 S. Dawson
 Seattle, WA 98134

TANK ID: 42PHE11 Non-Wht-Acme
 LENGTH: 34 PCS
 SOURCE: Kennenich, WA
 JOB ID: 99-1212
 CONTAINER #:

SERIAL #:

CUSTOMER WEIGHT: 0 LBS

CUSTOMER TICKET #:

COMMENTS:

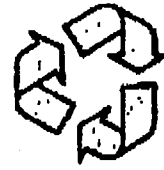
WEIGHT	TIME	DATE	NET
102240 LBS	11:49	01/26/00	
37720 LBS	12:04	01/26/00	
			HEIGHT: 64500 LBS / 32.250 TONS

Edgel
 Driver

Weightmaster - GAIL

DRIVER COPY

I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.



RABANCO REGIONAL DISPOSAL CO.

P.O. Box 338
 Boscovell, WA 98056
 (509) 384-5641



TICKET NUMBER 552736 *** COMPLETED WEIGHT TICKET ***

TRUCK ID: ADM13 Ken-Whit-Acwa ACCOUNT: 10498 Emerald Services

54 S. Dawson
 Seattle, WA 98134

COMMODITY: 34 PCS
 SOURCE: Kennedick, WA
 JOB ID: 99-1212
 CONTAINER #:

SEAL #:

CUSTOMER TICKET #: CUSTOMER WEIGHT: 0 LBS

COMMENTS:

WEIGHT	TIME	DATE	NET
IN: 96500 LBS	15:36	01/26/00	
OUT: 36620 LBS	15:55	01/26/00	WEIGHT: 61880 LBS / 30.940 YDMS

Weightmaster - NICKIE
 Driver

I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

DRIVER COPY





RABANCO REGIONAL DISPOSAL CO.

P.O. Box 338
 Roosevelt, WA 98356
 (509) 384-5641



*** COMPLETED WEIGHT TICKET ***

TICKET NUMBER 552739

TRUCK ID: REMED Ken-Wht-Pcase ACCOUNT: 10498 Emerald Services
 54 S. Dawson
 Seattle, WA 98134

COMMODITY: 34 PCS
 SOURCE: Kennewick, WA
 JOB ID: 99-1212
 CONTAINER #:

SEAL #:

CUSTOMER TICKET #: CUSTOMER WEIGHT: 0 LBS

COMMENTS:

	WEIGHT	TIME	DATE	NET
IN:	94380 LBS	16:16	01/25/00	
OUT:	38860 LBS	16:43	01/25/00	HEIGHT: 55520 LBS / 27.760 TONS

[Signature]
 Driver

Heighmaster - MICKIE

I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

DRIVER COPY



RABANCO REGIONAL DISPOSAL CO.

P.O. Box 388
 Roosevelt, WA 98358
 (509) 384-5641



*** COMPLETED WEIGHT TICKET ***

TICKET NUMBER: 552740

TRUCK ID: 42ME11 Ken-Wrt-Race

ACCOUNT: 10498 Emerald Services

54 S. Dawson
 Seattle, WA 98134

CAPACITY: 34 PCS

SOURCE: Kennewick, WA

JOB ID: 99-1212

CONTAINER #:

SEAL #:

CUSTOMER TICKET #:

CUSTOMER WEIGHT: 0 LBS

COMMENTS:

WEIGHT	TIME	DATE
IN: 99840 LBS	16:51	01/26/00
OUT: 20140 LBS	17:03	01/26/00
NET WEIGHT:	61700 LBS /	30.650 TONS

Handwritten signature
 WEINMASTER - TICKET C

Driver

DRIVER COPY

I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

APR 24 '00 11:37AM KENNEWICK POLICE

P.2/2



April 24, 2000

Mark McCullough
C/o Emerald Services Inc.
7434 SE Marginal Way
Seattle, Wa. 98108

This is to confirm that a police report has been filed with the Kennewick Police Department regarding the missing/contaminated earth from a job site in the "Safeway" Plaza area of W. Kennewick Avenue. The report is dated 02/04/2000 and the case number is 00-003017.

At this time, the case is still open, although on inactive status, pending new information.

Please let me know if you need further information.

A handwritten signature in cursive script, appearing to read "Therese Kickbush", is written over the typed name and title.

Ofc. Therese Kickbush
Kennewick Police Department
509-585-4208

KENNEWICK POLICE DEPARTMENT

741 S. Dayton St. • P.O. Box 6108 • Kennewick, WA 99336-0108
(509) 585-4208 • Fax (509) 582-9528

Seattle firm looking for 40 tons of 'hot' dirt

By **Mike Lee**
Herald staff writer

A dirt nabber is on the loose - with at least 40 tons of "hot" dirt. Make that very hot, as in toxic.

In an incident that seems straight out of *Seinfeld*, two truckloads of lead- and petroleum-laced soil headed for a hazardous waste landfill apparently were stolen from a Kennewick Avenue shopping center in late January.

"We want to find the dirt," said Mark McCullough, division manager for Emerald Services in Seattle. "We want to make sure it doesn't end up in their back yard."

The soil, according the company, "might seem attractive as suitable fill material but had a noticeable petroleum odor."

Emerald, a registered hazardous waste contractor, excavated dirt at Kennewick Plaza in late December after the site was identified as potentially having underground petroleum contamination from a long-gone auto shop.

Emerald - under direction of the national environmental engineering firm ATC Associates - removed roughly 380 tons of soil, up to 100 tons of which was classified as hazardous because of high lead concentrations.

The piled dirt sat in the parking lot for a month as Emerald tested the soil. High amounts of lead - perhaps from lead acid batteries - surprised waste managers, spurring another analysis and efforts to find a hazardous waste dump.

Starting Jan. 26, the nontoxic dirt was taken to a local landfill and Emerald started trucking the heavily polluted soil to the Chemical Waste Management Landfill in Arlington, Ore.

The next day, Emerald delivered another load to Arlington. Mechanical problems kept the truck from getting back to Kennewick until about 7 p.m., according to a company press release.

Tri-Cities
Herald
Sunday
2/6/00

When the truck returned, the driver noticed something amiss - less than a truckload of hazardous waste remained, between 40 and 60 tons less than Emerald estimated. The subcontractor who hauled the uncontaminated soil left the site at about 2 p.m., providing a five-hour window for someone to steal the hazardous dirt.

"The only thing that seems to make sense is that somebody thought ... we were hauling this stuff away and didn't need it and they would just help themselves," McCullough said.

The biggest risk is eating the lead-laced dirt. "If it's in somebody's front yard and in easy access for children, that's our obvious concern," McCullough said.

If the dirt is used in a vegetable garden, the lead could end up on the dinner table.

In nonindustrial settings, lead poisoning often is linked to lead-based house paint, which was banned in the United States in 1978. Lead poisoning causes learning and developmental disabilities and is especially dangerous for young children.

The subcontractor asserts that it did not accidentally confuse the hazardous waste with the clean soil, and its drivers left at least two loads for Emerald, McCullough said. He also said interviews with plaza tenants leave open the possibility that an unauthorized crew took the dirt.

McCullough said Emerald is checking with construction sites in the area to see if they accepted the tainted fill soil, and notified the state Ecology Department and the Benton-Franklin Health District.

He said if someone received topsoil in the last few weeks that smells like petroleum, they should call the police or call Emerald at 206-793-3322.

McCullough also filed a police report for stolen dirt. "It has a negative value, but we wanted to try to cover our bases," he said.

[Back to headlines](#)

TO: NEIL GILHAM, PETE KELLER
FROM MARK McCULLOUGH

ACME

MATERIALS & CONSTRUCTION

Concrete, Sand and Gravel, Asphalt Paving

"Equal Opportunity Employer"
ACMEMCC101JB

January 28, 2000

To: Emerald Services Inc.

From: Acme Materials and Construction Co.

Attn: Mark McCollough

During the latter part of the week of the 17th of January Robert Coleman, the sales rep., received a call from Paul Curnett asking if Acme would be able to provide equipment to haul non-contaminated waste from 2830 W. Kennewick Ave in Kennewick, Wa. to the Roosevelt Landfill in Roosevelt, Wa. Robert asked the truck boss Aldan Taylor if this would fit into our schedule and was told it would on the 26th and 27th of January. Aldan called Paul back to verify the scope of the work and schedule the work. On the morning of the 26th Aldan met with Robert Sheltra on site and was shown by Robert which material to haul. There were three piles of material on site and we were instructed to haul only the two end piles. Aldan then met with the drivers and made sure they knew what material to haul. The haul went according to schedule and again...the only material hauled by Acme were the two end piles. If you have any further questions I can be reached at 509-946-4131.

Sincerely,
Acme Materials and Construction Co.



Brent Chigbrow
Division Manager

Spokane
P.O. Box 2503
Spokane, WA 99220
(509) 535-3081
Fax (509) 536-8300

Richland
955 W. Lacey
Richland, WA 99352
(509) 946-4131
Fax (509) 943-9979

Rathdrum
8805 W. Wyoming
Rathdrum, ID 83858
(208) 687-5213
Fax (208) 687-1735

HIGHLANDS SHOPPING CENTER

BLOCKBUSTER
VIDEO

WASTE
PILES

HAULED →
BY ACME

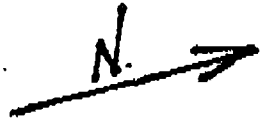
DID NOT HAUL →

HAULED →
BY ACME

DENNY'S
REST.

W. KENNEWICK AVE.

HWY 395



ATC Associates Inc.

BORING LOG

BORING NO: Test Pit SX-1

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA DRILLING CONTRACTOR: Emerald Services

DRILLING MTHD: Backhoe - test pit SAMPLE MTHD: grab - SS scoop

DATE STARTED: Mar 16, 2000 DATE FINISHED: Mar 16, 2000 DRILLER: _____ INSPECTOR: Tom Cammarata

DEPTH (FT)	SPT BLOWS PER 6"	REC (%)	PID (ppm)	LITHOLOGY	SURFACE ELEVATION: 490'		REMARKS
					LITHOLOGIC DESCRIPTION		
0.0					Asphalt - 3 in.		
1.0					(SM): SAND, fine, very silty, brown to gray, medium dense, dry to damp, concrete block debris		SX-1-S1
5.0					(GW): GRAVEL, fine to coarse (cobble), fine to coarse sandy, silty, olive gray, loose to medium dense, dry to damp		SX-1-S2
10.0							SX-1-S3
15.0							
20.0							
25.0							
30.0							
BOTTOM OF TEST BORING: 9.50'							
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR							

ATC Associates Inc.

BORING LOG

BORING NO: Test Pit SX-2

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA DRILLING CONTRACTOR: Emerald Services

DRILLING MTHD: Backhoe - test pit SAMPLE MTHD: grab - SS scoop

DATE STARTED: Mar 16, 2000 DATE FINISHED: Mar 16, 2000 DRILLER: _____ INSPECTOR: Tom Cammarato

DEPTH (FT)	SAMPLER	SPT BLOWS PER 6"	REC (%)	PID (ppm)	PROFILL	SURFACE ELEVATION: 490'		REMARKS
						LITHOLOGIC DESCRIPTION		
0.0						Asphalt - 3 in.		
1.0						(GN): GRAVEL, Fine to coarse (cobble), Fine to coarse very sandy, silty, brown, loose to medium dense, dry to damp		SX-2-S1
5.0								SX-2-S2
10.0								SX-2-S3
15.0								
20.0								
25.0								
30.0								
BOTTOM OF TEST BORING: 9.00'								
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR								

ATC Associates Inc.

BORING LOG

BORING NO: Test Pit SX-3

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza

CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA

DRILLING CONTRACTOR: Emerald Services

DRILLING MTHD: Backhoe - test pit

SAMPLE MTHD: grab - SS scoop

DATE STARTED: Mar 16, 2000

DATE FINISHED: Mar 16, 2000

DRILLER: _____

INSPECTOR: Tom Cammarata

DEPTH (FT)	SPT	REC (%)	PID (ppm)	FID	PID	SURFACE ELEVATION: 490'		REMARKS
						LITHOLOGIC DESCRIPTION		
0.0						Asphalt - 3 in.		
1.0						(SM): SAND, fine, silty, olive gray, medium dense, dry to damp, with wood fragments, organic matter		SX-3-S1
5.0						(GW): GRAVEL, fine to coarse (cobble), fine to coarse sandy, silty, brown to olive gray, loose to medium dense, dry to damp		SX-3-S2
10.0								SX-3-S3
15.0								
20.0								
25.0								
30.0								

BOTTOM OF TEST BORING: 9.50'

- SPT = STANDARD PENETRATION TEST
- REC = SAMPLE RECOVERY
- ND = NON-DETECTABLE
- FID = FLAME IONIZATION DETECTOR
- PID = PHOTO-IONIZATION DETECTOR

ATC Associates Inc.

BORING LOG

BORING NO: Test Pit SX-4
 PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza CLIENT: JSH Properties, Inc.
 PROJECT LOCATION: Kennewick, WA DRILLING CONTRACTOR: Emerald Services
 DRILLING MTHD: Backhoe - test pit SAMPLE MTHD: grab - SS scoop
 DATE STARTED: Mar 15, 2000 DATE FINISHED: Mar 15, 2000 DRILLER: _____ INSPECTOR: Tom Commarato

DEPTH (FT)	SPT BLOWS PER 6"	REC (%)	PID (ppm)	FID (ppm)	SURFACE ELEVATION: 490'		REMARKS
					LITHOLOGIC DESCRIPTION		
0.0					Asphalt - 3 in.		SX-4-S1
1.0					(SM): SAND, fine, silty, brown, medium dense, dry to damp		
5.0					(GW): GRAVEL, fine to coarse (cobble), fine to coarse sandy, silty, brown to olive gray, loose to medium dense, dry to damp		
10.0							SX-4-S2
15.0							SX-4-S3
20.0							
25.0							
30.0							
BOTTOM OF TEST BORING: 9.00'							
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR							

ATC Associates Inc.

BORING LOG

BORING NO: Test Pit SX-5

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA DRILLING CONTRACTOR: Emerald Services

DRILLING MTHD: Backhoe - test pit SAMPLE MTHD: grab - SS scoop

DATE STARTED: Mar 15, 2000 DATE FINISHED: Mar 15, 2000 DRILLER: _____ INSPECTOR: Tom Cammarata

DEPTH (FT)	SAMPLE	SPT BLMS PER 6"	REC (%)	PID (ppm)	FID	SURFACE ELEVATION: 490'		REMARKS
						LITHOLOGIC DESCRIPTION		
0.0						Asphalt - 3 in.		SX-5-S1 SX-5-S2 SX-5-S3
1.0						(SM): SAND, Fine, silty, brown to dark brown, dry to damp		
5.0						(GW): GRAVEL, fine to coarse (cobble), fine to coarse sandy, silty, brown to olive green, loose to medium dense, dry to damp		
10.0								
15.0								
20.0								
25.0								
30.0								
BOTTOM OF TEST BORING: 10.00'								
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR								

ATC Associates Inc.

BORING LOG

BORING NO: Test Pit SX-6

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza

CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA

DRILLING CONTRACTOR: Emerald Services

DRILLING MTHD: Backhoe - test pit

SAMPLE MTHD: grab - SS scoop

DATE STARTED: Mar 16, 2000

DATE FINISHED: Mar 16, 2000

DRILLER: _____

INSPECTOR: Tom Cammarata

DEPTH (FT)	FID (%)	SPT BLOWS PER 6"	REC (%)	PID (ppm)	FILL CORP	SURFACE ELEVATION: 490'		REMARKS
						LITHOLOGIC DESCRIPTION		
0.0						Asphalt - 3 in.		SX-6-S1
1.0						(GW): GRAVEL, fine to coarse (cobble), fine to coarse very sandy, silty, brown to olive gray, loose to medium dense, dry to damp		
5.0								
10.0								SX-6-S2
15.0								SX-6-S3
20.0								
25.0								
30.0								
BOTTOM OF TEST BORING: 10.00'								
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR								

ATC Associates Inc.

BORING LOG

BORING NO: Test Pit SX-7

PROJECT NO: 76.18452.0201-6

PROJECT NAME: JSH - Kennewick Plaza CLIENT: JSH Properties, Inc.

PROJECT LOCATION: Kennewick, WA DRILLING CONTRACTOR: Emerald Services

DRILLING MTHD: Backhoe - test pit SAMPLE MTHD: grab - SS scoop

DATE STARTED: Mar 16, 2000 DATE FINISHED: Mar 16, 2000 DRILLER: _____ INSPECTOR: Tom Cammarata

DEPTH (FT)	SPT BLOWS PER 6"	REC (%)	PID (ppm)	LITHOLOGY	SURFACE ELEVATION: 490'		REMARKS
					LITHOLOGIC DESCRIPTION		
0.0					Asphalt - 3 in.		SX-7-S1 SX-7-S2 SX-7-S3
1.0	1		0		(GW): GRAVEL, fine to coarse (cobble), fine to coarse very sandy, silty, brown to olive gray, loose to medium dense, dry to damp		
5.0	2		0				
8.0	3		0				
10.0							
15.0							
20.0							
25.0							
30.0							
BOTTOM OF TEST BORING: 8.00'							
SPT = STANDARD PENETRATION TEST REC = SAMPLE RECOVERY ND = NON-DETECTABLE FID = FLAME IONIZATION DETECTOR PID = PHOTO-IONIZATION DETECTOR							



Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East • Tacoma, WA 98424
(253) 922-2310 • FAX (253) 922-5047
e-mail: sainc1@uswest.net



TRANSMITTAL MEMORANDUM

DATE: March 23, 2000

TO: Neil Gilham
ATC Associates
6347 Seaview Ave NW
Seattle, WA 98107

PROJECT: KENNEWICK 18452.0201 TASK 6

REPORT NUMBER: 88314

Enclosed are the test results for twenty-nine samples received at Sound Analytical Services on March 21, 2000.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tom Watson', with a long horizontal flourish extending to the right.

