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PCB Cleanup, Aniak Middle School, Aniak, Alaska

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PCB Cleanup, Aniak Middle School, Aniak, Alaska

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PCB Cleanup
Aniak Middle School
Aniak, Alaska

December 2001

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PCB CLEANUP
ANIAK MIDDLE SCHOOL
ANIAK, ALASKA

1.0 INTRODUCTION

This report presents the results of our cleanup and sampling activities at the Aniak Middle School in Aniak, Alaska. The purpose of these cleanup activities was to remove polychlorinated biphenyl (PCB)-impacted soil containing PCB concentrations above 1 part per million (ppm) from the Aniak Middle School property.

The work was performed under Shannon & Wilson's Alaska Department of Environmental Conservation (ADEC) Hazardous Substance Spill Cleanup and Uncontrolled Waste Site Remediation Term Contract, No. 18-2019-50. Notice to Proceed (NTP) with these services was received from Mr. Dennis Harwood, ADEC Contract Manager, on June 15, 2001 (NTP No. 1820195014A). The work was conducted in general accordance with our July 2001 work plan. The work plan was approved by Mr. John Halverson of the ADEC and Mr. Dan Duncan of the Environmental Protection Agency (EPA).

A total of 631 supersacks, corresponding to about 872 tons of PCB-impacted material, and one drum of decontamination water were transported and disposed of at a Treatment, Storage, and Disposal (TSD) facility in Arlington, Oregon. PCB-impacted soil was removed from an area of previously identified PCB impact that was covered with a temporary cover, six previously identified outlying areas, and from an area of PCB impact identified during this project. Confirmation samples collected from the areas of previously identified PCB impact indicate that the soil remaining in these excavations contain concentrations of PCBs less than one ppm. PCB-impacted soil remains in the base of an area identified during this project, designated the Staging Area, and in the remainder of the previously identified source area surrounding Areas F and G. The remaining PCB-impacted soil is currently covered with a temporary cover constructed of a geotextile liner and a gravel cap.

2.0 SITE AND PROJECT DESCRIPTION

2.1 Site Description

Aniak is located approximately 300 miles west of Anchorage and is located within the Kuskokwim River flood plain. Aniak is bordered on the north by the Kuskokwim River and on the south by the Aniak Slough. The Middle School is located on the southwest side of the runway in Aniak, Alaska. The site is approximately 600 feet southwest of the northwest portion of the runway and approximately 2,000 feet south of the Kuskokwim River, as shown in Figure 1. The site is located in Section 12, Township 17 North, Range 57 West, Seward Meridian, as

shown on the United States Geological Society (USGS) Russian Mission (C-2) quadrangle. The property is relatively flat and the surrounding area slopes generally southwest towards the Aniak Slough. The site is situated on a gravel pad overlaying the native alluvial deposits.

The Aniak Middle School was formerly used as a White Alice Communication (WAC) site until approximately 1978. Previous investigations identified soil contaminated with PCBs located on the south and east portions of the Middle School. Two main areas of PCB-impacted soil, designated Areas F and G, were identified south of the school and were capped with a geotextile liner and gravel fill material. In addition, PCB-impacted soil was encountered in isolated areas around a shop building northwest of the school. Figure 2 shows the site layout and the previously identified areas of PCB impact.

2.2 Project Description

The objective of this project was to excavate and dispose of PCB-impacted soil at an off-site permitted facility. The project included preparing a PCB cleanup work plan, which included a Quality Assurance Project Plan (QAPP), a Site Specific Health and Safety Plan (SSHSP), and a Waste Management Plan (WMP). These plans were provided to, and approved by, the ADEC and EPA prior to the cleanup and sampling activities.

The project also consisted of implementing the PCB cleanup work plan and summarizing the results of the cleanup and sampling activities in a report. Shannon & Wilson was retained to prepare the plans, field screen the soil encountered, collect analytical samples, and report the results of these efforts. Trans Alaska Construction (TAC) of Big Lake, Alaska provided the labor and equipment for the excavation efforts, and Energy Recovery Services, Inc. (ERSI) of Anchorage, Alaska developed the WMP, and arranged for the shipping and disposal of the waste generated during the cleanup effort. CT&E Environmental Services Inc. (CT&E) of Anchorage, Alaska provided laboratory analysis of the soil and decontamination water samples. These companies were under subcontract to Shannon & Wilson.

3.0 BACKGROUND

Background information pertaining to the areas of PCB-impacted soil at the site were obtained from the April 20, 2001 request for proposal (RFP) prepared by the ADEC, the September 1997 *Final Site Inspection Report, White Alice Communication Site SI, Aniak, Alaska* prepared by Ecology and Environment, Inc. (E&E), the April 1998 *Site Assessment Report, Middle and High Schools, Aniak, Alaska* and the August 1999 letter titled *Additional Polychlorinated Biphenyl Assessment at Middle School, Aniak, Alaska* prepared by Shannon & Wilson, Inc. A summary of the history and previous work performed at the site is included in the following paragraphs.