Tom Watson
Project Manager

SOUND ANALYTICAL EPH / VPH

**SAMPLE SUMMARY REPORTS
AND
WORKSHEETS**

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

Client Sample ID: HSA-1 (16-16.5)
 Work Order: 88314
 Laboratory ID: 88314-04
 Date Sampled: _____ Date Received: 3/21/00
 Date Prepared: EPH 3/24/00 PAHs 3/24/00 VPH 3/24/00
 Date Analyzed: EPH 3/27/00 PAHs 3/25/00 VPH 3/24/00
 Matrix: solid % Solids: 92.42

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

<u>Compound</u>	<u>mg/kg</u>
Total Aliphatics	34
Total Aromatics *	27
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

<u>Compound</u>	<u>mg/kg</u>	<u>PQL</u>
Benzene *	0.09	0.18
Total cPAHs *	0.06	0.13

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

<u>Aliphatic Fractions</u>	<u>mg/kg</u>
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	<u>34</u>
Total Aliphatic Fractions	34

<u>Aromatic Fractions</u>	<u>mg/kg</u>
>C8 - C10*	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	ND
>C21 - C34	<u>27</u>
Total Aromatic Fractions	27

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID HSA-1 (16-16.5)
 LAB ID 88314-04

Non-Carcinogen--Hazard Index

Compound	Soil ppm	ORfD	<u>Residential</u>			<u>Commercial</u>			<u>Industrial</u>		
			Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	34	0.06	1.25E-05	2.08E-04	0.01	3.13E-06	5.21E-05	0.00	2.86E-07	4.77E-06	0.00
Total aromatic*	27	0.03	1.25E-05	4.17E-04	0.01	3.13E-06	1.04E-04	0.00	2.86E-07	9.53E-06	0.00
Benzene	0.0										
Ethylbenzene	0.0	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Toluene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Xylenes	0.0	2.00	1.25E-05	6.25E-06	0.00	3.13E-06	1.56E-06	0.00	2.86E-07	1.43E-07	0.00

Hazard Index 0.02 0.00 0.00

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm	OCPF	<u>Residential</u>		<u>Commercial</u>		<u>Industrial</u>	
			Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk
Benzene *	0.09	0.029	1.00E-06	2.61E-09	2.50E-07	6.53E-10	7.62E-08	1.99E-10
Total cPAHs *	0.06	7.30	1.00E-06	4.60E-07	2.50E-07	1.15E-07	7.62E-08	3.50E-08

* For parameters not detected 1/2 PQL values are substituted

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID HSA-1 (16-16.5)
 LAB ID 88314-04

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	0	130	0.0	0.00	3.3E-01	0.0E+00	20	0.0E+00
EC >10 - 12	0	160	0.0	0.00	2.6E-02	0.0E+00	20	0.0E+00
EC >12 - 16	0	200	0.0	0.00	5.9E-04	0.0E+00	20	0.0E+00
EC >16 - 21	34	270	0.1	0.53	1.0E-06	5.3E-07	20	2.6E-08
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	0.0E+00	20	0.0E+00
EC >8 - 10*	0	120	0.0	0.00	6.5E+01	0.0E+00	20	0.0E+00
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	0	150	0.0	0.00	5.8E+00	0.0E+00	20	0.0E+00
EC >16 - 21	0	190	0.0	0.00	5.1E-01	0.0E+00	20	0.0E+00
EC >21 - 35	27	240	0.1	0.47	6.6E-03	3.1E-03	20	1.6E-04
			0.2	1.00				0.0

* Includes ethylbenzene & xylenes
 Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

Client Sample ID: HSA-1 (17-17.5)
 Work Order: 88314
 Laboratory ID: 88314-05
 Date Sampled: _____ Date Received: 3/21/00
 Date Prepared: EPH 3/24/00 PAHs 3/24/00 VPH 3/24/00
 Date Analyzed: EPH 3/27/00 PAHs 3/25/00 VPH 3/24/00
 Matrix: solid % Solids: 94.7

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

<u>Compound</u>	<u>mg/kg</u>
Total Aliphatics	74
Total Aromatics *	73
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

<u>Compound</u>	<u>mg/kg</u>	<u>PQL</u>
Benzene *	0.095	0.19
Total cPAHs *	0.06	0.13

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

<u>Aliphatic Fractions</u>	<u>mg/kg</u>
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	<u>74</u>
Total Aliphatic Fractions	74

<u>Aromatic Fractions</u>	<u>mg/kg</u>
>C8 - C10*	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	11
>C21 - C34	<u>62</u>
Total Aromatic Fractions	73

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID HSA-1 (17-17.5)

LAB ID 88314-05

Non-Carcinogen--Hazard Index

Compound	Soil ppm	<i>Residential</i>			<i>Commercial</i>			<i>Industrial</i>			
		ORfD	Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	74	0.06	1.25E-05	2.08E-04	0.02	3.13E-06	5.21E-05	0.00	2.86E-07	4.77E-06	0.00
Total aromatic*	73	0.03	1.25E-05	4.17E-04	0.03	3.13E-06	1.04E-04	0.01	2.86E-07	9.53E-06	<u>0.00</u>
Benzene	0.0										
Ethylbenzene	0.0	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Toluene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Xylenes	0.0	2.00	1.25E-05	6.25E-06	<u>0.00</u>	3.13E-06	1.56E-06	<u>0.00</u>	2.86E-07	1.43E-07	<u>0.00</u>
Hazard Index					0.05			0.01			0.00

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm	<i>Residential</i>			<i>Commercial</i>			<i>Industrial</i>		
		OCPF	Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk		
Benzene *	0.10	0.029	1.00E-06	2.76E-09	2.50E-07	6.89E-10	7.62E-08	2.10E-10		
Total cPAHs *	0.06	7.30	1.00E-06	4.60E-07	2.50E-07	1.15E-07	7.62E-08	3.50E-08		

* For parameters not detected 1/2 PQL values are substituted

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID HSA-1 (17-17.5)
 LAB ID 88314-05

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	0	130	0.0	0.00	3.3E-01	0.0E+00	20	0.0E+00
EC >10 - 12	0	160	0.0	0.00	2.6E-02	0.0E+00	20	0.0E+00
EC >12 - 16	0	200	0.0	0.00	5.9E-04	0.0E+00	20	0.0E+00
EC >16 - 21	74	270	0.3	0.46	1.0E-06	4.6E-07	20	2.3E-08
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	0.0E+00	20	0.0E+00
EC >8 - 10*	0	120	0.0	0.00	6.5E+01	0.0E+00	20	0.0E+00
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	0	150	0.0	0.00	5.8E+00	0.0E+00	20	0.0E+00
EC >16 - 21	11	190	0.1	0.10	5.1E-01	5.0E-02	20	2.5E-03
EC >21 - 35	62	240	0.3	0.44	6.6E-03	2.9E-03	20	1.4E-04
			0.6	1.00				0.0

* Includes ethylbenzene & xylenes
 Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

Client Sample ID: HSA-1 (18-18.5)
 Work Order: 88314
 Laboratory ID: 88314-06
 Date Sampled: _____ Date Received: 3/21/00
 Date Prepared: EPH 3/24/00 PAHs 3/24/00 VPH 3/24/00
 Date Analyzed: EPH 3/27/00 PAHs 3/25/00 VPH 3/24/00
 Matrix: solid % Solids: 95.16

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

<u>Compound</u>	<u>mg/kg</u>
Total Aliphatics	12
Total Aromatics *	9.2
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

<u>Compound</u>	<u>mg/kg</u>	<u>PQL</u>
Benzene *	0.1	0.2
Total cPAHs *	0.07	0.13

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

<u>Aliphatic Fractions</u>	<u>mg/kg</u>
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	<u>12</u>
Total Aliphatic Fractions	12
<u>Aromatic Fractions</u>	<u>mg/kg</u>
>C8 - C10*	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	ND
>C21 - C34	<u>9.2</u>
Total Aromatic Fractions	9.2

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID HSA-1 (18-18.5)
 LAB ID 88314-06

Non-Carcinogen--Hazard Index

Compound	Soil ppm	<u>Residential</u>			<u>Commercial</u>			<u>Industrial</u>			
		ORfD	Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	12	0.06	1.25E-05	2.08E-04	0.00	3.13E-06	5.21E-05	0.00	2.86E-07	4.77E-06	0.00
Total aromatic*	9	0.03	1.25E-05	4.17E-04	0.00	3.13E-06	1.04E-04	0.00	2.86E-07	9.53E-06	0.00
Benzene	0.0										
Ethylbenzene	0.0	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Toluene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Xylenes	0.0	2.00	1.25E-05	6.25E-06	0.00	3.13E-06	1.56E-06	0.00	2.86E-07	1.43E-07	0.00

Hazard Index 0.01 0.00 0.00

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm	<u>Residential</u>			<u>Commercial</u>			<u>Industrial</u>		
		OCPF	Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk		
Benzene *	0.10	0.029	1.00E-06	2.90E-09	2.50E-07	7.25E-10	7.62E-08	2.21E-10		
Total cPAHs *	0.07	7.30	1.00E-06	4.85E-07	2.50E-07	1.21E-07	7.62E-08	3.70E-08		

* For parameters not detected 1/2 PQL values are substituted

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID HSA-1 (18-18.5)

LAB ID 88314-06

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	0	130	0.0	0.00	3.3E-01	0.0E+00	20	0.0E+00
EC >10 - 12	0	160	0.0	0.00	2.6E-02	0.0E+00	20	0.0E+00
EC >12 - 16	0	200	0.0	0.00	5.9E-04	0.0E+00	20	0.0E+00
EC >16 - 21	12	270	0.0	0.54	1.0E-06	5.4E-07	20	2.7E-08
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	0.0E+00	20	0.0E+00
EC >8 - 10*	0	120	0.0	0.00	6.5E+01	0.0E+00	20	0.0E+00
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	0	150	0.0	0.00	5.8E+00	0.0E+00	20	0.0E+00
EC >16 - 21	0	190	0.0	0.00	5.1E-01	0.0E+00	20	0.0E+00
EC >21 - 35	9	240	0.0	0.46	6.6E-03	3.1E-03	20	1.5E-04
			0.1	1.00				0.0

* Includes ethylbenzene & xylenes
Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

Client Sample ID: HSA-3 (14-14.5)
 Work Order: 88314
 Laboratory ID: 88314-17
 Date Sampled: _____ Date Received: 3/21/00
 Date Prepared: EPH 3/24/00 PAHs 3/24/00 VPH 3/24/00
 Date Analyzed: EPH 3/27/00 PAHs 3/25/00 VPH 3/24/00
 Matrix: solid % Solids: 94.7

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

<u>Compound</u>	<u>mg/kg</u>
Total Aliphatics	25
Total Aromatics *	15
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

<u>Compound</u>	<u>mg/kg</u>	<u>PQL</u>
Benzene *	0.095	0.19
Total cPAHs *	0.07	0.13

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

<u>Aliphatic Fractions</u>	<u>mg/kg</u>
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	<u>25</u>
Total Aliphatic Fractions	25

<u>Aromatic Fractions</u>	<u>mg/kg</u>
>C8 - C10*	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	ND
>C21 - C34	<u>15</u>
Total Aromatic Fractions	15

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID HSA-3 (14-14.5)

LAB ID 88314-17

Non-Carcinogen--Hazard Index

Compound	Soil ppm	ORfD	<u>Residential</u>			<u>Commercial</u>			<u>Industrial</u>		
			Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	25	0.06	1.25E-05	2.08E-04	0.01	3.13E-06	5.21E-05	0.00	2.86E-07	4.77E-06	0.00
Total aromatic*	15	0.03	1.25E-05	4.17E-04	0.01	3.13E-06	1.04E-04	0.00	2.86E-07	9.53E-06	0.00
Benzene	0.0										
Ethylbenzene	0.0	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Toluene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Xylenes	0.0	2.00	1.25E-05	6.25E-06	0.00	3.13E-06	1.56E-06	0.00	2.86E-07	1.43E-07	0.00
Hazard Index					0.01			0.00			0.00

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm	OCPF	<u>Residential</u>		<u>Commercial</u>		<u>Industrial</u>	
			Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk
Benzene *	0.10	0.029	1.00E-06	2.76E-09	2.50E-07	6.89E-10	7.62E-08	2.10E-10
Total cPAHs *	0.07	7.30	1.00E-06	4.85E-07	2.50E-07	1.21E-07	7.62E-08	3.70E-08

* For parameters not detected 1/2 PQL values are substituted

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID HSA-3 (14-14.5)

LAB ID 88314-17

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	0	130	0.0	0.00	3.3E-01	0.0E+00	20	0.0E+00
EC >10 - 12	0	160	0.0	0.00	2.6E-02	0.0E+00	20	0.0E+00
EC >12 - 16	0	200	0.0	0.00	5.9E-04	0.0E+00	20	0.0E+00
EC >16 - 21	25	270	0.1	0.60	1.0E-06	6.0E-07	20	3.0E-08
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	0.0E+00	20	0.0E+00
EC >8 - 10*	0	120	0.0	0.00	6.5E+01	0.0E+00	20	0.0E+00
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	0	150	0.0	0.00	5.8E+00	0.0E+00	20	0.0E+00
EC >16 - 21	0	190	0.0	0.00	5.1E-01	0.0E+00	20	0.0E+00
EC >21 - 35	15	240	0.1	0.40	6.6E-03	2.7E-03	20	1.3E-04
			0.2	1.00				0.0

* Includes ethylbenzene & xylenes
Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

Client Sample ID: HSA-3 (16-16.5)
 Work Order: 88314
 Laboratory ID: 88314-18
 Date Sampled: _____ Date Received: 3/21/00
 Date Prepared: EPH 3/24/00 PAHs 3/24/00 VPH 3/24/00
 Date Analyzed: EPH 3/28/00 PAHs 3/25/00 VPH 3/24/00
 Matrix: solid % Solids: 96.58

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

<u>Compound</u>	<u>mg/kg</u>
Total Aliphatics	290
Total Aromatics *	37
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

<u>Compound</u>	<u>mg/kg</u>	<u>PQL</u>
Benzene *	0.085	0.17
Total cPAHs *	0.06	0.12

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

<u>Aliphatic Fractions</u>	<u>mg/kg</u>
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	ND
>C10 - C12	ND
>C12 - C16	11
>C16 - C21	<u>280</u>
Total Aliphatic Fractions	290

<u>Aromatic Fractions</u>	<u>mg/kg</u>
>C8 - C10*	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	4.6
>C21 - C34	<u>32</u>
Total Aromatic Fractions	37

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID HSA-3 (16-16.5)

LAB ID 88314-18

Non-Carcinogen--Hazard Index

Compound	Soil ppm	ORfD	<i>Residential</i>			<i>Commercial</i>			<i>Industrial</i>		
			Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	290	0.06	1.25E-05	2.08E-04	0.06	3.13E-06	5.21E-05	0.02	2.86E-07	4.77E-06	0.00
Total aromatic*	37	0.03	1.25E-05	4.17E-04	0.02	3.13E-06	1.04E-04	0.00	2.86E-07	9.53E-06	0.00
Benzene	0.0										
Ethylbenzene	0.0	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Toluene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Xylenes	0.0	2.00	1.25E-05	6.25E-06	0.00	3.13E-06	1.56E-06	0.00	2.86E-07	1.43E-07	0.00

Hazard Index

0.08

0.02

0.00

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm	OCPF	<i>Residential</i>		<i>Commercial</i>		<i>Industrial</i>	
			Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk
Benzene *	0.09	0.029	1.00E-06	2.47E-09	2.50E-07	6.16E-10	7.62E-08	1.88E-10
Total cPAHs *	0.06	7.30	1.00E-06	4.34E-07	2.50E-07	1.09E-07	7.62E-08	3.31E-08

* For parameters not detected 1/2 PQL values are substituted

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID HSA-3 (16-16.5)

LAB ID 88314-18

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	0	130	0.0	0.00	3.3E-01	0.0E+00	20	0.0E+00
EC >10 - 12	0	160	0.0	0.00	2.6E-02	0.0E+00	20	0.0E+00
EC >12 - 16	11	200	0.1	0.04	5.9E-04	2.6E-05	20	1.3E-06
EC >16 - 21	280	270	1.0	0.83	1.0E-06	8.3E-07	20	4.1E-08
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	0.0E+00	20	0.0E+00
EC >8 - 10*	0	120	0.0	0.00	6.5E+01	0.0E+00	20	0.0E+00
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	0	150	0.0	0.00	5.8E+00	0.0E+00	20	0.0E+00
EC >16 - 21	5	190	0.0	0.02	5.1E-01	9.9E-03	20	4.9E-04
EC >21 - 35	32	240	0.1	0.11	6.6E-03	7.0E-04	20	3.5E-05
			1.2	1.00				0.0

* Includes ethylbenzene & xylenes
Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

Client Sample ID: HSA-3 (25-25.5)
 Work Order: 88314
 Laboratory ID: 88314-21
 Date Sampled: _____ Date Received: 3/21/00
 Date Prepared: EPH 3/24/00 PAHs 3/24/00 VPH 3/24/00
 Date Analyzed: EPH 3/28/00 PAHs 3/25/00 VPH 3/24/00
 Matrix: solid % Solids: 93.38

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

<u>Compound</u>	<u>mg/kg</u>
Total Aliphatics	15
Total Aromatics *	12
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

<u>Compound</u>	<u>mg/kg</u>	<u>PQL</u>
Benzene *	0.095	0.19
Total cPAHs *	0.07	0.13

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

<u>Aliphatic Fractions</u>	<u>mg/kg</u>
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	<u>15</u>
Total Aliphatic Fractions	15

<u>Aromatic Fractions</u>	<u>mg/kg</u>
>C8 - C10*	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	ND
>C21 - C34	<u>12</u>
Total Aromatic Fractions	<u>12</u>

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID HSA-3 (25-25.5)

LAB ID 88314-21

Non-Carcinogen--Hazard Index

Compound	Soil ppm	<u>Residential</u>			<u>Commercial</u>			<u>Industrial</u>			
		ORfD	Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	15	0.06	1.25E-05	2.08E-04	0.00	3.13E-06	5.21E-05	0.00	2.86E-07	4.77E-06	0.00
Total aromatic*	12	0.03	1.25E-05	4.17E-04	0.01	3.13E-06	1.04E-04	0.00	2.86E-07	9.53E-06	0.00
Benzene	0.0										
Ethylbenzene	0.0	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Toluene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Xylenes	0.0	2.00	1.25E-05	6.25E-06	0.00	3.13E-06	1.56E-06	0.00	2.86E-07	1.43E-07	0.00
Hazard Index					0.01			0.00			0.00

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm	<u>Residential</u>			<u>Commercial</u>			<u>Industrial</u>		
		OCPF	Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk		
Benzene *	0.10	0.029	1.00E-06	2.76E-09	2.50E-07	6.89E-10	7.62E-08	2.10E-10		
Total cPAHs *	0.07	7.30	1.00E-06	4.85E-07	2.50E-07	1.21E-07	7.62E-08	3.70E-08		

* For parameters not detected 1/2 PQL values are substituted

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID HSA-3 (25-25.5)