The Aniak WAC was constructed in approximately 1956 and operated by the United States Air Force (USAF) until approximately 1978. Between September 1979 and November 1980, the Kuskokwim School District (KSD) contracted two construction companies to remove the electrical and engine generator equipment from the former WAC building. Multiple spills of PCB-containing transformer oil mixed with antifreeze allegedly occurred during this work. The Alaska Department of Transportation and Public Facilities (ADOT&PF) currently owns the property and leases the site to the KSD and ALASCOM, INC,.

A Site Investigation (SI) performed in 1997 documented concentrations of PCBs that exceed the Toxic Substances Control Act (TSCA) cleanup levels in surface and subsurface soil up to 3 feet below the ground surface (bgs) outside the Middle School building. As a result of these findings, in November 1997, a geotextile liner was placed over this area and approximately 6-inches of clean sand and gravel were placed above the liner.

In June 1998, sixteen hand borings were drilled to depths between 2.5 and 8 feet bgs around the southern portion of the Middle School, designated Areas F and G in Figure 2, to assess the extent of PCB-impacted soil in these areas. Twenty-five soil samples from these borings, and an additional 35 surface soil samples, were collected for PCB analyses. Based on the analytical results of this assessment, the volume of soil impacted with more than 10 ppm PCBs in these areas was estimated to be between 380 and 460 in-place cubic yards (440 to 530 excavated cubic yards). Additional isolated locations that contained PCB concentrations between 1 and 10 ppm were also identified outside of Areas F and G.

4.0 FIELD ACTIVITIES

The cleanup activities consisted of excavating PCB-impacted soil, containerizing the soil in one cubic yard supersacks, collecting characterization and confirmation samples, and backfilling the excavations with clean overburden soil and soil imported from a local borrow source. PCB-impacted soil was excavated from the Main Excavation located south of the Aniak Middle School, the Staging Area located southeast of the Middle School, and from six previously identified outlying locations surrounding the Middle School. The supersacks were labeled and transported to the Aniak barge loading area. The supersacks were individually weighed, loaded in connexes, and shipped on barges to Bethel, Alaska. The connexes were then loaded on a barge for shipment to Seattle where they were transferred to railcars for transportation to the TSD. Prior to beginning excavation activities, utilities in the project area were located and marked. Photographs of the site cleanup activities are included in Appendix A. The following sections discuss the field activities and include decontamination procedures and the disposal of the waste generated during the project.

4.1 Health and Safety

This project was conducted in accordance with the SSHSP prepared by Shannon & Wilson, Inc. for the cleanup activities performed at the project site. In accordance with the SSHSP, daily tailgate safety meetings were conducted with the personnel working at the site to discuss construction equipment, crew responsibilities, location of emergency medical assistance and reporting requirements for work related injuries. Personal protective equipment (PPE) was used by the on-site personnel and consisted of air-purifying respirators, disposable chemical resistant coveralls and overboots (Tyvek), chemical resistant gloves (Nitrile), hard hats, steel-toed boots, hearing protection and safety glasses, as appropriate.

An exclusion zone was set up around the work areas and consisted of orange hurricane fencing outside of the Middle School and yellow caution tape and signs placed on the south entrance to the Middle School and the entrance to the Middle School wood shop.

4.2 Main Excavation

The Main Excavation was located outside of the southern entrance to the Middle School, as shown in Figure 2. The PCB-impacted soil in this area was previously covered with a temporary cap consisting of a geotextile liner and approximately six inches of overburden soil. The overburden soil was scraped from the planned excavation area and stockpiled for sampling and potential reuse as backfill. The geotextile liner was collected and placed in supersacks for disposal.

Following the removal of the temporary cap, field-screening samples were collected from the exposed soil in accordance with the work plan. The results of the initial field screening, as well as the results from previous sampling efforts, were used to guide the initial excavation activities. The excavation was continued until field screening indicated that the soil remaining in the excavation contained less than 1 ppm PCBs. As shown in Figure 3, the Main Excavation was subdivided into sixteen areas, designated Areas 1 through 16, which were in turn subdivided into smaller sub-areas for field screening and sample collection.

PCB-impacted soil was collected using a front-end loader and transferred to a conveyor belt where the soil was placed into supersacks supported by a forklift. The work areas around the conveyor belt were covered with a plastic liner. Photographs 1 and 2 in Appendix A show the conveyor belt used to transfer soil to the supersacks. After filling, the supersacks were labeled and transported on a flatbed truck to the barge loading area.

The Main Excavation was up to six feet deep in Area 4, which was located outside of the south entrance to the Middle School. In general, the remainder of the excavation was less than one foot deep, except for the area along the edge of the Middle School and the area closest to

Areas F and G. Photographs 3 and 4 in Appendix A show Areas 3, 4, and 5 at different stages of the excavation. Approximately 529 cubic yards of PCB-impacted soil were excavated from the Main Excavation. Except for Area 16 and small portions of Areas 6, 8, 10, and 15, the PCB-impacted soil encountered in the Main Excavation was limited to the area formerly covered by the temporary cap. Following the removal of the PCB-impacted soil and the collection of confirmation samples, the excavation was backfilled with clean imported material.

4.3 Staging Area

As discussed in the work plan and shown in Figure 2, an area located to the southeast of the Middle School was designated as the Staging Area for storing materials handled during this project. Prior to using the location for storing and handling materials, four field-screening samples were collected on August 1, 2001. The field screening results indicated that the surface soil in the vicinity of the Staging Area was impacted with PCBs at concentrations exceeding the cleanup levels for this project. Twenty-four additional field-screening samples were collected from the Staging Area to delineate the horizontal extent of the PCB-impacted surface soil. Based on the field screening conducted, the area of PCB-impacted soil in the Staging Area covered approximately 4,000 square feet. A hand excavated test pit advanced at one of the locations with the highest field screening results indicated that soil impacted with PCBs above the project cleanup level extends to at least one foot bgs.

In accordance with instruction provided by the ADEC, approximately six inches of PCB-impacted soil, about 84 cubic yards, was excavated from the Staging Area. As shown in Figure 4, the Staging Area Excavation was subdivided into 19 areas, designated Areas G1 through G19. Field screening and analytical samples were collected from the exposed soil to assess the concentration of PCBs remaining in the soil in the Staging Area excavation. Following sampling, a geotextile liner and about six inches of imported gravel from the project borrow source were placed over the Staging Area as a temporary cap.

4.4 Outlying Excavations

During previous investigations, six areas of PCB-impacted surface soil were identified outside of the main area of PCB-impacted soil located to the southeast of the Middle School. During this project, the PCB-impacted soil in each of these areas was excavated from the locations shown in Figure 2 and placed in supersacks for disposal. Each excavation was advanced in 0.5-foot intervals until the field screening results indicated that the concentration of PCBs remaining in the excavation was less than the applicable cleanup level of one ppm. Based on the results of the field screening, Excavations CS01X, CS08X, CS12X, and CS17X were advanced to about 0.5 feet bgs and about two cubic yards of PCB-impacted soil were removed from each excavation. Excavations CS13X2 and CS21X2 were both advanced to approximately 1.0 feet bgs and about four cubic yards of PCB-impacted soil were removed from each of these

excavations. Following the removal of the PCB-impacted soil and the collection of confirmation analytical samples, the outlying excavations were backfilled with clean imported material.

4.5 Borrow Source Material Sampling

Soil was obtained from an off-site borrow source that was located approximately four miles from the site. Three analytical samples were collected from the borrow source material and submitted to the project laboratory. The analytical results of these samples were used to evaluate the concentrations of petroleum hydrocarbons and PCBs, if any.

4.6 Overburden Soil Sampling

Approximately 300 cubic yards of gravel were removed from above the liner at the Main Excavation. Ten field-screening samples were collected from random locations in the gravel stockpile. Based on field screening results, approximately four cubic yards of gravel was impacted with PCBs above the applicable cleanup level. The impacted soil was from a small stockpile that was inadvertently scraped from below the geotextile liner. This PCB-impacted material was segregated and placed in supersacks for disposal. Following the removal of the four cubic yards of PCB-impacted soil, two analytical samples were collected from the overburden soil to confirm the field screening results. Based on the analytical results, the overburden soil was used as backfill.

4.7 Containment Area Sampling

A lined containment area was constructed at the barge loading area to hold supersacks containing TSCA-regulated waste collected during this project. This containment area was constructed in accordance with the requirements for providing secondary containment for TSCA-regulated waste and was large enough to contain approximately 100 supersacks. During the excavation activities, nine supersacks containing soil that appeared to be TSCA-regulated waste based on field screening were placed in the containment area. The supersacks that did not contain TSCA regulated waste, based on field screening, were temporarily stored adjacent to the lined containment area on the ground surface in accordance with the work plan.

In accordance with the work plan, four baseline samples were collected prior to the construction of the containment area for TSCA-regulated waste. The sample locations were chosen from beneath the planned footprint of the containment area and analyzed for PCBs. According to the work plan, this area was to be screened and re-sampled at the conclusion of the project to evaluate whether TSCA-regulated waste stored in the containment area impacted the soil beneath the containment area. However, based on analytical results, the nine supersacks that were stored in the containment area did not contain TSCA-regulated waste. Since TSCA-

regulated waste not handled during this project, the follow-on screening and sampling of the containment area was omitted from the current work effort.

4.8 Decontamination Procedures

Disposable PPE was used during the excavation of PCB-impacted soil. When personnel exited the exclusion zone, their PPE was collected in plastic bags and placed in the soil supersacks for disposal.

At the completion of the excavation activities, the project equipment was cleaned of loose soil using stiff brushes. The soil removed from the hard surfaces of the equipment was added to the soil supersacks. Following the removal of the loose soil, the equipment and rubber surface of the conveyer belt was washed with water and brushes. Final decontamination of the tools and equipment used for this project was accomplished by wiping the surfaces with hexane using disposable towels. The decontamination water was placed in a 55-gallon drum for disposal. The hand towels and plastic liners used for the decontamination station were placed in supersacks for disposal with the other PCB-impacted material. The front-end loader used for this project is shown at the decontamination station in Photograph 5.