LAB ID 88314-21

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	0	130	0.0	0.00	3.3E-01	0.0E+00	20	0.0E+00
EC >10 - 12	0	160	0.0	0.00	2.6E-02	0.0E+00	20	0.0E+00
EC >12 - 16	0	200	0.0	0.00	5.9E-04	0.0E+00	20	0.0E+00
EC >16 - 21	15	270	0.1	0.53	1.0E-06	5.3E-07	20	2.6E-08
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	0.0E+00	20	0.0E+00
EC >8 - 10*	0	120	0.0	0.00	6.5E+01	0.0E+00	20	0.0E+00
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	0	150	0.0	0.00	5.8E+00	0.0E+00	20	0.0E+00
EC >16 - 21	0	190	0.0	0.00	5.1E-01	0.0E+00	20	0.0E+00
EC >21 - 35	12	240	0.1	0.47	6.6E-03	3.1E-03	20	1.6E-04
			0.1	1.00				0.0

* Includes ethylbenzene & xylenes
Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

Client Sample ID: HSA-4 (5-5.5)
 Work Order: 88314
 Laboratory ID: 88314-23
 Date Sampled: _____ Date Received: 3/21/00
 Date Prepared: EPH 3/24/00 PAHs 3/24/00 VPH 3/24/00
 Date Analyzed: EPH 3/28/00 PAHs 3/25/00 VPH 3/24/00
 Matrix: solid % Solids: 89.11

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

<u>Compound</u>	<u>mg/kg</u>
Total Aliphatics	32
Total Aromatics *	410
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

<u>Compound</u>	<u>mg/kg</u>	<u>PQL</u>
Benzene *	0.11	0.22
Total cPAHs *	0.26	0.14

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

<u>Aliphatic Fractions</u>	<u>mg/kg</u>
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	<u>32</u>
Total Aliphatic Fractions	32

<u>Aromatic Fractions</u>	<u>mg/kg</u>
>C8 - C10*	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	60
>C21 - C34	<u>350</u>
Total Aromatic Fractions	410

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID HSA-4 (5-5.5)

LAB ID 88314-23

Non-Carcinogen--Hazard Index

Compound	Soil ppm	<i>Residential</i>			<i>Commercial</i>			<i>Industrial</i>			
		ORfD	Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	32	0.06	1.25E-05	2.08E-04	0.01	3.13E-06	5.21E-05	0.00	2.86E-07	4.77E-06	0.00
Total aromatic*	410	0.03	1.25E-05	4.17E-04	0.17	3.13E-06	1.04E-04	0.04	2.86E-07	9.53E-06	0.00
Benzene	0.0	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Ethylbenzene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Toluene	0.0	2.00	1.25E-05	6.25E-06	0.00	3.13E-06	1.56E-06	0.00	2.86E-07	1.43E-07	0.00
Xylenes	0.0										
Hazard Index					0.18			0.04			0.00

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm	<i>Residential</i>			<i>Commercial</i>			<i>Industrial</i>		
		OCPF	Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk		
Benzene *	0.11	0.029	1.00E-06	3.19E-09	2.50E-07	7.98E-10	7.62E-08	2.43E-10		
Total cPAHs *	0.26	7.30	1.00E-06	1.89E-06	2.50E-07	4.73E-07	7.62E-08	1.44E-07		

* For parameters not detected 1/2 PQL values are substituted

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID HSA-4 (5-5.5)
 LAB ID 88314-23

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	0	130	0.0	0.00	3.3E-01	0.0E+00	20	0.0E+00
EC >10 - 12	0	160	0.0	0.00	2.6E-02	0.0E+00	20	0.0E+00
EC >12 - 16	0	200	0.0	0.00	5.9E-04	0.0E+00	20	0.0E+00
EC >16 - 21	32	270	0.1	0.06	1.0E-06	6.3E-08	20	3.1E-09
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	0.0E+00	20	0.0E+00
EC >8 - 10*	0	120	0.0	0.00	6.5E+01	0.0E+00	20	0.0E+00
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	0	150	0.0	0.00	5.8E+00	0.0E+00	20	0.0E+00
EC >16 - 21	60	190	0.3	0.17	5.1E-01	8.5E-02	20	4.3E-03
EC >21 - 35	350	240	1.5	0.77	6.6E-03	5.1E-03	20	2.5E-04
			1.9	1.00				0.0

* Includes ethylbenzene & xylenes
 Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

SOUND ANALYTICAL EPH/VPH

VOLATILE PETROLEUM HYDROCARBONS

**ALIPHATIC AND AROMATIC FRACTIONS
TARGET INDICATOR COMPOUNDS**

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (16-16.5)
Lab ID:	88314-04
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/24/00
% Solids	92.42
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	85.2		60	140
Bromofluorobenzene	104		60	140

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.18	
Benzene	ND	0.18	
Toluene	ND	0.18	
Ethylbenzene	ND	0.18	
m- & p-Xylene	ND	0.37	
o-Xylene	ND	0.18	
Total EC >8-10 Aromatics	ND	0.92	
Total EC 5-6 Aliphatics	ND	0.55	
Total EC >6-8 Aliphatics	ND	0.37	
Total EC >8-10 Aliphatics	ND	1.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (17-17.5)
Lab ID:	88314-05
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/24/00
% Solids	94.7
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	89.2		60	140
Bromofluorobenzene	107		60	140

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.19	
Benzene	ND	0.19	
Toluene	ND	0.19	
Ethylbenzene	ND	0.19	
m- & p-Xylene	ND	0.38	
o-Xylene	ND	0.19	
Total EC >8-10 Aromatics	ND	0.94	
Total EC 5-6 Aliphatics	ND	0.57	
Total EC >6-8 Aliphatics	ND	0.38	
Total EC >8-10 Aliphatics	ND	1.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (18-18.5)
Lab ID:	88314-06
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/24/00
% Solids	95.16
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	89.1		60	140
Bromofluorobenzene	107		60	140

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.2	
Benzene	ND	0.2	
Toluene	ND	0.2	
Ethylbenzene	ND	0.2	
m- & p-Xylene	ND	0.41	
o-Xylene	ND	0.2	
Total EC >8-10 Aromatics	ND	1	
Total EC 5-6 Aliphatics	ND	0.61	
Total EC >6-8 Aliphatics	ND	0.41	
Total EC >8-10 Aliphatics	ND	1.2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (14-14.5)
Lab ID:	88314-17
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/24/00
% Solids	94.7
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	90.7		60	140
Bromofluorobenzene	110		60	140

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.19	
Benzene	ND	0.19	
Toluene	ND	0.19	
Ethylbenzene	ND	0.19	
m- & p-Xylene	ND	0.38	
o-Xylene	ND	0.19	
Total EC >8-10 Aromatics	ND	0.94	
Total EC 5-6 Aliphatics	ND	0.57	
Total EC >6-8 Aliphatics	ND	0.38	
Total EC >8-10 Aliphatics	ND	1.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (16-16.5)
Lab ID:	88314-18
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/24/00
% Solids	96.58
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	90.3		60	140
Bromofluorobenzene	106		60	140

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.17	
Benzene	ND	0.17	
Toluene	ND	0.17	
Ethylbenzene	ND	0.17	
m- & p-Xylene	ND	0.35	
o-Xylene	ND	0.17	
Total EC >8-10 Aromatics	ND	0.86	
Total EC 5-6 Aliphatics	ND	0.52	
Total EC >6-8 Aliphatics	ND	0.35	
Total EC >8-10 Aliphatics	ND	1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (25-25.5)
Lab ID:	88314-21
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/24/00
% Solids	93.38
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	87.1		60	140
Bromofluorobenzene	102		60	140

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.19	
Benzene	ND	0.19	
Toluene	ND	0.19	
Ethylbenzene	ND	0.19	
m- & p-Xylene	ND	0.38	
o-Xylene	ND	0.19	
Total EC >8-10 Aromatics	ND	0.95	
Total EC 5-6 Aliphatics	ND	0.57	
Total EC >6-8 Aliphatics	ND	0.38	
Total EC >8-10 Aliphatics	ND	1.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-4 (5-5.5)
Lab ID:	88314-23
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/24/00
% Solids	89.11
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	90.8		60	140
Bromofluorobenzene	108		60	140

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.22	
Benzene	ND	0.22	
Toluene	ND	0.22	
Ethylbenzene	ND	0.22	
m- & p-Xylene	ND	0.44	
o-Xylene	ND	0.22	
Total EC >8-10 Aromatics	ND	1.1	
Total EC 5-6 Aliphatics	ND	0.67	
Total EC >6-8 Aliphatics	ND	0.44	
Total EC >8-10 Aliphatics	ND	1.3	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - GB2200
Date Received:	-
Date Prepared:	3/24/00
Date Analyzed:	3/24/00
% Solids	
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	96.9		60	140
Bromofluorobenzene	116		60	140

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.2	
Benzene	ND	0.2	
Toluene	ND	0.2	
Ethylbenzene	ND	0.2	
m- & p-Xylene	ND	0.4	
o-Xylene	ND	0.2	
Total EC >8-10 Aromatics	ND	1	
Total EC 5-6 Aliphatics	ND	0.6	
Total EC >6-8 Aliphatics	ND	0.4	
Total EC >8-10 Aliphatics	ND	1.2	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID: HSA-1 (17-17.5)
Lab ID: 88314-05
Date Prepared: 3/24/00
Date Analyzed: 3/24/00
QC Batch ID: GB2200

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
MTBE	0	1.8	0.6	33	N
Benzene	0	1.8	1.43	79	
Toluene	0	1.8	1.53	84	
Ethylbenzene	0	1.8	1.69	93	
m- & p-Xylene	0	3.6	3.47	95	
o-Xylene	0	1.82	1.58	87	
Total EC >8-10 Aromatics	0	9.1	7.5	83	
Total EC 5-6 Aliphatics	0	5.5	3.02	55	N
Total EC >6-8 Aliphatics	0	3.6	3.07	84	
Total EC >8-10 Aliphatics	0	11	9.14	84	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID: GB2200
Date Prepared: 3/24/00
Date Analyzed: 3/24/00
QC Batch ID: GB2200

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
MTBE	0	2	1.72	85.8	1.86	92.9	7.9	
Benzene	0	2	1.72	85.8	1.87	93.3	8.4	
Toluene	0	2	1.71	85.4	1.88	93.8	9.4	
Ethylbenzene	0	2	1.8	90	1.96	98	8.5	
m- & p-Xylene	0	4	3.9	97.5	4.26	107	9.3	
o-Xylene	0	2	1.75	87.6	1.92	95.8	8.9	
Total EC >8-10 Aromatics	0	10	8.66	86.6	9.16	91.6	5.6	
Total EC 5-6 Aliphatics	0	6	5.16	86.1	5.43	90.5	5	
Total EC >6-8 Aliphatics	0	4	3.7	92.4	3.93	98.3	6.2	
Total EC >8-10 Aliphatics	0	12	9.92	82.6	10.6	88.7	7.1	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	HSA-1 (16-16.5)
Lab ID:	88314-04
Date Prepared:	3/24/00
Date Analyzed:	3/24/00
QC Batch ID:	GB2200

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
MTBE	0	0	NC	
Benzene	0	0	NC	
Toluene	0	0	NC	
Ethylbenzene	0	0	NC	
m- & p-Xylene	0	0	NC	
o-Xylene	0	0	NC	
Total EC >8-10 Aromatics	0	0	NC	
Total EC 5-6 Aliphatics	0	0	NC	
Total EC >6-8 Aliphatics	0	0	NC	
Total EC >8-10 Aliphatics	0	0	NC	

SOUND ANALYTICAL EPH / VPH
EXTRACTABLE PETROLEUM HYDROCARBONS
ALIPHATIC AND AROMATIC FRACTIONS

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (16-16.5)
Lab ID:	88314-04
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/27/00
% Solids	92.42
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	81.7		50	150
ortho-terphenyl	87.2		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	4.6	
C10-C12 Aliphatics	ND	4.6	
C12-C16 Aliphatics	ND	4.6	
C16-C21 Aliphatics	34	4.6	
C21-C34 Aliphatics	170	4.6	
C10-C12 Aromatics	ND	4.6	
C12-C16 Aromatics	ND	4.6	
C16-C21 Aromatics	ND	4.6	
C21-C34 Aromatics	27	4.6	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (17-17.5)
Lab ID:	88314-05
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/27/00
% Solids	94.7
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	81.9		50	150
ortho-terphenyl	84.4		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	4.5	
C10-C12 Aliphatics	ND	4.5	
C12-C16 Aliphatics	ND	4.5	
C16-C21 Aliphatics	74	4.5	
C21-C34 Aliphatics	350	4.5	
C10-C12 Aromatics	ND	4.5	
C12-C16 Aromatics	ND	4.5	
C16-C21 Aromatics	11	4.5	
C21-C34 Aromatics	62	4.5	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (18-18.5)
Lab ID:	88314-06
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/27/00
% Solids	95.16
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	82.8		50	150
ortho-terphenyl	84.4		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	4.7	
C10-C12 Aliphatics	ND	4.7	
C12-C16 Aliphatics	ND	4.7	
C16-C21 Aliphatics	12	4.7	
C21-C34 Aliphatics	74	4.7	
C10-C12 Aromatics	ND	4.7	
C12-C16 Aromatics	ND	4.7	
C16-C21 Aromatics	ND	4.7	
C21-C34 Aromatics	9.2	4.7	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (14-14.5)
Lab ID:	88314-17
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/27/00
% Solids	94.7
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	88.4		50	150
ortho-terphenyl	96.4		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	4.7	
C10-C12 Aliphatics	ND	4.7	
C12-C16 Aliphatics	ND	4.7	
C16-C21 Aliphatics	25	4.7	
C21-C34 Aliphatics	160	4.7	
C10-C12 Aromatics	ND	4.7	
C12-C16 Aromatics	ND	4.7	
C16-C21 Aromatics	ND	4.7	
C21-C34 Aromatics	15	4.7	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (16-16.5)
Lab ID:	88314-18
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/28/00
% Solids	96.58
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	90.5		50	150
ortho-terphenyl	86		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	4.4	
C10-C12 Aliphatics	ND	4.4	
C12-C16 Aliphatics	11	4.4	
C16-C21 Aliphatics	280	4.4	
C21-C34 Aliphatics	2100	4.4	
C10-C12 Aromatics	ND	4.4	
C12-C16 Aromatics	ND	4.4	
C16-C21 Aromatics	4.6	4.4	
C21-C34 Aromatics	32	4.4	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (25-25.5)
Lab ID:	88314-21
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/28/00
% Solids	93.38
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	83.9		50	150
ortho-terphenyl	91		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	4.7	
C10-C12 Aliphatics	ND	4.7	
C12-C16 Aliphatics	ND	4.7	
C16-C21 Aliphatics	15	4.7	
C21-C34 Aliphatics	120	4.7	
C10-C12 Aromatics	ND	4.7	
C12-C16 Aromatics	ND	4.7	
C16-C21 Aromatics	ND	4.7	
C21-C34 Aromatics	12	4.7	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-4 (5-5.5)
Lab ID:	88314-23
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/28/00
% Solids	89.11
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	77.1		50	150
ortho-terphenyl	97.2		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	5.1	
C10-C12 Aliphatics	ND	5.1	
C12-C16 Aliphatics	ND	5.1	
C16-C21 Aliphatics	32	5.1	
C21-C34 Aliphatics	220	5.1	
C10-C12 Aromatics	ND	5.1	
C12-C16 Aromatics	ND	5.1	
C16-C21 Aromatics	60	5.1	
C21-C34 Aromatics	350	5.1	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - EP194
Date Received:	-
Date Prepared:	3/24/00
Date Analyzed:	3/27/00
% Solids	
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	75.9		60	140
ortho-terphenyl	96.5		60	140

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	4.5	
C10-C12 Aliphatics	ND	4.5	
C12-C16 Aliphatics	ND	4.5	
C16-C21 Aliphatics	ND	4.5	
C21-C34 Aliphatics	ND	4.5	
C10-C12 Aromatics	ND	4.5	
C12-C16 Aromatics	ND	4.5	
C16-C21 Aromatics	ND	4.5	
C21-C34 Aromatics	ND	4.5	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID: SX-2-S1
Lab ID: 88268-19
Date Prepared: 3/24/00
Date Analyzed: 3/27/00
QC Batch ID: EP194

Extractable Petroleum Hydrocarbons (EPH) Modified

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
C8-C10 Aliphatics	0	22	20.8	93	
C10-C12 Aliphatics	0	23	21.2	94	
C12-C16 Aliphatics	0	21	19.9	97	
C16-C21 Aliphatics	0	21	23.6	111	
C21-C34 Aliphatics	57.7	21	67.9	49	X7
C10-C12 Aromatics	0	20.7	17.9	86	
C12-C16 Aromatics	0	21	18.5	87	
C16-C21 Aromatics	0	23	21.9	95	
C21-C34 Aromatics	5.83	18	24.9	109	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike Report

Lab ID: EP194
Date Prepared: 3/24/00
Date Analyzed: 3/27/00
QC Batch ID: EP194

Extractable Petroleum Hydrocarbons (EPH) Modified

Parameter Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	Flag
C8-C10 Aliphatics	0	20	17.6	89	
C10-C12 Aliphatics	0	20	17.9	89	
C12-C16 Aliphatics	0	18	16.1	88	
C16-C21 Aliphatics	0	19	17	90	
C21-C34 Aliphatics	0	18	13.8	75	
C10-C12 Aromatics	0	18.4	13.9	76	
C12-C16 Aromatics	0	19	15	80	
C16-C21 Aromatics	0	20	17.3	85	
C21-C34 Aromatics	0	16	12.6	81	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: SX-2-S1
Lab ID: 88268-19
Date Prepared: 3/24/00
Date Analyzed: 3/27/00
QC Batch ID: EP194

Extractable Petroleum Hydrocarbons (EPH) Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
C8-C10 Aliphatics	0	0	NC	
C10-C12 Aliphatics	0	0	NC	
C12-C16 Aliphatics	0	0	NC	
C16-C21 Aliphatics	0	0	NC	
C21-C34 Aliphatics	57.7	35.9	47.0	N
C10-C12 Aromatics	0	0	NC	
C12-C16 Aromatics	0	0	NC	
C16-C21 Aromatics	0	0	NC	
C21-C34 Aromatics	5.83	8.99	-43.0	X4a

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - S135
Date Received:	-
Date Prepared:	3/27/00
Date Analyzed:	3/28/00
Dilution Factor	1

Metals by ICP - USEPA Method 6010

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	ND	2	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID: 1034-2-02
Lab ID: 88403-02
Date Prepared: 3/27/00
Date Analyzed: 3/28/00
QC Batch ID: S135

Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
Lead	8	178	160	86	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: 1034-2-02
Lab ID: 88403-02
Date Prepared: 3/27/00
Date Analyzed: 3/28/00
QC Batch ID: S135

Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Lead	8	8.5	-6.1	

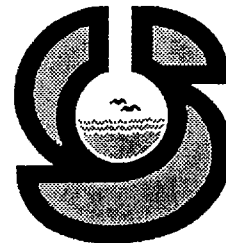
Sound Analytical Services, Inc.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 Pacific Hwy East o Tacoma, WA 98424

(253) 922-2310 o FAX (253) 922-5047

e-mail: sainc1@uswest.net



DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be $\leq 40\%$.
- C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be $> 40\%$. The higher result was reported unless anomalies were noted.
- M: GC/MS confirmation was performed. The result derived from the original analysis was reported.
- D: The reported result for this analyte was calculated based on a secondary dilution factor.
- E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- ___: See analytical narrative.
- ND: Not Detected
- PQL: Practical Quantitation Limit
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2: Contaminant does not appear to be "typical" product.
- X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.
- X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.
- X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike recovery was not determined due to the required dilution.
- X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.
- X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.
- X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
- X8: Surrogate recovery was not determined due to the required dilution.
- .9: Surrogate recovery outside advisory QC limits due to matrix interference.