4.9 Generated Waste

Waste generated during field activities includes the excavated soil, liner material, used PPE, and decontamination water. Based on the characterization sampling conducted during this project, the PCB-impacted material was impacted with less than 50 ppm PCBs. The PCB-impacted soil, liner material, and used PPE were placed in one cubic yard supersacks that were transported to the loading area and loaded into shipping containers. During the loading process, each of the supersacks was weighed and the weight was recorded. A total of 631 supersacks, corresponding to about 872 tons of PCB-impacted material, were generated during this project. A total of nine supersacks were used to contain liner material and used PPE, and the remaining 622 supersacks contained PCB-impacted soil. The decontamination water was placed in a 55-gallon drum, which was placed in an 85-gallon overpack drum, and placed in one of the shipping containers. Seventy-three shipping containers were transported via river barge to Bethel where the containers were transferred to sea barges for transport to Seattle, Washington. The containers were then transported via railcar to the Columbia Ridge Landfill in Arlington, Oregon for disposal of the PCB-impacted material. Northland Services, under subcontract to ERS, provided transportation of the containers from Aniak to Seattle between August 31 and October 25, 2000. Emerald Services of Seattle, operating under subcontract to ERS, then transferred the containers to the Union Pacific Railroad for transport to the TSD. The TSD received the containers by October 30, 2001. The manifest tracking log, which includes the weights for each container and the dates each container manifest were signed by the transporters and the TSD, are included in Appendix B. The completed copies of the manifests will be provided to the ADEC under separate cover.

5.0 SAMPLING PROCEDURES

Soil samples were collected and screened in general accordance with procedures outlined in 40 CFR 761.265 and 761.283, the ADEC December 1, 1999 Standard Sampling Procedures, the September 27, 2000 18 AAC 75 regulations, and our ADEC and EPA approved work plan. The soil samples were stored in chilled coolers, and transported to CT&E using chain-of-custody procedures. The frequency of sample collection and collection procedures are described in the following subsections.

5.1 Additional Characterization Samples

Several soil samples collected for this project were submitted for additional analyses to characterize the soil for constituents other than PCBs. The soil samples analyzed for volatile constituents were collected using the ADEC sampling procedure for Alaska Method 101 (AK 101). In accordance with AK 101, at least 25 grams of soil were quickly placed into a laboratory supplied 4-oz. jar that had been pre-weighed. Afterward, 25 milliliters of reagent grade methanol were added to submerge the soil. The methanol extracted the volatile constituents from the soil sample at the time of sampling, thereby reducing the possible loss of volatile constituents prior to sample analysis.

5.2 Field Screening Samples

Based on the results of previous investigations at the site, the PCB contamination identified is solely attributable to Aroclor 1260. Field screening samples were evaluated for the presence of PCBs using ENSYS field screening kits in accordance with the manufacturer's instructions. The kits were calibrated to an Aroclor 1260 standard, which has a corresponding sensitivity limit of 0.5 ppm. In accordance with the work plan, field-screening samples were collected in new, resealable plastic bags using decontaminated stainless steel sampling equipment. Both discrete and composite field-screening samples were collected. If the sample was a composite sample, equal portions of soil were collected from discrete locations and thoroughly mixed in the resealable bag prior to analysis. Field screening was conducted inside the Wood Shop at the Middle School. The work area surfaces were lined with plastic prior to conducting field screening, as shown in Photograph 6. At the completion of the project, the plastic lining, used sampling equipment, and field-screening samples were placed in supersacks with the excavated soil for disposal.

Field-screening samples were evaluated for the presence of PCBs at levels of 1, 10, and 50 ppm. During excavation activities, if the previous field screening results for soil within a selected grid area indicated that the soil was impacted with PCBs between 1 and 10 ppm, the subsequent samples collected from the underlying layers in that area were then typically field

screened at 1 ppm. The results of the field screening were recorded in a field notebook and are shown in Table 1 along with sample descriptions.

The PCB-impacted soil excavated at the project site was segregated based on field screening results. Soils with field screening results greater than 50 ppm PCBs and between 1 and 50 ppm PCBs were segregated and containerized separately. The work plan initially called for the segregation of soil containing between 1 and 10 ppm PCBs for potential reuse in the deeper portions of the excavations. However, in accordance with direction provided by Mr. John Halverson of the ADEC, soil containing between 1 and 10 ppm PCBs was not segregated because the applicable cleanup level for this project was 1 ppm regardless of soil depth.

A comparison of the field screening data with the analytical data for this project indicates that the ENSYS field screening kits were effective in efficiently guiding the excavation activities. This is supported by the analytical results of the Main and Outlying Excavations confirmation samples, which contained measured PCBs concentrations near but less than the 1 ppm detection limit of the ENSYS screening kits. However, the ENSYS screening kit results appear to be increasingly conservative relative to analytical results at higher detection limits. Seven of the twelve analytical samples with field screening results greater than 10 ppm but less than 50 ppm contained measured PCB concentrations within the 10 to 50 ppm range, whereas the remaining 5 analytical samples with field screening results in the 10 to 50 ppm range contained less than 10 ppm PCBs. None of the six samples with screening results exceeding the 50 ppm level contained measured PCB concentrations greater than 50 ppm.

The discrepancies between the analytical and field screening results may be attributable to differences between laboratory and field sample analysis techniques. PCBs in soil adhere to the surfaces of soil particles. The ENSYS field screening kits required approximately 10 grams of soil for each sample. In accordance with guidance provided by the manufacturer, soil particles larger than a pea were excluded from the sample. The remaining fine-grained material was used for the ENSYS field screening tests. Small pebbles the size of a pea and larger could represent 10 to 20 percent of the overall ENSYS field screening sample by weight and were not used in the ENSYS field screening tests. In comparison, the project laboratory uses 30 grams of soil for their testing and uses soil particles equal to or smaller than a dime. The field screening results may have been conservatively biased by using fine-grained samples with more surface area per overall sample mass.

5.3 Excavation Sample Locations

When the field screening results indicated PCB concentrations detected in the soil were less than the applicable cleanup level of 1 ppm, analytical sample locations were selected within the excavations following the EPA guidelines described in 40 CFR 761. Composite analytical samples were collected from each of the sixteen areas of the Main Excavation to confirm that the concentration of remaining PCB-impacted soil was less than the applicable cleanup level. Each

composite sample was collected from between three and six smaller sub-areas. Each of the sub-areas encompassed approximately 100 square feet and each confirmation sample therefore represents an area between 300 and 600 square feet.

Equal portions of soil were collected from nine discrete grid nodes within each of the sub-areas comprising each of the sixteen areas of the Main Excavation. The soil samples representing each of the sixteen areas of the Main Excavation were placed in new, disposable aluminum pans and thoroughly mixed. The appropriate laboratory sample jars were then filled using a new stainless steel spoon. A description of each of the analytical samples is included in Table 1 and the locations and final average depth of the excavated soil in each of the sub-areas comprising each of the 16 areas of the Main Excavation are shown in Figure 3.

Confirmation samples from the six outlying excavations were collected as described above for each of the approximately 100 square foot excavations. A separate analytical sample was collected to characterize each of the six outlying excavations. A description of each of the analytical samples is included in Table 1 and the locations of each of the outlying excavations are shown in Figure 2.

5.4 Supersack Characterization Samples

Based on field screening results, analytical samples were collected to characterize the excavated soil at the following frequency: two samples for the first 50 cubic yards of excavated soil and one sample for each additional 50 cubic yards. Analytical samples were collected from the locations of the project field screening samples with the highest results.

5.5 Quality Control Sampling

In addition to the project samples, field quality control samples were collected and analyzed to document reliability of the sampling and handling procedures. The quality control samples consisted of field duplicates for the PCB soil samples and trip blanks for the soil samples analyzed for volatile constituents. At least one field duplicate sample was collected and analyzed for every 10 analytical project samples. Field duplicate samples were collected from as close in time and location as possible to the project samples. The duplicate samples were sent to the laboratory as blind duplicates and were numbered in the same manner as the project samples. Additionally, quality control samples were analyzed by the laboratory to verify internal quality control standards.

6.0 LABORATORY ANALYSES

Each of the samples collected for this project was analyzed for PCBs in accordance with EPA Method 8082. The samples collected to characterize the backfill material used for this

project were further analyzed for gasoline range organics (GRO) by Alaska Method 101 (AK 101), diesel range organics (DRO) by AK 102, residual range organics (RRO) by AK 103, and aromatic volatile organics including benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B. The project sample with the highest concentration of PCBs was used to further characterize the excavated soil for disposal and was analyzed for semivolatile organic compounds (SVOCs) by EPA Method 8270C, halogenated volatile organics (HVOs) by EPA Method 8620B, and toxicity characteristic leaching procedure (TCLP) metals by EPA Method 1311/6000/7000 series. The decontamination water was analyzed for PCBs by EPA 8082 and total Resource Conservation Recovery Act (RCRA) metals by EPA Methods 6020 and 245.1.

In addition, soil trip blanks were analyzed for GRO by AK101 and BTEX by EPA Method 8021B to evaluate potential cross contamination of volatile constituents.

Samples were delivered to the laboratory using chain-of-custody procedures and analyzed by CT&E. The results of the analyses are summarized in Table 2. Laboratory reports are presented in Appendix C.

7.0 CLEANUP LEVELS

Based on guidance provided by the EPA, the PCB-impacted soil at the site is classified as a "PCB Remediation Waste" and the cleanup level of 1 ppm PCBs contained in 40 CFR 761.61 was applicable regardless of depth. The cleanup levels for petroleum hydrocarbons and metals in soil vary, and the cleanup levels for selected analytes are discussed below. The cleanup levels associated with the decontamination water are presented in 18 AAC 75.345 and are less than 0.0005 ppm PCBs. The cleanup levels for RCRA metals in groundwater vary and are discussed in Section 8.6.