SOUND ANALYTICAL EPA 8270 MOD.
EXTRACTABLE PETROLEUM HYDROCARBONS
TARGET PAH COMPOUNDS

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (16-16.5)
Lab ID:	88314-04
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/25/00
% Solids	92.42
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-Terphenyl	112		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	ND	0.018	0.018	
2-Methylnaphthalene	ND	0.018	0.017	
Acenaphthylene	ND	0.018	0.018	
Acenaphthene	ND	0.018	0.016	
Fluorene	ND	0.018	0.013	
Phenanthrene	ND	0.018	0.012	
Anthracene	ND	0.018	0.015	
Fluoranthene	ND	0.018	0.011	
Pyrene	ND	0.018	0.01	
Benzo(a)anthracene	ND	0.018	0.0081	
Chrysene	ND	0.018	0.0099	
Benzo(b)fluoranthene	ND	0.018	0.0095	
Benzo(k)fluoranthene	ND	0.018	0.015	
Benzo(a)pyrene	ND	0.018	0.0075	
Indeno(1,2,3-cd)pyrene	ND	0.018	0.014	
Dibenz(a,h)anthracene	ND	0.018	0.01	
Benzo(g,h,i)perylene	ND	0.018	0.011	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (17-17.5)
Lab ID:	88314-05
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/25/00
% Solids	94.7
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-Terphenyl	94.6		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	ND	0.018	0.018	
2-Methylnaphthalene	ND	0.018	0.016	
Acenaphthylene	ND	0.018	0.017	
Acenaphthene	ND	0.018	0.015	
Fluorene	ND	0.018	0.013	
Phenanthrene	ND	0.018	0.012	
Anthracene	ND	0.018	0.015	
Fluoranthene	ND	0.018	0.01	
Pyrene	ND	0.018	0.0098	
Benzo(a)anthracene	ND	0.018	0.0079	
Chrysene	ND	0.018	0.0096	
Benzo(b)fluoranthene	ND	0.018	0.0093	
Benzo(k)fluoranthene	ND	0.018	0.014	
Benzo(a)pyrene	ND	0.018	0.0073	
Indeno(1,2,3-cd)pyrene	ND	0.018	0.014	
Dibenz(a,h)anthracene	ND	0.018	0.01	
Benzo(g,h,i)perylene	ND	0.018	0.011	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (18-18.5)
Lab ID:	88314-06
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/25/00
% Solids	95.16
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-Terphenyl	106		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	ND	0.019	0.019	
2-Methylnaphthalene	ND	0.019	0.017	
Acenaphthylene	ND	0.019	0.018	
Acenaphthene	ND	0.019	0.016	
Fluorene	ND	0.019	0.014	
Phenanthrene	ND	0.019	0.013	
Anthracene	ND	0.019	0.016	
Fluoranthene	ND	0.019	0.011	
Pyrene	ND	0.019	0.01	
Benzo(a)anthracene	ND	0.019	0.0083	
Chrysene	ND	0.019	0.01	
Benzo(b)fluoranthene	ND	0.019	0.0099	
Benzo(k)fluoranthene	ND	0.019	0.015	
Benzo(a)pyrene	ND	0.019	0.0078	
Indeno(1,2,3-cd)pyrene	ND	0.019	0.015	
Dibenz(a,h)anthracene	ND	0.019	0.011	
Benzo(g,h,i)perylene	ND	0.019	0.012	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (14-14.5)
Lab ID:	88314-17
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/25/00
% Solids	94.7
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-Terphenyl	110		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	ND	0.019	0.019	
2-Methylnaphthalene	ND	0.019	0.017	
Acenaphthylene	ND	0.019	0.018	
Acenaphthene	ND	0.019	0.016	
Fluorene	ND	0.019	0.014	
Phenanthrene	ND	0.019	0.013	
Anthracene	ND	0.019	0.015	
Fluoranthene	ND	0.019	0.011	
Pyrene	ND	0.019	0.01	
Benzo(a)anthracene	ND	0.019	0.0083	
Chrysene	ND	0.019	0.01	
Benzo(b)fluoranthene	ND	0.019	0.0098	
Benzo(k)fluoranthene	ND	0.019	0.015	
Benzo(a)pyrene	ND	0.019	0.0077	
Indeno(1,2,3-cd)pyrene	ND	0.019	0.015	
Dibenz(a,h)anthracene	ND	0.019	0.011	
Benzo(g,h,i)perylene	ND	0.019	0.012	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (16-16.5)
Lab ID:	88314-18
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/25/00
% Solids	96.58
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-Terphenyl	88.5		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	ND	0.017	0.017	
2-Methylnaphthalene	ND	0.017	0.016	
Acenaphthylene	ND	0.017	0.017	
Acenaphthene	ND	0.017	0.015	
Fluorene	ND	0.017	0.013	
Phenanthrene	ND	0.017	0.012	
Anthracene	ND	0.017	0.014	
Fluoranthene	ND	0.017	0.01	
Pyrene	ND	0.017	0.0096	
Benzo(a)anthracene	ND	0.017	0.0077	
Chrysene	ND	0.017	0.0094	
Benzo(b)fluoranthene	ND	0.017	0.0091	
Benzo(k)fluoranthene	ND	0.017	0.014	
Benzo(a)pyrene	ND	0.017	0.0071	
Indeno(1,2,3-cd)pyrene	ND	0.017	0.014	
Dibenz(a,h)anthracene	ND	0.017	0.0097	
Benzo(g,h,i)perylene	ND	0.017	0.011	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (25-25.5)
Lab ID:	88314-21
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/25/00
% Solids	93.38
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-Terphenyl	103		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	ND	0.019	0.019	
2-Methylnaphthalene	ND	0.019	0.017	
Acenaphthylene	ND	0.019	0.018	
Acenaphthene	ND	0.019	0.016	
Fluorene	ND	0.019	0.014	
Phenanthrene	ND	0.019	0.013	
Anthracene	ND	0.019	0.015	
Fluoranthene	ND	0.019	0.011	
Pyrene	ND	0.019	0.01	
Benzo(a)anthracene	ND	0.019	0.0083	
Chrysene	ND	0.019	0.01	
Benzo(b)fluoranthene	ND	0.019	0.0098	
Benzo(k)fluoranthene	ND	0.019	0.015	
Benzo(a)pyrene	ND	0.019	0.0077	
Indeno(1,2,3-cd)pyrene	ND	0.019	0.015	
Dibenz(a,h)anthracene	ND	0.019	0.011	
Benzo(g,h,i)perylene	ND	0.019	0.012	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-4 (5-5.5)
Lab ID:	88314-23
Date Received:	3/21/00
Date Prepared:	3/24/00
Date Analyzed:	3/25/00
% Solids	89.11
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-Terphenyl	99		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	ND	0.02	0.02	
2-Methylnaphthalene	ND	0.02	0.018	
Acenaphthylene	ND	0.02	0.019	
Acenaphthene	ND	0.02	0.017	
Fluorene	0.024	0.02	0.015	
Phenanthrene	0.11	0.02	0.014	
Anthracene	0.026	0.02	0.017	
Fluoranthene	0.13	0.02	0.012	
Pyrene	0.097	0.02	0.011	
Benzo(a)anthracene	0.081	0.02	0.0089	
Chrysene	0.059	0.02	0.011	
Benzo(b)fluoranthene	0.079	0.02	0.011	
Benzo(k)fluoranthene	ND	0.02	0.016	
Benzo(a)pyrene	ND	0.02	0.0083	
Indeno(1,2,3-cd)pyrene	ND	0.02	0.016	
Dibenz(a,h)anthracene	ND	0.02	0.011	
Benzo(g,h,i)perylene	ND	0.02	0.013	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - EP194
Date Received:	-
Date Prepared:	3/24/00
Date Analyzed:	3/25/00
% Solids	
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-Terphenyl	94		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	ND	0.018	0.018	
2-Methylnaphthalene	ND	0.018	0.016	
Acenaphthylene	ND	0.018	0.017	
Acenaphthene	ND	0.018	0.016	
Fluorene	ND	0.018	0.013	
Phenanthrene	ND	0.018	0.012	
Anthracene	ND	0.018	0.015	
Fluoranthene	ND	0.018	0.011	
Pyrene	ND	0.018	0.01	
Benzo(a)anthracene	ND	0.018	0.008	
Chrysene	ND	0.018	0.0098	
Benzo(b)fluoranthene	ND	0.018	0.0095	
Benzo(k)fluoranthene	ND	0.018	0.015	
Benzo(a)pyrene	ND	0.018	0.0075	
Indeno(1,2,3-cd)pyrene	ND	0.018	0.014	
Dibenz(a,h)anthracene	ND	0.018	0.01	
Benzo(g,h,i)perylene	ND	0.018	0.011	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID: SX-2-S1
Lab ID: 88268-19
Date Prepared: 3/24/00
Date Analyzed: 3/25/00
QC Batch ID: EP194

Targeted PAH Analytes by Method 8270 Modified.

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
Naphthalene	0	21	17.3	84	
Acenaphthene	0	21	25	122	
Pyrene	0.0875	21	15.7	76	
Benzo(g,h,i)perylene	0.117	21	15.7	76	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: SX-2-S1
Lab ID: 88268-19
Date Prepared: 3/24/00
Date Analyzed: 3/25/00
QC Batch ID: EP194

Targeted PAH Analytes by Method 8270 Modified.

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Naphthalene	0	0	NC	
2-Methylnaphthalene	0	0	NC	
Acenaphthylene	0	0	NC	
Acenaphthene	0	0	NC	
Fluorene	0	0	NC	
Phenanthrene	0.0219	0	200.0	X4a
Anthracene	0	0	NC	
Fluoranthene	0.0775	0.0499	43.0	X4a
Pyrene	0.0875	0.0459	62.0	X4a
Benzo(a)anthracene	0.0457	0.0259	55.0	X4a
Chrysene	0.0616	0.0459	29.0	
Benzo(b)fluoranthene	0.115	0.0718	46.0	X4a
Benzo(k)fluoranthene	0	0	NC	
Benzo(a)pyrene	0.0537	0.0339	45.0	X4a
Indeno(1,2,3-cd)pyrene	0	0	NC	
Dibenz(a,h)anthracene	0	0	NC	
Benzo(g,h,i)perylene	0.117	0.0877	29.0	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (5-6)
Lab ID:	88314-01
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/21/00
% Solids	92.35
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	78.6		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	13	
Motor Oil	ND	41	21	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (10-11)
Lab ID:	88314-02
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/21/00
% Solids	92.87
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	78.3		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	13	
Motor Oil	ND	40	21	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (14-15)
Lab ID:	88314-03
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/21/00
% Solids	93.06
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	80.6		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	21	13	
Motor Oil	ND	42	22	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (16-16.5)
Lab ID:	88314-04
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/21/00
% Solids	92.42
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	74.3		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	65	20	12	X1
Motor Oil	230	40	21	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (17-17.5)
Lab ID:	88314-05
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	94.7
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	61.2		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	210	19	12	X1
Motor Oil	930	39	20	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (18-18.5)
Lab ID:	88314-06
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	95.16
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	61.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	72	20	12	X1
Motor Oil	310	39	20	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (20-21)
Lab ID:	88314-07
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	92.58
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	76.1		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	40	20	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (25-26)
Lab ID:	88314-08
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	96.21
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	77.3		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	19	12	
Motor Oil	ND	38	20	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (30-31)
Lab ID:	88314-09
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	94.4
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	78.2		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	21	13	
Motor Oil	ND	42	22	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-2 (5-6)
Lab ID:	88314-10
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	93.96
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	78.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	39	20	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-2 (10-11)
Lab ID:	88314-11
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	93.6
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	77.6		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	21	13	
Motor Oil	ND	43	22	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-2 (14-14.5)
Lab ID:	88314-12
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	95.14
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	85.7		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	19	12	
Motor Oil	ND	39	20	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-2 (14-14.5) - dup
Lab ID:	88314R12
Date Received:	-
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	95.14
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	78.3		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	40	21	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-2 (15-15.4)
Lab ID:	88314-13
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	95.86
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	78.1		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	40	20	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-2 (16-16.5)
Lab ID:	88314-14
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	94.97
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	79.3		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	13	
Motor Oil	ND	41	21	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (5-6)
Lab ID:	88314-15
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	92.25
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	83.1		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	21	13	
Motor Oil	43	41	21	X2

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (10-10.5)
Lab ID:	88314-16
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	95.56
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	79.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	39	20	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (14-14.5)
Lab ID:	88314-17
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	94.7
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	82.9		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	160	19	12	X1
Motor Oil	750	38	20	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (16-16.5)
Lab ID:	88314-18
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	96.58
Dilution Factor	40

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	75.7		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	1100	200	120	X1
Motor Oil	4700	400	210	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (18-18.5)
Lab ID:	88314-19
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	95.52
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	78.6		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	31	20	12	X1
Motor Oil	130	39	20	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (20-20.5)
Lab ID:	88314-20
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	95.48
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	72.9		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	27	20	13	X1
Motor Oil	120	40	21	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (25-25.5)
Lab ID:	88314-21
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	93.38
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	83.7		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	64	20	13	X1
Motor Oil	280	41	21	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (25-25.5) - dup
Lab ID:	88314R21
Date Received:	-
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	93.38
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	82.2		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	53	20	12	X1
Motor Oil	230	39	20	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (30-30.5)
Lab ID:	88314-22
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	89.66
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	71.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	14	
Motor Oil	ND	44	23	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-4 (5-5.5)
Lab ID:	88314-23
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	89.11
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	69.4		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	130	22	14	X1
Motor Oil	690	45	23	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-4 (10-11)
Lab ID:	88314-24
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	93.71
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	83.9		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	26	20	12	X1
Motor Oil	140	40	20	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-4 (14-14.4)
Lab ID:	88314-25
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	94.57
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	76.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	25	20	13	X1
Motor Oil	100	40	21	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-4 (18-18.5)
Lab ID:	88314-26
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	95.82
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	81		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	19	12	
Motor Oil	ND	38	20	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-4 (20-20.5)
Lab ID:	88314-27
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	95.98
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	83.5		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	21	13	
Motor Oil	ND	41	21	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-4 (22.5)
Lab ID:	88314-28
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	97.21
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	136		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	39	20	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-STOCKPILE
Lab ID:	88314-29
Date Received:	3/21/00
Date Prepared:	3/21/00
Date Analyzed:	3/22/00
% Solids	92.88
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	83.5		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	130	21	13	X1
Motor Oil	720	41	21	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (17-17.5)
Lab ID:	88314-05
Date Received:	3/21/00
Date Prepared:	3/27/00
Date Analyzed:	3/28/00
Dilution Factor	1
% Solids	94.7

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	7.2	2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-1 (18-18.5)
Lab ID:	88314-06
Date Received:	3/21/00
Date Prepared:	3/27/00
Date Analyzed:	3/28/00
Dilution Factor	1
% Solids	95.16

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	4.8	2.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (16-16.5)
Lab ID:	88314-18
Date Received:	3/21/00
Date Prepared:	3/27/00
Date Analyzed:	3/28/00
Dilution Factor	1
% Solids	96.58

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	7.2	2.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	HSA-3 (25-25.5)
Lab ID:	88314-21
Date Received:	3/21/00
Date Prepared:	3/27/00
Date Analyzed:	3/28/00
Dilution Factor	1
% Solids	93.38

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	5.8	2	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - DI2536
Date Received:	-
Date Prepared:	3/21/00
Date Analyzed:	3/21/00
% Solids	
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	69.5		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	40	21	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - DI2537
Date Received:	-
Date Prepared:	3/21/00
Date Analyzed:	3/21/00
% Solids	
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	79.7		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	40	21	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID: DI2536
Date Prepared: 3/21/00
Date Analyzed: 3/21/00
QC Batch ID: DI2536

Diesel and Motor Oil by NWTPH-Dx Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
#2 Diesel	0	501	430	85.9	451	90	4.7	
Motor Oil	0	496	390	78.6	443	89.4	13	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID: DI2537
Date Prepared: 3/21/00
Date Analyzed: 3/21/00
QC Batch ID: DI2537

Diesel and Motor Oil by NWTPH-Dx.Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
#2 Diesel	0	501	445	88.9	489	97.7	9.4	
Motor Oil	0	496	402	81	430	86.6	6.7	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: HSA-1 (5-6)
Lab ID: 88314-01
Date Prepared: 3/21/00
Date Analyzed: 3/21/00
QC Batch ID: DI2536

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	0	0	NC	
Motor Oil	0	0	NC	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: HSA-2 (14-14.5)
Lab ID: 88314-12
Date Prepared: 3/21/00
Date Analyzed: 3/22/00
QC Batch ID: DI2536

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	0	0	NC	
Motor Oil	0	0	NC	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: HSA-3 (25-25.5)
Lab ID: 88314-21
Date Prepared: 3/21/00
Date Analyzed: 3/22/00
QC Batch ID: DI2537

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	64.5	53.4	19.0	
Motor Oil	282	235	18.0	