8.0 DISCUSSION OF ANALYTICAL RESULTS

Under the sample numbering scheme used for this project, typical analytical sample numbers are 32-1-16491-Area1 or 32-1-16491-BF1. The '32-1-16491' indicates the Shannon & Wilson job number. For brevity in the text of this report, the '32-1-16491' prefix is omitted and samples are identified by their sample number.

Analytical PCB concentrations for each of the soil samples are tabulated in Table 2. The analytical results for the samples that were analyzed for additional parameters are tabulated in Table 3 and the complete laboratory reports are included in Appendix C. The analytical results for the excavation samples, borrow source characterization samples, overburden soil samples, supersack characterization samples, miscellaneous characterization samples, decontamination sample, and quality control samples collected for this project are discussed in the following sections.

8.1 Excavation Samples

Confirmation samples were collected from the Main Excavation after screening samples indicated that the target cleanup level of 1 ppm PCBs had been achieved, and are designated Samples Area 1 through Area 16 in Table 1. Sample Area 25 is a field duplicate of Sample Area 5. Samples Area 6 and Area 12 did not contain PCB concentrations above the laboratory reporting limit. The PCB concentrations measured in the remaining Main Excavation samples varied from 0.0722 ppm in Sample Area 2 to 0.916 ppm in Sample Area 9.

Samples G1, G14, and G19 were collected from the Staging Area Excavation to evaluate remaining PCB concentrations after removing approximately six inches of soil from the area. Samples G1, G14, and G19 contained 14.4, 19.5, and 10.1 ppm PCBs, respectively. These results exceed the cleanup level of 1 ppm PCBs established for this site.

Samples CS01X, CS08X, CS12X, CS13X2, CS17X, and CS21X2 were collected from the outlying excavations to confirm that the target cleanup level of 1 ppm PCBs had been achieved. Sample CS101X is a field duplicate of Sample CS01X. PCB concentrations of 0.426, 0.345, and 0.250 ppm were measured in Samples CS12X, CS13X2, and CS21X2, respectively. PCBs were not detected above the laboratory reporting limit in Samples CS01X, CS08X, and CS17X.

8.2 Borrow Source Characterization Samples

Samples BF1, BF2, and BF3 were collected from the project borrow source to evaluate the potential presence of PCBs and other contaminants in the backfill material used for this project. Concentrations of PCBs, GRO, DRO, RRO and BTEX were not measured above the laboratory reporting limits in these samples. The analytical results for Samples BF1, BF2 and BF3 are presented in Tables 2 and 3.

8.3 Overburden Soil Samples

Samples SP6 and SP10 were collected to assess PCB concentrations in the overburden soil removed from above the geotextile liner covering the Main Excavation location. PCBs were not detected above the laboratory reporting limit in Samples SP6 or SP10.

8.4 Supersack Characterization Samples

Thirteen analytical samples and one duplicate sample were collected based on field screening results to characterize the excavated soil for disposal. PCB concentrations in these samples varied between 3.33 and 29.8 ppm, in Samples Q6 and SS62, respectively.

8.5 Miscellaneous Characterization Samples

Samples SL27B, SL31B and SL31C were collected from locations adjacent to the Aniak Middle School wood shop, as shown in Figure 2. These samples were collected from the approximate locations of samples collected at the site in 1997 by E&E. Samples SL27 and SL31, which were collected by E&E in 1997, contained 260 and 280 ppm PCBs, respectively. Samples SL27B, SL31B and SL31C, collected by Shannon & Wilson in August 2001 from the same approximate locations contained 15.1, 7.66 and 17.1 ppm PCBs, respectively.

The purpose of collecting these samples was to identify soils with the highest concentration of PCBs likely to be encountered at the site, and to further analyze these soils for additional parameters required by the disposal facility. Since Sample SS62 contained the highest concentration of PCBs encountered at the site, Sample SS62 was submitted for the additional analyses required. Sample SS62 was analyzed for SVOCs, HVOs, and TCLP metals. SVOCs were not measured above the laboratory reporting limit in Sample SS62. A concentration of 0.0262 ppm 1,2,4-trichlorobenzene was measured in Sample SS62, which is below the 2 ppm cleanup level presented in 18 AAC 75.340. A concentration of 0.411 ppm leachable barium was also measured in sample SS62, which does not exceed the 100 ppm toxicity characteristic for barium presented in 40 CFR 261.24. The analytical results for Sample SS62 are presented in Tables 2 and 3.

Samples SA1, SA2, SA3, and SA4 were collected to evaluate baseline PCB concentrations beneath the footprint of the TCSA regulated waste storage area constructed at the barge loading area. PCBs were not detected above the laboratory reporting limit in these samples.

8.6 Decontamination Sample

Sample Decon 1 was collected to characterize the rinsate generated during equipment decontamination activities for disposal. Sample Decon 1 contained 0.00252 ppm PCBs, which exceeds the cleanup level of 0.0005 ppm presented in 18 AAC 75.345. Concentrations of 0.0302 ppm barium and 0.0135 chromium were also measured in Sample Decon 1, which do not exceed their respective cleanup levels of 2.0 ppm and 0.1 ppm presented in 18 AAC 75.345. The analytical results for Sample Decon 1 are presented in Tables 2 and 3.

8.7 Quality Control

Data quality for this project was assessed using trip blanks, duplicate sample sets, and internal laboratory procedures. Internal laboratory quality controls consisted of matrix spike and field surrogate and bench surrogate analyses. The samples arrived at the laboratory in chilled coolers and were extracted and analyzed within the holding time for each parameter.

The analytical results for the soil samples were presented by the laboratory in Level II Data Deliverables Reports, which are included in Appendix C. The data quality objectives (DQOs) for this project are contained in the QAPP prepared for this project.

The analytical data were systematically reviewed and compared to established criteria to form conclusions about the site based on precise, accurate, and complete sampling results. Field reports were checked for completeness, accuracy, adherence to field procedures, and for information that would impact data quality. Quality control and quality assurance protocols were followed by CT&E and reported in Level II Data Deliverables packages. Continuing calibration checks, method blanks, surrogate spikes, matrix spike, and matrix spike duplicate information were used to establish whether the precision, accuracy, and completeness of the analyses were performed within the boundaries of the data quality objectives. The field data and laboratory data packages were reviewed to identify factors that would indicate data inadequacy.

Trip blanks accompanied the soil samples analyzed for volatile constituents. The trip blanks did not contain detectable concentrations of GRO or BTEX constituents. Therefore, the project samples analyzed for volatile constituents were not cross contaminated or exposed to contamination during the sample handling and storage process. The analytical results for the trip blanks are presented in Table 3.

Duplicate soil Sample Sets Area 5/Area 25, CS01X/CS101X, and Q9/Q19 were collected to assess sampling precision and calculate the relative percent difference (RPD) between the project sample and its corresponding duplicate. The RPD measurement provides an indication of the sample homogeneity and the precision of the analytical techniques. The RPD for Sample Sets Area 5/Area 25 and Q9/Q19 are 31.2% and 25.7%, respectively. The precision of these results is within the DQO of +/-40%. Therefore, the results of the duplicate sample set are considered acceptable. The RPD for the CS01X/CS101X sample set was not calculated as the sample results were less than the laboratory reporting limit.

9.0 CONCLUSIONS

A total of 631 supersacks, corresponding to about 872 tons of PCB-impacted material, and one drum of decontamination water were transported and disposed of at a Treatment, Storage, and Disposal (TSD) facility in Arlington, Oregon. PCB-impacted soil was removed from the Main Excavation, six outlying excavations, and from the Staging Area excavation. Confirmation samples collected from the Main Excavation and the six outlying excavations indicate that the soil remaining in these excavations contains concentrations of less than 1 ppm PCBs. PCB-impacted soil remains in the base of the Staging Area excavation and in the remainder of the previously identified source areas identified as Areas F and G. Based on the results of the current investigation, the impacted soil documented in Areas F and G likely extends south laterally to the Staging Area. The remaining PCB-impacted soil at the site is currently covered with a temporary cover constructed of a geotextile liner and a gravel cap.

Based on the results of this investigation, Shannon & Wilson has re-evaluated our estimate of the volume of PCB-impacted soil at the site. As shown on Figure 5, the area assumed to contain PCB-impacted soil was divided into 10 foot by 10 foot grid sections. The assumed depth of soil containing greater than 1 ppm PCBs is indicated in each grid section. Based on these estimated areas and depths, it is our opinion that approximately 1,070 cubic yards of in-place soil with PCB concentrations exceeding 1 ppm remain at the site. Using a 10 percent uncertainty factor for the volume of impacted soil and a 20 percent fluff factor, approximately 1,150 to 1,410 cubic yards of soil will need to be excavated to remove the PCB-impacted soil. Based on previous calculations, an additional 90 cubic yards of PCB-impacted soil could be removed from beneath the concrete slab located to the east of the Middle School wood shop without undermining the building's foundation. It is our opinion that PCB-impacted soil may extend beneath the building foundation.

This investigation was conducted in general accordance with procedures outlined in 40 CFR 761.265 and 761.283, the ADEC December 1, 1999 Standard Sampling Procedures, the September 27, 2000 18 AAC 75 regulations, and our ADEC and EPA approved work plan.

10.0 CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of our clients and their representatives in the study of this site. The findings we have presented within this report are based on limited research and on the sampling and analysis that we conducted at this site. They should not be construed as a definite conclusion regarding the soil conditions at this site. It is possible that our tests may have missed some higher levels of contaminants, although our intention was to sample areas likely to be impacted. As a result, the sampling and analysis performed can only provide you with our professional judgment as to the environmental characteristics of this site, and in no way guarantees that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of our site assessment. Changes in site conditions can occur with time, because of natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

Shannon & Wilson has prepared the attachments in Appendix D "Important Information About Your Geotechnical/Environmental Report" to assist you and others in understanding the use and limitations of our reports. You are advised that various state and federal agencies (ADEC, EPA, etc.) may require the reporting of this information. Shannon & Wilson does not assume the responsibility for reporting these findings and therefore, has not, and will not, disclose the results of this study, unless specifically requested and authorized to do so.