Sound Analytical Services, Inc.
 ANALYTICAL & ENVIRONMENTAL CHEMISTS
 4813 Pacific Hwy East • Tacoma, WA 98424
 (253) 922-2310 • FAX (253) 922-5047
 e-mail: saincl@uswest.net

SAS Lab No. 89314

TURNAROUND REQUEST (business days)
 Standard (10 days) _____
 RUSH: 24 hrs _____ 48 hrs 5 day _____

2/3

CHAIN OF CUSTODY/REQUEST FOR LABORATORY ANALYSIS

Client: <u>ATC ASSOCIATES INC.</u>					Analyses Requested																					
Project Name: <u>Kennewick</u> <u>18452,0201 Task 6</u>					# of Containers	NWTPH-Dx extended																				
Contact: <u>NEIL GILHAM</u>																										
Phone No.: <u>206. 781. 1449</u>																										
Fax No.: <u>206. 781. 1543</u>																										
Email: <u>gilham76@atc-enviro.com</u>																										
Lab Use Only	Sample ID	Date	Time	Matrix	# of Containers	NWTPH-Dx extended																				
1	HSA-1 (5-6)	3/20/00	1115	SOIL	1	✓																				
2	HSA-1 (10-11)		1120		1	✓																				
3	HSA-1 (14-15)		1130		1	✓																				
4	HSA-1 (16-16.5)		1135		1	✓																				
5	HSA-1 (17-17.5)		1140		1	✓																				
6	HSA-1 (18-18.5)		1143		1	✓																				
7	HSA-1 (20-21)		1150		1	✓																				
8	HSA-1 (25-26)		1155		1	✓																				
9	HSA-1 (30-31)		1200		1	✓																				
10	HSA-2 (5-6)		1240		1	✓																				
11	HSA-2 (10-11)		1245		1	✓																				
12	HSA-2 (14-14.5)		1255		1	✓																				
13	HSA-2 (15-15.4)		1300		1	✓																				
14	HSA-2 (16-16.5)		1305		1	✓																				
15	HSA-3 (5-6)		1350		1	✓																				
16	HSA-3 (10-10.5)		1355		1	✓																				
17	HSA-3 (14-14.5)		1405		1	✓																				
18	HSA-3 (16-16.5)	✓	1410	✓	1	✓																				

	Signature	Printed Name	Firm	Time/Date	Special Instructions <u>Run Interim TPH Policy Method for all samples exceeding 200 mg/kg on NWTPH-Dx ext.</u>
Relinquished By:		NEIL GILHAM	ATC	3/21/00 0940	
Received By:		Astron	SAS	3/21/00 0946	
Relinquished By:					
Received By:					
Relinquished By:					



Sound Analytical Services, Inc.
 ANALYTICAL & ENVIRONMENTAL CHEMISTS
 4813 Pacific Hwy East • Tacoma, WA 98424
 (253) 922-2310 • FAX (253) 922-5047
 e-mail: saincl@uswest.net

SAS Lab No. 327

TURNAROUND REQUEST (business days)
 Standard (10 days) _____
 RUSH: 24 hrs _____ 48 hrs 5 day _____

CHAIN OF CUSTODY/REQUEST FOR LABORATORY ANALYSIS

Client: <u>ATC ASSOCIATES INC.</u>					Analyses Requested														
Project Name: <u>Kennewick</u> <u>18452.0201 Task 6</u>					# of Containers <u>NWTPH-Dx</u> <u>Excluded</u>														
Contact: <u>NEIL GILHAM</u>																			
Phone No.: <u>206.781.1449</u>																			
Fax No.: <u>206.781.1543</u>																			
Email: <u>gilham76@atc-enviro.com</u>																			
Lab Use Only	Sample ID	Date	Time	Matrix															
1	HSA-3 (18-18.5)	3/20/00	1416	SOIL	1	✓													
20	HSA-3 (20-20.5)		1420		1	✓													
21	HSA-3 (25-25.5)		1426		1	✓													
22	HSA-3 (30-30.5)		1438		1	✓													
23	HSA-4 (5-5.5)		1528		1	✓													
24	HSA-4 (10-11)		1535		1	✓													
25	HSA-4 (14-14.4)		1542		1	✓													
26	HSA-4 (18-18.5)		1552		1	✓													
27	HSA-4 (20-20.5)		1556		1	✓													
28	HSA-4 (22.5)		1605		1	✓													
29	HSA-STOCKPILE		1615		2	✓													

	Signature	Printed Name	Firm	Time/Date	Special Instructions
Relinquished By:		NEIL GILHAM	ATC	3/21/00 0940	Run Interim-TPH Policy Method for all samples exceeding 200mg/Kg on NWTPH-Dx *(except HSA-STOCKPILE)
Received By:		A Strom	SAS	3/21/00 0940	
Relinquished By:					
Received By:					
Relinquished By:					
Received By:					

Sound Analytical Services, Inc.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 Pacific Hwy East • Tacoma, WA 98424

(253) 922-2310 • FAX (253) 922-5047

e-mail: saincl@uswest.net



TRANSMITTAL MEMORANDUM

DATE: March 28, 2000

TO: Neil Gilham
ATC Associates
6347 Seaview Ave NW
Seattle, WA 98107

PROJECT: KENNEWICK

REPORT NUMBER: 88268

Enclosed are the test results for twenty-one samples received at Sound Analytical Services on March 17, 2000.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tom Watson', is written over a horizontal line.

Tom Watson
Project Manager

SOUND ANALYTICAL EPH / VPH

**SAMPLE SUMMARY REPORTS
AND
WORKSHEETS**

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

APR 13 2000

Client Sample ID: SX-7-S1
 Work Order: 88268
 Laboratory ID: 88268-01
 Date Sampled: _____ Date Received: 3/17/00
 Date Prepared: EPH 3/24/00 PAHs 3/20/00 VPH 3/22/00
 Date Analyzed: EPH 3/27/00 PAHs 3/20/00 VPH 3/22/00
 Matrix: solid % Solids: 84.61

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

<u>Compound</u>	<u>mg/kg</u>
Total Aliphatics	58
Total Aromatics *	60
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

<u>Compound</u>	<u>mg/kg</u>	<u>PQL</u>
Benzene *	0.1	0.2
Total cPAHs *	0.56	0.13

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

<u>Aliphatic Fractions</u>	<u>mg/kg</u>
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	<u>58</u>
Total Aliphatic Fractions	58

<u>Aromatic Fractions</u>	<u>mg/kg</u>
>C8 - C10*	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	8.4
>C21 - C34	<u>52</u>
Total Aromatic Fractions	60

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID SX-7-S1
 LAB ID 88268-01

Non-Carcinogen--Hazard Index

Compound	Soil ppm	Residential			Commercial			Industrial			
		ORfD	Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	58	0.06	1.25E-05	2.08E-04	0.01	3.13E-06	5.21E-05	0.00	2.86E-07	4.77E-06	0.00
Total aromatic*	60	0.03	1.25E-05	4.17E-04	0.03	3.13E-06	1.04E-04	0.01	2.86E-07	9.53E-06	<u>0.00</u>
Benzene	0.0										
Ethylbenzene	0.0	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Toluene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Xylenes	0.0	2.00	1.25E-05	6.25E-06	<u>0.00</u>	3.13E-06	1.56E-06	<u>0.00</u>	2.86E-07	1.43E-07	<u>0.00</u>

Hazard Index 0.04 0.01 0.00

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm	Residential			Commercial			Industrial		
		OCPF	Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk		
Benzene *	0.10	0.029	1.00E-06	2.90E-09	2.50E-07	7.25E-10	7.62E-08	2.21E-10		
Total cPAHs *	0.56	7.30	1.00E-06	4.09E-06	2.50E-07	1.02E-06	7.62E-08	3.12E-07		

* For parameters not detected 1/2 PQL values are substituted

A R

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID SX-7-S1
 LAB ID 88268-01

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	0	130	0.0	0.00	3.3E-01	0.0E+00	20	0.0E+00
EC >10 - 12	0	160	0.0	0.00	2.6E-02	0.0E+00	20	0.0E+00
EC >12 - 16	0	200	0.0	0.00	5.9E-04	0.0E+00	20	0.0E+00
EC >16 - 21	58	270	0.2	0.45	1.0E-06	4.5E-07	20	2.3E-08
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	0.0E+00	20	0.0E+00
EC >8 - 10*	0	120	0.0	0.00	6.5E+01	0.0E+00	20	0.0E+00
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	0	150	0.0	0.00	5.8E+00	0.0E+00	20	0.0E+00
EC >16 - 21	8	190	0.0	0.09	5.1E-01	4.7E-02	20	2.4E-03
EC >21 - 35	52	240	0.2	0.46	6.6E-03	3.0E-03	20	1.5E-04
			0.5	1.00				0.0

* Includes ethylbenzene & xylenes
 Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

Client Sample ID:	<u>SX-2-S1</u>		
Work Order	<u>88268</u>		
Laboratory ID:	<u>88268-19</u>		
Date Sampled:	<u> </u>	Date Received:	<u>3/17/00</u>
Date Prepared:	EPH <u>3/24/00</u>	PAHs <u>3/24/00</u>	VPH <u>3/22/00</u>
Date Analyzed:	EPH <u>3/27/00</u>	PAHs <u>3/25/00</u>	VPH <u>3/23/00</u>
Matrix: <u>solid</u>	% Solids: <u>88.03</u>		

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

<u>Compound</u>	<u>mg/kg</u>
Total Aliphatics	ND
Total Aromatics *	5.8
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

<u>Compound</u>	<u>mg/kg</u>	<u>PQL</u>
Benzene *	0.1	0.2
Total cPAHs *	0.42	0.14

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

<u>Aliphatic Fractions</u>	<u>mg/kg</u>
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	<u>ND</u>
Total Aliphatic Fractions	ND

<u>Aromatic Fractions</u>	<u>mg/kg</u>
>C8 - C10*	ND
>C10 - C12	ND
>C12 - C16	ND
>C16 - C21	ND
>C21 - C34	<u>5.8</u>
Total Aromatic Fractions	<u>5.8</u>

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID SX-2-S1

LAB ID 88268-19

Non-Carcinogen--Hazard Index

Compound	Soil ppm	<u>Residential</u>			<u>Commercial</u>			<u>Industrial</u>			
		ORfD	Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	0	0.06	1.25E-05	2.08E-04	0.00	3.13E-06	5.21E-05	0.00	2.86E-07	4.77E-06	0.00
Total aromatic*	6	0.03	1.25E-05	4.17E-04	0.00	3.13E-06	1.04E-04	0.00	2.86E-07	9.53E-06	0.00
Benzene	0.0										
Ethylbenzene	0.0	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Toluene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Xylenes	0.0	2.00	1.25E-05	6.25E-06	0.00	3.13E-06	1.56E-06	0.00	2.86E-07	1.43E-07	0.00
Hazard Index					0.00			0.00			0.00

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm	<u>Residential</u>			<u>Commercial</u>			<u>Industrial</u>		
		OCPF	Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk		
Benzene *	0.10	0.029	1.00E-06	2.90E-09	2.50E-07	7.25E-10	7.62E-08	2.21E-10		
Total cPAHs *	0.42	7.30	1.00E-06	3.08E-06	2.50E-07	7.70E-07	7.62E-08	2.35E-07		

* For parameters not detected 1/2 PQL values are substituted

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID SX-2-S1

LAB ID 88268-19

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	0	130	0.0	0.00	3.3E-01	0.0E+00	20	0.0E+00
EC >10 - 12	0	160	0.0	0.00	2.6E-02	0.0E+00	20	0.0E+00
EC >12 - 16	0	200	0.0	0.00	5.9E-04	0.0E+00	20	0.0E+00
EC >16 - 21	0	270	0.0	0.00	1.0E-06	0.0E+00	20	0.0E+00
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	0.0E+00	20	0.0E+00
EC >8 - 10*	0	120	0.0	0.00	6.5E+01	0.0E+00	20	0.0E+00
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	0	150	0.0	0.00	5.8E+00	0.0E+00	20	0.0E+00
EC >16 - 21	0	190	0.0	0.00	5.1E-01	0.0E+00	20	0.0E+00
EC >21 - 35	6	240	0.0	1.00	6.6E-03	6.6E-03	20	3.3E-04
			0.0	1.00				0.0

* Includes ethylbenzene & xylenes

Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

OR

SOUND ANALYTICAL EPH/VPH

VOLATILE PETROLEUM HYDROCARBONS

**ALIPHATIC AND AROMATIC FRACTIONS
TARGET INDICATOR COMPOUNDS**

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S1
Lab ID:	88268-01
Date Received:	3/17/00
Date Prepared:	3/22/00
Date Analyzed:	3/22/00
% Solids	84.61
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	79.5		60	140
Bromofluorobenzene	91		60	140

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.2	
Benzene	ND	0.2	
Toluene	ND	0.2	
Ethylbenzene	ND	0.2	
m- & p-Xylene	ND	0.39	
o-Xylene	ND	0.2	
Total EC >8-10 Aromatics	ND	0.98	
Total EC 5-6 Aliphatics	ND	0.59	
Total EC >6-8 Aliphatics	ND	0.39	
Total EC >8-10 Aliphatics	ND	1.2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S1
Lab ID:	88268-19
Date Received:	3/17/00
Date Prepared:	3/22/00
Date Analyzed:	3/23/00
% Solids	88.03
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	79.7		60	140
Bromofluorobenzene	93.8		60	140

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.2	
Benzene	ND	0.2	
Toluene	ND	0.2	
Ethylbenzene	ND	0.2	
m- & p-Xylene	ND	0.41	
o-Xylene	ND	0.2	
Total EC >8-10 Aromatics	ND	1	
Total EC 5-6 Aliphatics	ND	0.61	
Total EC >6-8 Aliphatics	ND	0.41	
Total EC >8-10 Aliphatics	ND	1.2	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - GB2199
Date Received:	-
Date Prepared:	3/22/00
Date Analyzed:	3/22/00
% Solids	
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	100		60	140
Bromofluorobenzene	111		60	140

Sample results are on an as received basis.

Analyte	Result - (mg/kg)	PQL	Flags
MTBE	ND	0.2	
Benzene	ND	0.2	
Toluene	ND	0.2	
Ethylbenzene	ND	0.2	
m- & p-Xylene	ND	0.4	
o-Xylene	ND	0.2	
Total EC >8-10 Aromatics	ND	1	
Total EC 5-6 Aliphatics	ND	0.6	
Total EC >6-8 Aliphatics	ND	0.4	
Total EC >8-10 Aliphatics	ND	1.2	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID: SX-2-S1
Lab ID: 88268-19
Date Prepared: 3/22/00
Date Analyzed: 3/23/00
QC Batch ID: GB2199

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
MTBE	0	2.2	1.84	82	
Benzene	0	2.2	1.63	73	
Toluene	0	2.2	1.71	76	
Ethylbenzene	0	2.2	1.83	82	
m- & p-Xylene	0	4.5	3.91	87	
o-Xylene	0	2.25	1.82	81	
Total EC >8-10 Aromatics	0	11	8.48	76	
Total EC 5-6 Aliphatics	0	6.7	3.72	55	
Total EC >6-8 Aliphatics	0	4.5	3.08	69	
Total EC >8-10 Aliphatics	0	13	10.3	76	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID: GB2199
Date Prepared: 3/22/00
Date Analyzed: 3/22/00
QC Batch ID: GB2199

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
MTBE	0	2	1.67	83.6	1.88	94.1	12	
Benzene	0	2	1.75	87.7	1.92	95.8	8.8	
Toluene	0	2	1.75	87.3	1.91	95.6	9.1	
Ethylbenzene	0	2	1.82	91.1	1.99	99.6	8.9	
m- & p-Xylene	0	4	3.85	96.3	4.21	105	8.6	
o-Xylene	0	2	1.78	88.8	1.95	97.5	9.3	
Total EC >8-10 Aromatics	0	10	8.37	83.7	9.16	91.6	9	
Total EC 5-6 Aliphatics	0	6	5.06	84.3	5.37	89.6	6.1	
Total EC >6-8 Aliphatics	0	4	3.46	86.5	3.88	97.1	12	
Total EC >8-10 Aliphatics	0	12	10	83.7	10.8	90.3	7.6	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	SX-7-S1
Lab ID:	88268-01
Date Prepared:	3/22/00
Date Analyzed:	3/23/00
QC Batch ID:	GB2199

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
MTBE	0	0	NC	
Benzene	0	0	NC	
Toluene	0	0	NC	
Ethylbenzene	0	0	NC	
m- & p-Xylene	0	0	NC	
o-Xylene	0	0	NC	
Total EC >8-10 Aromatics	0	0	NC	
Total EC 5-6 Aliphatics	0	0	NC	
Total EC >6-8 Aliphatics	0	0	NC	
Total EC >8-10 Aliphatics	0	0	NC	

SOUND ANALYTICAL EPH / VPH
EXTRACTABLE PETROLEUM HYDROCARBONS
ALIPHATIC AND AROMATIC FRACTIONS

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S1
Lab ID:	88268-01
Date Received:	3/17/00
Date Prepared:	3/24/00
Date Analyzed:	3/27/00
% Solids	84.61
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	76.2		50	150
ortho-terphenyl	80.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	5	
C10-C12 Aliphatics	ND	5	
C12-C16 Aliphatics	ND	5	
C16-C21 Aliphatics	58	5	
C21-C34 Aliphatics	370	5	
C10-C12 Aromatics	ND	5	
C12-C16 Aromatics	ND	5	
C16-C21 Aromatics	8.4	5	
C21-C34 Aromatics	52	5	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S1
Lab ID:	88268-19
Date Received:	3/17/00
Date Prepared:	3/24/00
Date Analyzed:	3/27/00
% Solids	88.03
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	82.7		50	150
ortho-terphenyl	78.7		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	5	
C10-C12 Aliphatics	ND	5	
C12-C16 Aliphatics	ND	5	
C16-C21 Aliphatics	ND	5	
C21-C34 Aliphatics	58	5	
C10-C12 Aromatics	ND	5	
C12-C16 Aromatics	ND	5	
C16-C21 Aromatics	ND	5	
C21-C34 Aromatics	5.8	5	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - EP194
Date Received:	-
Date Prepared:	3/24/00
Date Analyzed:	3/27/00
% Solids	
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
chloro-octadecane	75.9		60	140
ortho-terphenyl	96.5		60	140

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
C8-C10 Aliphatics	ND	4.5	
C10-C12 Aliphatics	ND	4.5	
C12-C16 Aliphatics	ND	4.5	
C16-C21 Aliphatics	ND	4.5	
C21-C34 Aliphatics	ND	4.5	
C10-C12 Aromatics	ND	4.5	
C12-C16 Aromatics	ND	4.5	
C16-C21 Aromatics	ND	4.5	
C21-C34 Aromatics	ND	4.5	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID: SX-2-S1
Lab ID: 88268-19
Date Prepared: 3/24/00
Date Analyzed: 3/27/00
QC Batch ID: EP194

Extractable Petroleum Hydrocarbons (EPH) Modified

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
C8-C10 Aliphatics	0	22	20.8	93	
C10-C12 Aliphatics	0	23	21.2	94	
C12-C16 Aliphatics	0	21	19.9	97	
C16-C21 Aliphatics	0	21	23.6	111	
C21-C34 Aliphatics	57.7	21	67.9	49	X7
C10-C12 Aromatics	0	20.7	17.9	86	
C12-C16 Aromatics	0	21	18.5	87	
C16-C21 Aromatics	0	23	21.9	95	
C21-C34 Aromatics	5.83	18	24.9	109	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike Report

Lab ID: EP194
Date Prepared: 3/24/00
Date Analyzed: 3/27/00
QC Batch ID: EP194

Extractable Petroleum Hydrocarbons (EPH) Modified

Parameter Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	Flag
C8-C10 Aliphatics	0	20	17.6	89	
C10-C12 Aliphatics	0	20	17.9	89	
C12-C16 Aliphatics	0	18	16.1	88	
C16-C21 Aliphatics	0	19	17	90	
C21-C34 Aliphatics	0	18	13.8	75	
C10-C12 Aromatics	0	18.4	13.9	76	
C12-C16 Aromatics	0	19	15	80	
C16-C21 Aromatics	0	20	17.3	85	
C21-C34 Aromatics	0	16	12.6	81	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: SX-2-S1
Lab ID: 88268-19
Date Prepared: 3/24/00
Date Analyzed: 3/27/00
QC Batch ID: EP194

Extractable Petroleum Hydrocarbons (EPH) Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
C8-C10 Aliphatics	0	0	NC	
C10-C12 Aliphatics	0	0	NC	
C12-C16 Aliphatics	0	0	NC	
C16-C21 Aliphatics	0	0	NC	
C21-C34 Aliphatics	57.7	35.9	47.0	N
C10-C12 Aromatics	0	0	NC	
C12-C16 Aromatics	0	0	NC	
C16-C21 Aromatics	0	0	NC	
C21-C34 Aromatics	5.83	8.99	-43.0	X4a

*SOUND ANALYTICAL EPA 8270 MOD.
EXTRACTABLE PETROLEUM HYDROCARBONS
TARGET PAH COMPOUNDS*

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S1
Lab ID:	88268-01
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
% Solids	84.61
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	127		44	153
2 - Fluorobiphenyl	108		50	129
p - Terphenyl - d14	93.6		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	19	19	
2-Methylnaphthalene	ND	19	14	
2-Chloronaphthalene	ND	19	8.1	
Acenaphthylene	ND	19	7.9	
Acenaphthene	ND	19	6.8	
Fluorene	ND	19	7.9	
Phenanthrene	190	19	6.4	
Anthracene	42	19	9.4	
Fluoranthene	400	19	6.2	
Pyrene	290	19	5.5	
Benzo(a)anthracene	110	19	6.2	
Chrysene	130	19	8.1	
Benzo(b)fluoranthene	120	19	5.5	
Benzo(k)fluoranthene	46	19	6.4	
Benzo(a)pyrene	94	19	8	
Indeno(1,2,3-cd)pyrene	56	19	7.2	
Dibenz(a,h)anthracene	ND	19	4.5	
Benzo(g,h,i)perylene	52	19	2.9	

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SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S1
Lab ID:	88268-19
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
% Solids	88.03
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	126		44	153
2 - Fluorobiphenyl	106		50	129
p - Terphenyl - d14	85		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	18	18	18	
2-Methylnaphthalene	42	18	13	
2-Chloronaphthalene	ND	18	7.7	
Acenaphthylene	22	18	7.5	
Acenaphthene	ND	18	6.5	
Fluorene	ND	18	7.5	
Phenanthrene	41	18	6.1	
Anthracene	11	18	9	J
Fluoranthene	110	18	5.9	
Pyrene	87	18	5.2	
Benzo(a)anthracene	61	18	5.9	
Chrysene	72	18	7.7	
Benzo(b)fluoranthene	96	18	5.3	
Benzo(k)fluoranthene	35	18	6.1	
Benzo(a)pyrene	63	18	7.7	
Indeno(1,2,3-cd)pyrene	46	18	6.9	
Dibenz(a,h)anthracene	ND	18	4.3	
Benzo(g,h,i)perylene	63	18	2.8	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - SV2918
Date Received:	-
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	101		44	153
2 - Fluorobiphenyl	100		50	129
p - Terphenyl - d14	76.4		37	135

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	17	16	
2-Methylnaphthalene	ND	17	12	
2-Chloronaphthalene	ND	17	7	
Acenaphthylene	ND	17	6.8	
Acenaphthene	ND	17	5.9	
Fluorene	ND	17	6.8	
Phenanthrene	ND	17	5.5	
Anthracene	ND	17	8.1	
Fluoranthene	ND	17	5.3	
Pyrene	ND	17	4.7	
Benzo(a)anthracene	ND	17	5.3	
Chrysene	ND	17	7	
Benzo(b)fluoranthene	ND	17	4.8	
Benzo(k)fluoranthene	ND	17	5.6	
Benzo(a)pyrene	ND	17	6.9	
Indeno(1,2,3-cd)pyrene	ND	17	6.3	
Dibenz(a,h)anthracene	ND	17	3.9	
Benzo(g,h,i)perylene	ND	17	2.5	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - SV2920
Date Received:	-
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
% Solids	
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	118		44	153
2 - Fluorobiphenyl	111		50	129
p - Terphenyl - d14	96.4		37	135

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	17	16	
2-Methylnaphthalene	ND	17	12	
2-Chloronaphthalene	ND	17	7	
Acenaphthylene	ND	17	6.8	
Acenaphthene	ND	17	5.9	
Fluorene	ND	17	6.8	
Phenanthrene	ND	17	5.5	
Anthracene	ND	17	8.1	
Fluoranthene	ND	17	5.3	
Pyrene	ND	17	4.7	
Benzo(a)anthracene	ND	17	5.3	
Chrysene	ND	17	7	
Benzo(b)fluoranthene	ND	17	4.8	
Benzo(k)fluoranthene	ND	17	5.6	
Benzo(a)pyrene	ND	17	6.9	
Indeno(1,2,3-cd)pyrene	ND	17	6.3	
Dibenz(a,h)anthracene	ND	17	3.9	
Benzo(g,h,i)perylene	ND	17	2.5	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID: SX-2-S2
Lab ID: 88268-20
Date Prepared: 3/20/00
Date Analyzed: 3/21/00
QC Batch ID: SV2918

Semivolatile Organics by USEPA Method 8270

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Naphthalene	0	919	1010	110	1010	116	5.3	
Acenaphthylene	0	919	1100	120	1230	140	15	
Acenaphthene	0	919	1010	110	1150	132	18	
Fluorene	0	919	1070	116	1200	138	17	
Phenanthrene	0	919	1050	114	1090	125	9.2	
Anthracene	0	919	1050	114	981	112	-1.8	
Fluoranthene	0	919	1110	121	1030	118	-2.5	
Pyrene	0	919	1030	112	1010	116	3.5	
Benzo(a)anthracene	0	919	950	103	1000	115	11	
Chrysene	0	919	1170	127	1200	137	7.6	
Benzo(b)fluoranthene	0	919	1220	132	1340	153	15	
Benzo(k)fluoranthene	0	919	936	102	1090	125	20	
Benzo(a)pyrene	0	919	1190	130	1210	139	6.7	
Indeno(1,2,3-cd)pyrene	0	919	1170	127	1200	137	7.6	
Dibenz(a,h)anthracene	0	919	1070	117	1050	120	2.5	
Benzo(g,h,i)perylene	0	919	1170	127	1200	137	7.6	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	SX-2-S3
Lab ID:	88268-21
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
QC Batch ID:	SV2920

Semivolatile Organics by USEPA Method 8270

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Naphthalene	0	965	1010	104	997	104	0	
Acenaphthylene	0	965	1120	116	1240	129	11	
Acenaphthene	0	965	1050	109	1150	120	9.6	
Fluorene	0	965	1090	113	1210	126	11	
Phenanthrene	0	965	1080	112	1130	118	5.2	
Anthracene	0	965	955	99	1040	108	8.7	
Fluoranthene	0	965	1090	113	1040	109	-3.6	
Pyrene	0	965	1040	107	984	103	-3.8	
Benzo(a)anthracene	0	965	1030	107	1060	111	3.7	
Chrysene	0	965	1100	114	1140	119	4.3	
Benzo(b)fluoranthene	0	965	1180	122	1140	120	-1.7	
Benzo(k)fluoranthene	0	965	1020	106	1090	114	7.3	
Benzo(a)pyrene	0	965	1240	129	1220	128	-0.78	
Indeno(1,2,3-cd)pyrene	0	965	1220	126	1230	129	2.4	
Dibenz(a,h)anthracene	0	965	1090	113	1080	112	-0.89	
Benzo(g,h,i)perylene	0	965	1220	126	1230	129	2.4	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike Report

Lab ID: SV2918
Date Prepared: 3/20/00
Date Analyzed: 3/20/00
QC Batch ID: SV2918

Semivolatile Organics by USEPA Method 8270

Parameter Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	Flag
Naphthalene	0	830	897	108	
Acenaphthylene	0	830	907	109	
Acenaphthene	0	830	843	101	
Fluorene	0	830	868	104	
Phenanthrene	0	830	898	108	
Anthracene	0	830	757	91	
Fluoranthene	0	830	855	103	
Pyrene	0	830	825	99	
Benzo(a)anthracene	0	830	785	94	
Chrysene	0	830	987	118	
Benzo(b)fluoranthene	0	830	867	104	
Benzo(k)fluoranthene	0	830	880	106	
Benzo(a)pyrene	0	830	925	111	
Indeno(1,2,3-cd)pyrene	0	830	962	115	
Dibenz(a,h)anthracene	0	830	890	107	
Benzo(g,h,i)perylene	0	830	962	115	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike Report

Lab ID: SV2920
Date Prepared: 3/20/00
Date Analyzed: 3/21/00
QC Batch ID: SV2920

Semivolatile Organics by USEPA Method 8270

Parameter Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	Flag
Naphthalene	0	830	818	98	
Acenaphthylene	0	830	887	106	
Acenaphthene	0	830	803	96	
Fluorene	0	830	852	102	
Phenanthrene	0	830	873	105	
Anthracene	0	830	815	98	
Fluoranthene	0	830	865	104	
Pyrene	0	830	827	99	
Benzo(a)anthracene	0	830	752	90	
Chrysene	0	830	1020	123	
Benzo(b)fluoranthene	0	830	785	94	
Benzo(k)fluoranthene	0	830	850	102	
Benzo(a)pyrene	0	830	860	103	
Indeno(1,2,3-cd)pyrene	0	830	910	109	
Dibenz(a,h)anthracene	0	830	785	94	
Benzo(g,h,i)perylene	0	830	910	109	

SOUND ANALYTICAL SERVICES, INC.

Client Sample ID
Lab ID

SX-5-S3
88268-06

Parameter	Method	Date Analyzed	Units	Result	PQL
pH	EPA 9045	03-21-00	N/A	9.50	N/A

Client Sample ID
Lab ID

SX-4-S1
88268-07

Parameter	Method	Date Analyzed	Units	Result	PQL
pH	EPA 9045	03-21-00	N/A	7.98	N/A

Client Sample ID
Lab ID

SX-4-S2
88268-08

Parameter	Method	Date Analyzed	Units	Result	PQL
pH	EPA 9045	03-21-00	N/A	9.10	N/A

Client Sample ID
Lab ID

SX-4-S3
88268-09

Parameter	Method	Date Analyzed	Units	Result	PQL
pH	EPA 9045	03-21-00	N/A	9.00	N/A

Client Sample ID
Lab ID

SX-1-S1
88268-10

Parameter	Method	Date Analyzed	Units	Result	PQL
pH	EPA 9045	03-21-00	N/A	7.88	N/A

Client Sample ID
Lab ID

SX-1-S2
88268-11

Parameter	Method	Date Analyzed	Units	Result	PQL
pH	EPA 9045	03-21-00	N/A	7.70	N/A

Client Sample ID
Lab ID

SX-1-S3
88268-12

Parameter	Method	Date Analyzed	Units	Result	PQL
pH	EPA 9045	03-21-00	N/A	7.43	N/A

SOUND ANALYTICAL SERVICES, INC.

Client Sample ID
Lab ID

SX-2-S2
88268-20

Parameter	Method	Date Analyzed	Units	Result	PQL
pH	EPA 9045	03-21-00	N/A	9.03	N/A

Client Sample ID
Lab ID

SX-2-S3
88268-21

Parameter	Method	Date Analyzed	Units	Result	PQL
pH	EPA 9045	03-21-00	N/A	8.85	N/A

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S2
Lab ID:	88268-02
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	86.42
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	117		44	153
2 - Fluorobiphenyl	104		50	129
p - Terphenyl - d14	93.8		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	18	18	
2-Methylnaphthalene	ND	18	13	
2-Chloronaphthalene	ND	18	7.7	
Acenaphthylene	ND	18	7.5	
Acenaphthene	ND	18	6.5	
Fluorene	ND	18	7.5	
Phenanthrene	100	18	6.1	
Anthracene	31	18	8.9	
Fluoranthene	180	18	5.9	
Pyrene	120	18	5.2	
Benzo(a)anthracene	61	18	5.9	
Chrysene	73	18	7.7	
Benzo(b)fluoranthene	95	18	5.2	
Benzo(k)fluoranthene	33	18	6.1	
Benzo(a)pyrene	66	18	7.6	
Indeno(1,2,3-cd)pyrene	53	18	6.9	
Dibenz(a,h)anthracene	ND	18	4.3	
Benzo(g,h,i)perylene	55	18	2.8	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S3
Lab ID:	88268-03
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	88.81
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	109		44	153
2 - Fluorobiphenyl	101		50	129
p - Terphenyl - d14	83.8		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	17	17	
2-Methylnaphthalene	ND	17	12	
2-Chloronaphthalene	ND	17	7.3	
Acenaphthylene	ND	17	7.1	
Acenaphthene	ND	17	6.1	
Fluorene	ND	17	7.1	
Phenanthrene	ND	17	5.7	
Anthracene	ND	17	8.5	
Fluoranthene	19	17	5.6	
Pyrene	14	17	4.9	J
Benzo(a)anthracene	14	17	5.6	J
Chrysene	10	17	7.3	J
Benzo(b)fluoranthene	16	17	5	J
Benzo(k)fluoranthene	8.7	17	5.8	J
Benzo(a)pyrene	10	17	7.2	J
Indeno(1,2,3-cd)pyrene	10	17	6.5	J
Dibenz(a,h)anthracene	ND	17	4.1	
Benzo(g,h,i)perylene	12	17	2.6	J

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S1
Lab ID:	88268-04
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	85.64
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	121		44	153
2 - Fluorobiphenyl	120		50	129
p - Terphenyl - d14	87.4		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	19	19	
2-Methylnaphthalene	ND	19	14	
2-Chloronaphthalene	ND	19	8	
Acenaphthylene	ND	19	7.8	
Acenaphthene	ND	19	6.8	
Fluorene	ND	19	7.8	
Phenanthrene	ND	19	6.3	
Anthracene	ND	19	9.3	
Fluoranthene	ND	19	6.1	
Pyrene	ND	19	5.4	
Benzo(a)anthracene	ND	19	6.1	
Chrysene	ND	19	8	
Benzo(b)fluoranthene	ND	19	5.5	
Benzo(k)fluoranthene	ND	19	6.4	
Benzo(a)pyrene	ND	19	8	
Indeno(1,2,3-cd)pyrene	ND	19	7.2	
Dibenz(a,h)anthracene	ND	19	4.5	
Benzo(g,h,i)perylene	ND	19	2.9	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S2
Lab ID:	88268-05
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	91.08
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	138		44	153
2 - Fluorobiphenyl	137	X9	50	129
p - Terphenyl - d14	104		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	17	17	
2-Methylnaphthalene	ND	17	13	
2-Chloronaphthalene	ND	17	7.3	
Acenaphthylene	ND	17	7.1	
Acenaphthene	ND	17	6.2	
Fluorene	ND	17	7.1	
Phenanthrene	17	17	5.8	
Anthracene	ND	17	8.5	
Fluoranthene	44	17	5.6	
Pyrene	26	17	5	
Benzo(a)anthracene	19	17	5.6	
Chrysene	19	17	7.3	
Benzo(b)fluoranthene	24	17	5	
Benzo(k)fluoranthene	8.7	17	5.8	J
Benzo(a)pyrene	16	17	7.3	J
Indeno(1,2,3-cd)pyrene	12	17	6.6	J
Dibenz(a,h)anthracene	ND	17	4.1	
Benzo(g,h,i)perylene	10	17	2.6	J

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S3
Lab ID:	88268-06
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	88.64
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	115		44	153
2 - Fluorobiphenyl	117		50	129
p - Terphenyl - d14	92.6		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	18	18	
2-Methylnaphthalene	ND	18	13	
2-Chloronaphthalene	ND	18	7.6	
Acenaphthylene	ND	18	7.4	
Acenaphthene	ND	18	6.4	
Fluorene	ND	18	7.4	
Phenanthrene	38	18	6	
Anthracene	9	18	8.8	J
Fluoranthene	80	18	5.8	
Pyrene	49	18	5.1	
Benzo(a)anthracene	34	18	5.8	
Chrysene	40	18	7.6	
Benzo(b)fluoranthene	40	18	5.2	
Benzo(k)fluoranthene	16	18	6	J
Benzo(a)pyrene	33	18	7.5	
Indeno(1,2,3-cd)pyrene	20	18	6.8	
Dibenz(a,h)anthracene	ND	18	4.2	
Benzo(g,h,i)perylene	18	18	2.7	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S1
Lab ID:	88268-07
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	83.47
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	117		44	153
2 - Fluorobiphenyl	116		50	129
p - Terphenyl - d14	89.2		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	20	20	
2-Methylnaphthalene	ND	20	14	
2-Chloronaphthalene	ND	20	8.3	
Acenaphthylene	ND	20	8.1	
Acenaphthene	ND	20	7	
Fluorene	ND	20	8.1	
Phenanthrene	93	20	6.5	
Anthracene	22	20	9.6	
Fluoranthene	120	20	6.3	
Pyrene	71	20	5.6	
Benzo(a)anthracene	40	20	6.3	
Chrysene	48	20	8.3	
Benzo(b)fluoranthene	50	20	5.7	
Benzo(k)fluoranthene	26	20	6.6	
Benzo(a)pyrene	40	20	8.2	
Indeno(1,2,3-cd)pyrene	28	20	7.4	
Dibenz(a,h)anthracene	ND	20	4.6	
Benzo(g,h,i)perylene	22	20	3	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S2
Lab ID:	88268-08
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	88.81
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	125		44	153
2 - Fluorobiphenyl	104		50	129
p - Terphenyl - d14	89		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	17	17	
2-Methylnaphthalene	ND	17	12	
2-Chloronaphthalene	ND	17	7.3	
Acenaphthylene	ND	17	7.1	
Acenaphthene	ND	17	6.2	
Fluorene	ND	17	7.1	
Phenanthrene	ND	17	5.7	
Anthracene	ND	17	8.5	
Fluoranthene	ND	17	5.6	
Pyrene	ND	17	4.9	
Benzo(a)anthracene	ND	17	5.6	
Chrysene	ND	17	7.3	
Benzo(b)fluoranthene	ND	17	5	
Benzo(k)fluoranthene	ND	17	5.8	
Benzo(a)pyrene	ND	17	7.2	
Indeno(1,2,3-cd)pyrene	ND	17	6.5	
Dibenz(a,h)anthracene	ND	17	4.1	
Benzo(g,h,i)perylene	ND	17	2.6	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S3
Lab ID:	88268-09
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	89
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	118		44	153
2 - Fluorobiphenyl	102		50	129
p - Terphenyl - d14	90.6		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	18	18	
2-Methylnaphthalene	ND	18	13	
2-Chloronaphthalene	ND	18	7.6	
Acenaphthylene	ND	18	7.4	
Acenaphthene	ND	18	6.5	
Fluorene	ND	18	7.4	
Phenanthrene	ND	18	6	
Anthracene	ND	18	8.9	
Fluoranthene	ND	18	5.8	
Pyrene	ND	18	5.2	
Benzo(a)anthracene	ND	18	5.8	
Chrysene	ND	18	7.6	
Benzo(b)fluoranthene	ND	18	5.2	
Benzo(k)fluoranthene	ND	18	6.1	
Benzo(a)pyrene	ND	18	7.6	
Indeno(1,2,3-cd)pyrene	ND	18	6.9	
Dibenz(a,h)anthracene	ND	18	4.3	
Benzo(g,h,i)perylene	ND	18	2.8	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S1
Lab ID:	88268-10
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	84.8
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	134		44	153
2 - Fluorobiphenyl	117		50	129
p - Terphenyl - d14	96.8		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	19	19	
2-Methylnaphthalene	ND	19	14	
2-Chloronaphthalene	ND	19	7.9	
Acenaphthylene	ND	19	7.7	
Acenaphthene	ND	19	6.7	
Fluorene	ND	19	7.7	
Phenanthrene	ND	19	6.3	
Anthracene	ND	19	9.2	
Fluoranthene	ND	19	6.1	
Pyrene	ND	19	5.4	
Benzo(a)anthracene	ND	19	6.1	
Chrysene	ND	19	7.9	
Benzo(b)fluoranthene	ND	19	5.4	
Benzo(k)fluoranthene	ND	19	6.3	
Benzo(a)pyrene	ND	19	7.9	
Indeno(1,2,3-cd)pyrene	ND	19	7.1	
Dibenz(a,h)anthracene	ND	19	4.4	
Benzo(g,h,i)perylene	ND	19	2.9	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S2
Lab ID:	88268-11
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	91.57
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	125		44	153
2 - Fluorobiphenyl	112		50	129
p - Terphenyl - d14	84		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	17	17	
2-Methylnaphthalene	ND	17	13	
2-Chloronaphthalene	ND	17	7.3	
Acenaphthylene	ND	17	7.1	
Acenaphthene	ND	17	6.2	
Fluorene	ND	17	7.1	
Phenanthrene	ND	17	5.8	
Anthracene	ND	17	8.5	
Fluoranthene	ND	17	5.6	
Pyrene	ND	17	5	
Benzo(a)anthracene	ND	17	5.6	
Chrysene	ND	17	7.3	
Benzo(b)fluoranthene	ND	17	5	
Benzo(k)fluoranthene	ND	17	5.8	
Benzo(a)pyrene	ND	17	7.2	
Indeno(1,2,3-cd)pyrene	ND	17	6.5	
Dibenz(a,h)anthracene	ND	17	4.1	
Benzo(g,h,i)perylene	ND	17	2.6	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S3
Lab ID:	88268-12
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	91.83
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	118		44	153
2 - Fluorobiphenyl	104		50	129
p - Terphenyl - d14	80		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	18	17	
2-Methylnaphthalene	ND	18	13	
2-Chloronaphthalene	ND	18	7.4	
Acenaphthylene	ND	18	7.2	
Acenaphthene	ND	18	6.2	
Fluorene	ND	18	7.2	
Phenanthrene	ND	18	5.8	
Anthracene	ND	18	8.6	
Fluoranthene	ND	18	5.6	
Pyrene	ND	18	5	
Benzo(a)anthracene	ND	18	5.6	
Chrysene	ND	18	7.4	
Benzo(b)fluoranthene	ND	18	5	
Benzo(k)fluoranthene	ND	18	5.9	
Benzo(a)pyrene	ND	18	7.3	
Indeno(1,2,3-cd)pyrene	ND	18	6.6	
Dibenz(a,h)anthracene	ND	18	4.1	
Benzo(g,h,i)perylene	ND	18	2.7	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S1
Lab ID:	88268-13
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	84.28
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	132		44	153
2 - Fluorobiphenyl	108		50	129
p - Terphenyl - d14	97.4		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	18	18	
2-Methylnaphthalene	ND	18	13	
2-Chloronaphthalene	ND	18	7.7	
Acenaphthylene	ND	18	7.5	
Acenaphthene	ND	18	6.5	
Fluorene	ND	18	7.5	
Phenanthrene	ND	18	6.1	
Anthracene	ND	18	9	
Fluoranthene	ND	18	5.9	
Pyrene	ND	18	5.2	
Benzo(a)anthracene	ND	18	5.9	
Chrysene	ND	18	7.7	
Benzo(b)fluoranthene	ND	18	5.3	
Benzo(k)fluoranthene	ND	18	6.2	
Benzo(a)pyrene	ND	18	7.7	
Indeno(1,2,3-cd)pyrene	ND	18	6.9	
Dibenz(a,h)anthracene	ND	18	4.3	
Benzo(g,h,i)perylene	ND	18	2.8	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S2
Lab ID:	88268-14
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	94.09
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	124		44	153
2 - Fluorobiphenyl	107		50	129
p - Terphenyl - d14	87.8		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	16	16	
2-Methylnaphthalene	ND	16	12	
2-Chloronaphthalene	ND	16	6.9	
Acenaphthylene	ND	16	6.7	
Acenaphthene	ND	16	5.8	
Fluorene	ND	16	6.7	
Phenanthrene	ND	16	5.4	
Anthracene	ND	16	8	
Fluoranthene	ND	16	5.3	
Pyrene	ND	16	4.7	
Benzo(a)anthracene	ND	16	5.3	
Chrysene	ND	16	6.9	
Benzo(b)fluoranthene	ND	16	4.7	
Benzo(k)fluoranthene	ND	16	5.5	
Benzo(a)pyrene	ND	16	6.8	
Indeno(1,2,3-cd)pyrene	ND	16	6.2	
Dibenz(a,h)anthracene	ND	16	3.8	
Benzo(g,h,i)perylene	ND	16	2.5	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S3
Lab ID:	88268-15
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	93.8
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	135		44	153
2 - Fluorobiphenyl	121		50	129
p - Terphenyl - d14	97.6		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	17	16	
2-Methylnaphthalene	ND	17	12	
2-Chloronaphthalene	ND	17	7	
Acenaphthylene	ND	17	6.8	
Acenaphthene	ND	17	5.9	
Fluorene	ND	17	6.8	
Phenanthrene	ND	17	5.5	
Anthracene	ND	17	8.1	
Fluoranthene	ND	17	5.3	
Pyrene	ND	17	4.7	
Benzo(a)anthracene	ND	17	5.3	
Chrysene	ND	17	7	
Benzo(b)fluoranthene	ND	17	4.8	
Benzo(k)fluoranthene	ND	17	5.6	
Benzo(a)pyrene	ND	17	6.9	
Indeno(1,2,3-cd)pyrene	ND	17	6.3	
Dibenz(a,h)anthracene	ND	17	3.9	
Benzo(g,h,i)perylene	ND	17	2.5	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S1
Lab ID:	88268-16
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	88.27
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	130		44	153
2 - Fluorobiphenyl	113		50	129
p - Terphenyl - d14	88.8		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	19	18	
2-Methylnaphthalene	32	19	13	
2-Chloronaphthalene	ND	19	7.8	
Acenaphthylene	ND	19	7.6	
Acenaphthene	ND	19	6.6	
Fluorene	ND	19	7.6	
Phenanthrene	33	19	6.1	
Anthracene	ND	19	9	
Fluoranthene	13	19	5.9	J
Pyrene	9.3	19	5.3	J
Benzo(a)anthracene	11	19	5.9	J
Chrysene	ND	19	7.8	
Benzo(b)fluoranthene	ND	19	5.3	
Benzo(k)fluoranthene	ND	19	6.2	
Benzo(a)pyrene	ND	19	7.7	
Indeno(1,2,3-cd)pyrene	ND	19	7	
Dibenz(a,h)anthracene	ND	19	4.3	
Benzo(g,h,i)perylene	ND	19	2.8	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S2
Lab ID:	88268-17
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	82.81
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	125		44	153
2 - Fluorobiphenyl	123		50	129
p - Terphenyl - d14	107		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	19	19	
2-Methylnaphthalene	ND	19	14	
2-Chloronaphthalene	ND	19	8.1	
Acenaphthylene	ND	19	7.9	
Acenaphthene	ND	19	6.9	
Fluorene	ND	19	7.9	
Phenanthrene	ND	19	6.4	
Anthracene	ND	19	9.4	
Fluoranthene	ND	19	6.2	
Pyrene	ND	19	5.5	
Benzo(a)anthracene	ND	19	6.2	
Chrysene	ND	19	8.1	
Benzo(b)fluoranthene	ND	19	5.5	
Benzo(k)fluoranthene	ND	19	6.5	
Benzo(a)pyrene	ND	19	8.1	
Indeno(1,2,3-cd)pyrene	ND	19	7.3	
Dibenz(a,h)anthracene	ND	19	4.5	
Benzo(g,h,i)perylene	ND	19	2.9	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S3
Lab ID:	88268-18
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
% Solids	88.57
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	133		44	153
2 - Fluorobiphenyl	109		50	129
p - Terphenyl - d14	94.4		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	18	18	
2-Methylnaphthalene	ND	18	13	
2-Chloronaphthalene	ND	18	7.7	
Acenaphthylene	ND	18	7.5	
Acenaphthene	ND	18	6.5	
Fluorene	ND	18	7.5	
Phenanthrene	ND	18	6.1	
Anthracene	ND	18	9	
Fluoranthene	ND	18	5.9	
Pyrene	ND	18	5.2	
Benzo(a)anthracene	ND	18	5.9	
Chrysene	ND	18	7.7	
Benzo(b)fluoranthene	ND	18	5.3	
Benzo(k)fluoranthene	ND	18	6.2	
Benzo(a)pyrene	ND	18	7.7	
Indeno(1,2,3-cd)pyrene	ND	18	6.9	
Dibenz(a,h)anthracene	ND	18	4.3	
Benzo(g,h,i)perylene	ND	18	2.8	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S2
Lab ID:	88268-20
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
% Solids	89.48
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	120		44	153
2 - Fluorobiphenyl	106		50	129
p - Terphenyl - d14	88.8		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	17	17	
2-Methylnaphthalene	ND	17	12	
2-Chloronaphthalene	ND	17	7.2	
Acenaphthylene	ND	17	7.1	
Acenaphthene	ND	17	6.1	
Fluorene	ND	17	7.1	
Phenanthrene	ND	17	5.7	
Anthracene	ND	17	8.4	
Fluoranthene	ND	17	5.5	
Pyrene	ND	17	4.9	
Benzo(a)anthracene	ND	17	5.5	
Chrysene	ND	17	7.2	
Benzo(b)fluoranthene	ND	17	4.9	
Benzo(k)fluoranthene	ND	17	5.8	
Benzo(a)pyrene	ND	17	7.2	
Indeno(1,2,3-cd)pyrene	ND	17	6.5	
Dibenz(a,h)anthracene	ND	17	4	
Benzo(g,h,i)perylene	ND	17	2.6	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S3
Lab ID:	88268-21
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
% Solids	85.04
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Nitrobenzene - d5	131		44	153
2 - Fluorobiphenyl	104		50	129
p - Terphenyl - d14	95		37	135

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Naphthalene	ND	18	18	
2-Methylnaphthalene	ND	18	13	
2-Chloronaphthalene	ND	18	7.7	
Acenaphthylene	ND	18	7.5	
Acenaphthene	ND	18	6.5	
Fluorene	ND	18	7.5	
Phenanthrene	ND	18	6.1	
Anthracene	ND	18	8.9	
Fluoranthene	ND	18	5.9	
Pyrene	ND	18	5.2	
Benzo(a)anthracene	ND	18	5.9	
Chrysene	ND	18	7.7	
Benzo(b)fluoranthene	ND	18	5.2	
Benzo(k)fluoranthene	ND	18	6.1	
Benzo(a)pyrene	ND	18	7.6	
Indeno(1,2,3-cd)pyrene	ND	18	6.9	
Dibenz(a,h)anthracene	ND	18	4.3	
Benzo(g,h,i)perylene	ND	18	2.8	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S1
Lab ID:	88268-01
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	84.61
Dilution Factor	10

PCBs by USEPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	93.8		53	136
Decachlorobiphenyl	89.9		56	139

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Aroclor 1016	ND	0.12	0.076	
Aroclor 1221	ND	0.12	0.091	
Aroclor 1232	ND	0.12	0.065	
Aroclor 1242	ND	0.12	0.041	
Aroclor 1248	ND	0.12	0.023	
Aroclor 1254	ND	0.12	0.037	
Aroclor 1260	ND	0.12	0.033	
Aroclor 1262	ND	0.12	0.12	
Aroclor 1268	ND	0.12	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S1
Lab ID:	88268-04
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	85.64
Dilution Factor	10

PCBs by USEPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	103		53	136
Decachlorobiphenyl	104		56	139

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Aroclor 1016	ND	0.11	0.076	
Aroclor 1221	ND	0.11	0.09	
Aroclor 1232	ND	0.11	0.065	
Aroclor 1242	ND	0.11	0.041	
Aroclor 1248	ND	0.11	0.023	
Aroclor 1254	ND	0.11	0.037	
Aroclor 1260	ND	0.11	0.033	
Aroclor 1262	ND	0.11	0.11	
Aroclor 1268	ND	0.11	0.11	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S1
Lab ID:	88268-07
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	83.47
Dilution Factor	10

PCBs by USEPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	101		53	136
Decachlorobiphenyl	104		56	139

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Aroclor 1016	ND	0.11	0.075	
Aroclor 1221	ND	0.11	0.089	
Aroclor 1232	ND	0.11	0.064	
Aroclor 1242	ND	0.11	0.04	
Aroclor 1248	ND	0.11	0.023	
Aroclor 1254	ND	0.11	0.037	
Aroclor 1260	ND	0.11	0.033	
Aroclor 1262	ND	0.11	0.11	
Aroclor 1268	ND	0.11	0.11	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S1
Lab ID:	88268-10
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	84.8
Dilution Factor	10

PCBs by USEPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	100		53	136
Decachlorobiphenyl	101		56	139

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Aroclor 1016	ND	0.12	0.077	
Aroclor 1221	ND	0.12	0.091	
Aroclor 1232	ND	0.12	0.066	
Aroclor 1242	ND	0.12	0.041	
Aroclor 1248	ND	0.12	0.023	
Aroclor 1254	ND	0.12	0.038	
Aroclor 1260	ND	0.12	0.033	
Aroclor 1262	ND	0.12	0.12	
Aroclor 1268	ND	0.12	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S1
Lab ID:	88268-13
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	84.28
Dilution Factor	10

PCBs by USEPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	96.8		53	136
Decachlorobiphenyl	98.8		56	139

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Aroclor 1016	ND	0.12	0.079	
Aroclor 1221	ND	0.12	0.093	
Aroclor 1232	ND	0.12	0.067	
Aroclor 1242	ND	0.12	0.042	
Aroclor 1248	ND	0.12	0.024	
Aroclor 1254	ND	0.12	0.038	
Aroclor 1260	ND	0.12	0.034	
Aroclor 1262	ND	0.12	0.12	
Aroclor 1268	ND	0.12	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S1
Lab ID:	88268-16
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	88.27
Dilution Factor	10

PCBs by USEPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	101		53	136
Decachlorobiphenyl	99.6		56	139

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Aroclor 1016	ND	0.11	0.074	
Aroclor 1221	ND	0.11	0.088	
Aroclor 1232	ND	0.11	0.063	
Aroclor 1242	ND	0.11	0.04	
Aroclor 1248	ND	0.11	0.022	
Aroclor 1254	ND	0.11	0.036	
Aroclor 1260	ND	0.11	0.032	
Aroclor 1262	ND	0.11	0.11	
Aroclor 1268	ND	0.11	0.11	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S1
Lab ID:	88268-19
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	88.03
Dilution Factor	10

PCBs by USEPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	101		53	136
Decachlorobiphenyl	100		56	139

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Aroclor 1016	ND	0.1	0.069	
Aroclor 1221	ND	0.1	0.082	
Aroclor 1232	ND	0.1	0.059	
Aroclor 1242	ND	0.1	0.037	
Aroclor 1248	ND	0.1	0.021	
Aroclor 1254	ND	0.1	0.034	
Aroclor 1260	ND	0.1	0.03	
Aroclor 1262	ND	0.1	0.1	
Aroclor 1268	ND	0.1	0.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S1
Lab ID:	88268-01
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	84.61
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	73.4		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	340	22	13	X1
Motor Oil	1300	43	22	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S2
Lab ID:	88268-02
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	86.42
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	77.4		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	27	21	13	X1
Motor Oil	160	43	22	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S3
Lab ID:	88268-03
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	88.81
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	73.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	14	
Motor Oil	ND	44	23	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S1
Lab ID:	88268-04
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	85.64
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	87.3		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	14	
Motor Oil	ND	45	23	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S2
Lab ID:	88268-05
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	91.08
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	73.9		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	21	13	
Motor Oil	ND	42	21	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S3
Lab ID:	88268-06
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	88.64
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	80.1		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	21	13	
Motor Oil	ND	43	22	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S1
Lab ID:	88268-07
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	83.47
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	83.5		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	23	14	
Motor Oil	ND	46	24	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S2
Lab ID:	88268-08
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	88.81
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	79.5		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	21	13	
Motor Oil	ND	42	22	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S3
Lab ID:	88268-09
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	89
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	73.1		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	14	
Motor Oil	ND	44	23	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S1
Lab ID:	88268-10
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	84.8
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	80.6		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	23	14	
Motor Oil	ND	46	24	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S2
Lab ID:	88268-11
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	91.57
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	78.7		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	71	40	21	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S3
Lab ID:	88268-12
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	91.83
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	83.1		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	13	
Motor Oil	ND	43	22	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S1
Lab ID:	88268-13
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/19/00
% Solids	84.28
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	85.6		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	23	14	
Motor Oil	ND	46	24	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S2
Lab ID:	88268-14
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/19/00
% Solids	94.09
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	84		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	39	20	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S3
Lab ID:	88268-15
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/19/00
% Solids	93.8
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	82.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	40	21	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S1
Lab ID:	88268-16
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/19/00
% Solids	88.27
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	84		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	13	
Motor Oil	53	43	22	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S2
Lab ID:	88268-17
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/19/00
% Solids	82.81
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	81.3		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	14	
Motor Oil	ND	44	23	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S3
Lab ID:	88268-18
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/19/00
% Solids	88.57
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	92.3		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	13	
Motor Oil	ND	43	22	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S1
Lab ID:	88268-19
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/19/00
% Solids	88.03
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	83.4		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	22	22	14	J X1
Motor Oil	240	45	23	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S2
Lab ID:	88268-20
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/19/00
% Solids	89.48
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	77.4		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	14	
Motor Oil	ND	44	23	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S3
Lab ID:	88268-21
Date Received:	3/17/00
Date Prepared:	3/17/00
Date Analyzed:	3/19/00
% Solids	85.04
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	80.7		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	22	14	
Motor Oil	ND	45	23	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S1
Lab ID:	88268-01
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	84.61

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Arsenic	5.8	2.3	
Antimony	ND	12	
Beryllium	ND	0.47	
Cadmium	2.4	1.2	
Chromium	15	2.3	
Copper	18	2.3	
Lead	120	2.3	
Nickel	12	9.4	
Selenium	14	12	
Silver	ND	2.3	
Thallium	ND	2.3	
Zinc	82	2.3	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S2
Lab ID:	88268-02
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	86.42

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	45	2.3	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-7-S3
Lab ID:	88268-03
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	88.81

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	12	2.5	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S1
Lab ID:	88268-04
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	85.64

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Arsenic	10	2.3	
Antimony	ND	11	
Beryllium	ND	0.46	
Cadmium	ND	1.1	
Chromium	16	2.3	
Copper	13	2.3	
Lead	33	2.3	
Nickel	12	9.1	
Selenium	ND	11	
Silver	ND	2.3	
Thallium	ND	2.3	
Zinc	58	2.3	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S2
Lab ID:	88268-05
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	91.08

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	9.9	2.3	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-5-S3
Lab ID:	88268-06
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	88.64

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	15	2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S1
Lab ID:	88268-07
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	83.47

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Arsenic	2.7	2.7	
Antimony	ND	13	
Beryllium	ND	0.53	
Cadmium	ND	1.3	
Chromium	11	2.7	
Copper	13	2.7	
Lead	41	2.7	
Nickel	ND	11	
Selenium	ND	13	
Silver	ND	2.7	
Thallium	ND	2.7	
Zinc	50	2.7	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S2
Lab ID:	88268-08
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	88.81

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	11	2.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-4-S3
Lab ID:	88268-09
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	89

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	13	2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S1
Lab ID:	88268-10
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	84.8

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Arsenic	49	2.8	
Antimony	ND	14	
Beryllium	ND	0.56	
Cadmium	ND	1.4	
Chromium	17	2.8	
Copper	13	2.8	
Lead	320	2.8	
Nickel	12	11	
Selenium	ND	14	
Silver	ND	2.8	
Thallium	ND	2.8	
Zinc	61	2.8	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S2
Lab ID:	88268-11
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	91.57

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	15	2.2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-1-S3
Lab ID:	88268-12
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	91.83

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	6.3	2.5	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S1
Lab ID:	88268-13
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	84.28

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Arsenic	ND	2.8	
Antimony	ND	14	
Beryllium	ND	0.57	
Cadmium	ND	1.4	
Chromium	17	2.8	
Copper	13	2.8	
Lead	40	2.8	
Nickel	12	11	
Selenium	ND	14	
Silver	ND	2.8	
Thallium	ND	2.8	
Zinc	58	2.8	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S2
Lab ID:	88268-14
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	94.09

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	9.6	2.4	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-3-S3
Lab ID:	88268-15
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	93.8

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	5.8	2.4	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S1
Lab ID:	88268-16
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	88.27

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Arsenic	4.5	2.5	
Antimony	ND	13	
Beryllium	ND	0.5	
Cadmium	ND	1.3	
Chromium	15	2.5	
Copper	16	2.5	
Lead	85	2.5	
Nickel	13	10	
Selenium	ND	13	
Silver	ND	2.5	
Thallium	ND	2.5	
Zinc	70	2.5	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S2
Lab ID:	88268-17
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	82.81

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	7.5	2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-6-S3
Lab ID:	88268-18
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	88.57

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	10	2.6	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S1
Lab ID:	88268-19
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	88.03

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Arsenic	ND	2.5	
Antimony	ND	13	
Beryllium	ND	0.5	
Cadmium	2.7	1.3	
Chromium	18	2.5	
Copper	33	2.5	
Lead	340	2.5	
Nickel	15	10	
Selenium	ND	13	
Silver	ND	2.5	
Thallium	ND	2.5	
Zinc	120	2.5	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S2
Lab ID:	88268-20
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	89.48

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	7.1	2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	ATC Associates
Client ID:	SX-2-S3
Lab ID:	88268-21
Date Received:	3/17/00
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor	1
% Solids	85.04

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Lead	12	2.3	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - PCBG16
Date Received:	-
Date Prepared:	3/20/00
Date Analyzed:	3/20/00
% Solids	100
Dilution Factor	10

PCBs by USEPA Method 8082

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	109		53	136
Decachlorobiphenyl	113		56	139

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Aroclor 1016	ND	0.092	0.061	
Aroclor 1221	ND	0.092	0.072	
Aroclor 1232	ND	0.092	0.052	
Aroclor 1242	ND	0.092	0.033	
Aroclor 1248	ND	0.092	0.018	
Aroclor 1254	ND	0.092	0.03	
Aroclor 1260	ND	0.092	0.026	
Aroclor 1262	ND	0.092	0.092	
Aroclor 1268	ND	0.092	0.092	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID: SX-7-S1
Lab ID: 88268-01
Date Prepared: 3/20/00
Date Analyzed: 3/20/00
QC Batch ID: PCBG16

PCBs by USEPA Method 8082

Compound Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	MSD Result (mg/kg)	MSD % Rec.	RPD	Flag
Aroclor 1260	0	1.14	1.05	92	0.99	89	-3.3	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID: PCBG16
Date Prepared: 3/20/00
Date Analyzed: 3/20/00
QC Batch ID: PCBG16

PCBs by USEPA Method 8082

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
Aroclor 1260	0	0.927	1.04	112	1.04	114	1.8	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - DI2533
Date Received:	-
Date Prepared:	3/17/00
Date Analyzed:	3/18/00
% Solids	
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	76.5		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	40	21	

SOUND ANALYTICAL SERVICES, INC.

Lab ID: Method Blank - DI2534
Date Received: -
Date Prepared: 3/17/00
Date Analyzed: 3/18/00
% Solids
Dilution Factor 4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
o-terphenyl	80.1		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	12	
Motor Oil	ND	40	21	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID: DI2533
Date Prepared: 3/17/00
Date Analyzed: 3/18/00
QC Batch ID: DI2533

Diesel and Motor Oil by NWTPH-Dx Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
#2 Diesel	0	501	466	93	487	97.3	4.5	
Motor Oil	0	496	414	83.5	459	92.5	10	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID: DI2534
Date Prepared: 3/17/00
Date Analyzed: 3/18/00
QC Batch ID: DI2534

Diesel and Motor Oil by NWTPH-Dx Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
#2 Diesel	0	501	452	90.3	475	94.8	4.9	
Motor Oil	0	496	420	84.8	457	92.3	8.5	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: SX-7-S3
Lab ID: 88268-03
Date Prepared: 3/17/00
Date Analyzed: 3/18/00
QC Batch ID: DI2533

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	0	0	NC	
Motor Oil	0	0	NC	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: SX-1-S2
Lab ID: 88268-11
Date Prepared: 3/17/00
Date Analyzed: 3/18/00
QC Batch ID: DI2533

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	0	0	NC	
Motor Oil	71.3	98.3	-32.0	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: SX-2-S3
Lab ID: 88268-21
Date Prepared: 3/17/00
Date Analyzed: 3/19/00
QC Batch ID: D12534

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	0	0	NC	
Motor Oil	0	0	NC	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - S015
Date Received:	-
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor:	1

Metals by ICP - USEPA Method 6010

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
Arsenic	ND	2	
Antimony	ND	10	
Beryllium	ND	0.4	
Cadmium	ND	1	
Chromium	ND	2	
Copper	ND	2	
Lead	ND	2	
Nickel	ND	8	
Selenium	ND	10	
Silver	ND	2	
Thallium	ND	2	
Zinc	ND	2	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - S016
Date Received:	-
Date Prepared:	3/20/00
Date Analyzed:	3/21/00
Dilution Factor:	1

Metals by ICP - USEPA Method 6010

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
Arsenic	ND	2	
Antimony	ND	10	
Beryllium	ND	0.4	
Cadmium	ND	1	
Chromium	ND	2	
Copper	ND	2	
Lead	ND	2	
Nickel	ND	8	
Selenium	ND	10	
Silver	2.1	2	
Thallium	ND	2	
Zinc	ND	2	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID: SX-7-S1
Lab ID: 88268-01
Date Prepared: 3/20/00
Date Analyzed: 3/21/00
QC Batch ID: S015

Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
Arsenic	5.81	1110	1010	90	
Antimony	0	831	702	85	
Beryllium	0	27.7	24.5	89	
Cadmium	2.4	27.7	25.7	84	
Chromium	15	111	113	88	
Copper	18	138	137	86	
Lead	120	277	312	71	x7
Nickel	12	277	246	84	
Selenium	14	1110	931	83	
Silver	0	166	151	91	
Thallium	0	1110	927	84	
Zinc	82	277	307	81	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID: SX-2-S1
Lab ID: 88268-19
Date Prepared: 3/20/00
Date Analyzed: 3/21/00
QC Batch ID: S016

Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
Arsenic	0	896	832	93	
Antimony	0	672	532	79	
Beryllium	0	22.4	20.4	91	
Cadmium	2.7	22.4	22.9	90	
Chromium	18	89.6	101	93	
Copper	33	112	138	94	
Lead	340	224	564	100	
Nickel	15	224	208	87	
Selenium	0	896	770	86	
Silver	0	134	119	89	
Thallium	0	896	754	84	
Zinc	120	224	334	97	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: SX-7-S1
Lab ID: 88268-01
Date Prepared: 3/20/00
Date Analyzed: 3/21/00
QC Batch ID: S015

Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Arsenic	5.8	3.6	47.0	X4a
Antimony	0	0	NC	
Beryllium	0	0	NC	
Cadmium	2.4	2	18.0	
Chromium	15	19	-24.0	
Copper	18	17	5.7	
Lead	120	110	8.7	
Nickel	12	12	0.0	
Selenium	14	0	200.0	X4a
Silver	0	0	NC	
Thallium	0	0	NC	
Zinc	82	87	-5.9	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: SX-2-S1
Lab ID: 88268-19
Date Prepared: 3/20/00
Date Analyzed: 3/21/00
QC Batch ID: S016

Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Arsenic	0	3.3	-200.0	X4a
Antimony	0	0	NC	
Beryllium	0	0	NC	
Cadmium	2.7	2.8	-3.6	
Chromium	18	15	18.0	
Copper	33	32	3.1	
Lead	340	220	43.0	X4a
Nickel	15	14	6.9	
Selenium	0	0	NC	
Silver	0	0	NC	
Thallium	0	0	NC	
Zinc	120	120	0.0	

Sound Analytical Services, Inc.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 Pacific Hwy East • Tacoma, WA 98424

(253) 922-2310 • FAX (253) 922-5047

e-mail: sainc1@uswest.net



DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be $\leq 40\%$.
- C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be $> 40\%$. The higher result was reported unless anomalies were noted.
- M: GC/MS confirmation was performed. The result derived from the original analysis was reported.
- D: The reported result for this analyte was calculated based on a secondary dilution factor.
- E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- N: See analytical narrative.
- ND: Not Detected
- PQL: Practical Quantitation Limit
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2: Contaminant does not appear to be "typical" product.
- X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.
- X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.
- X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike recovery was not determined due to the required dilution.
- X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.
- X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.
- X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
- X8: Surrogate recovery was not determined due to the required dilution.
- X9: Surrogate recovery outside advisory QC limits due to matrix interference.



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 e-mail: saincl@uswest.net

SAS Lab No. 33268

TURNAROUND REQUEST (business days)
 Standard (10 days) _____
 RUSH: 24 hrs _____ 48 hrs 5 day _____

5/2

CHAIN OF CUSTODY/REQUEST FOR LABORATORY ANALYSIS

Client: <u>ATC ASSOCIATES INC.</u>					Analyses Requested																
Project Name: <u>Kennewick</u>					# of Containers	MUTPH-Dx extended	PAH by EPA Method 8270C	Total Lead	pH	PCBs by EPA Method 8062	Priority Persistent Metals - Total										
Contact: <u>NEIL GILHAM</u>																					
Phone No.: <u>206.761.1449</u>																					
Fax No.: <u>206.761.1543</u>																					
Email: <u>gilham176@atc-enviro.com</u>																					
Lab Use Only	Sample ID	Date	Time	Matrix																	
1	SX-7-S1	3/15/00	1130	SOIL	2	✓	✓		✓	✓	✓										
2	SX-7-S2	"	1157	"	2	✓	✓	✓	✓												
3	SX-7-S3	"	1216	"	2	✓	✓	✓	✓												
4	SX-5-S1	"	1319	"	2	✓	✓		✓	✓	✓										
5	SX-5-S2	"	1328	"	2	✓	✓	✓	✓												
6	SX-5-S3	"	1353	"	2	✓	✓	✓	✓												
7	SX-4-S1	"	1645	"	2	✓	✓		✓	✓	✓										
8	SX-4-S2	"	1655	"	2	✓	✓	✓	✓												
9	SX-4-S3	"	1714	"	2	✓	✓	✓	✓												
10	SX-1-S1	3/16	1030	"	2	✓	✓		✓	✓	✓										
11	SX-1-S2	"	1045	"	2	✓	✓	✓	✓												
12	SX-1-S3	"	1100	"	2	✓	✓	✓	✓												
13	SX-3-S1	"	0912	"	2	✓	✓		✓	✓	✓										
14	SX-3-S2	"	0930	"	2	✓	✓	✓	✓												
15	SX-3-S3	"	0950	"	2	✓	✓	✓	✓												
16	SX-6-S1	"	0824	"	2	✓	✓		✓	✓	✓										
17	SX-6-S2	"	0845	"	2	✓	✓	✓	✓												
18	SX-6-S3	"	0859	"	2	✓	✓	✓	✓												

	Signature	Printed Name	Firm	Time/Date	Special Instructions
Relinquished By:	<i>Neil Gilham</i>	NEIL GILHAM	ATC	3/17/00 10:40	
Received By:	<i>J. Palmquist</i>	J. PALMQUIST	SAS	3-17 10:40A	
Relinquished By:	<i>J. Palmquist</i>	J. PALMQUIST	SAS	3-17 1:30 P	
Received By:	<i>A. Strom</i>	A. STROM	SAS	3/17/00 1:30	
Relinquished By:					
Received By:					



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 ANALYTICAL & ENVIRONMENTAL CHEMISTS
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 (253) 922-2310 • FAX (253) 922-5047
 e-mail: saincl@uswest.net

SAS Lab No. _____

TURNAROUND REQUEST (business days)
 Standard (10 days) _____
 RUSH: 24 hrs _____ 48 hrs 5 day(

CHAIN OF CUSTODY/REQUEST FOR LABORATORY ANALYSIS

Client: <u>ATC Associates, Inc.</u>					Analyses Requested																	
Project Name: <u>Kennewick</u>					# of Containers	NUTPH - Dx extended	PAH by EPA Method 8270C	Total Lead	PH	PCB by EPA Method 8082	Priority Polutant Metals - Total											
Contact: <u>Neil G. Ham</u>																						
Phone No.: <u>206-781-1449</u>																						
Fax No.: <u>206-781-1543</u>																						
Email: <u>g.ham70@atc.com</u>																						
Lab Use Only	Sample ID	Date	Time	Matrix	# of Containers	NUTPH - Dx extended	PAH by EPA Method 8270C	Total Lead	PH	PCB by EPA Method 8082	Priority Polutant Metals - Total											
	SX-2-SZ	3/16	0715	soil		✓	✓	✓	✓	✓	✓											
	SX-2-SZ	11	0730	11		✓	✓	✓	✓													
	SX-2-S3	11	0745	11		✓	✓	✓	✓													

	Signature	Printed Name	Firm	Time/Date	Special Instructions
Relinquished By:		NEIL G. HAM	ATC	3/17/00 1040	
Received By:		J. PALMQUIST	SAS	3-17 10:40A	
Relinquished By:		J. PALMQUIST	SAS	3-17 1:30P	
Received By:		A. STROM	SAS	3/17/00 1:30P	
Relinquished By:					
Received By:					