We appreciate this opportunity to be of service. Please call Dan McMahon or the undersigned with any questions or comments concerning the contents of this report.

Sincerely,

SHANNON & WILSON, INC.

Prepared By:	Reviewed By:
Michael Soltis Environmental Engineer II	Stafford Glashan P.E. Senior Engineer

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
Main Excavation						
AREA 1						
SS64	8/3/01	Area 1, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS65	8/3/01	Area 1, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS72	8/3/01	Area 1, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS83	8/4/01	Area 1, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF12	8/5/01	Area 1, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF13	8/5/01	Area 1, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF14	8/5/01	Area 1, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF15	8/5/01	Area 1, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF16	8/5/01	Area 1, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 1	8/5/01	CNF12, CNF13, CNF14, CNF15, and CNF16	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 2						
SS66	8/3/01	Area 2, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS67	8/3/01	Area 2, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS68	8/3/01	Area 2, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS69	8/3/01	Area 2, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS70	8/3/01	Area 2, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS73	8/3/01	Area 2, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF6	8/5/01	Area 2, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF7	8/5/01	Area 2, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF8	8/5/01	Area 2, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF9	8/5/01	Area 2, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist

KEY	DESCRIPTION
~	Sample number preceded by 16491 on chain-of-custody
^	Field screening was conducted using ENSYS PCB test kits for soil. Field screening was generally conducted at 1, 10, and 50 ppm levels for each soil sample.
#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
CNF10	8/5/01	Area 2, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF11	8/5/01	Area 2, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 2	8/5/01	CNF6, CNF7, CNF9, CNF9, CNF10, and CNF11	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 3						
SS74	8/4/01	Area 3, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF18	8/6/01	Area 3, Main Excavation (See Figures 2 and 3)	0.2	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF18B	8/7/01	Area 3, Main Excavation (See Figures 2 and 3)	1.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF18C	8/8/01	Area 3, Main Excavation (See Figures 2 and 3)	2.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF18D	8/10/01	Area 3, Main Excavation (See Figures 2 and 3)	2.5	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF18E	8/12/01	Area 3, Main Excavation (See Figures 2 and 3)	3.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF18F	8/13/01	Area 3, Main Excavation (See Figures 2 and 3)	3.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF19	8/6/01	Area 3, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF20	8/6/01	Area 3, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF20B	8/7/01	Area 3, Main Excavation (See Figures 2 and 3)	1.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF20C	8/8/01	Area 3, Main Excavation (See Figures 2 and 3)	2.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF20D	8/10/01	Area 3, Main Excavation (See Figures 2 and 3)	3.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF20E	8/10/01	Area 3, Main Excavation (See Figures 2 and 3)	5.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF20F	8/12/01	Area 3, Main Excavation (See Figures 2 and 3)	4.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF20G	8/13/01	Area 3, Main Excavation (See Figures 2 and 3)	5.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF43	8/8/01	Area 3, Main Excavation (See Figures 2 and 3)	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF43B	8/11/01	Area 3, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 3	8/13/01	CNF18F, CNF19, CNF20G, and CNF43B	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist

KEY	DESCRIPTION
~	Sample number preceded by 16491 on chain-of-custody
^	Field screening was conducted using ENSYS PCB test kits for soil. Field screening was generally conducted at 1, 10, and 50 ppm levels for each soil sample.
#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
AREA 4						
SS75	8/4/01	Area 4, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS76	8/4/01	Area 4, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS82	8/4/01	Area 4, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF21	8/6/01	Area 4, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF22	8/6/01	Area 4, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF22B	8/7/01	Area 4, Main Excavation (See Figures 2 and 3)	1.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF22C	8/8/01	Area 4, Main Excavation (See Figures 2 and 3)	2.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF22D	8/10/01	Area 4, Main Excavation (See Figures 2 and 3)	3.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF22E	8/10/01	Area 4, Main Excavation (See Figures 2 and 3)	5.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF22F	8/12/01	Area 4, Main Excavation (See Figures 2 and 3)	5.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF22G	8/13/01	Area 4, Main Excavation (See Figures 2 and 3)	5.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF23	8/6/01	Area 4, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF23B	8/7/01	Area 4, Main Excavation (See Figures 2 and 3)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF24	8/6/01	Area 4, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF24B	8/7/01	Area 4, Main Excavation (See Figures 2 and 3)	1.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF24C	8/8/01	Area 4, Main Excavation (See Figures 2 and 3)	2.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF24D	8/10/01	Area 4, Main Excavation (See Figures 2 and 3)	3.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF24E	8/12/01	Area 4, Main Excavation (See Figures 2 and 3)	4.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF24F	8/13/01	Area 4, Main Excavation (See Figures 2 and 3)	5.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF24G	8/13/01	Area 4, Main Excavation (See Figures 2 and 3)	6.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 4	8/13/01	CNF21, CNF22G, CNF23B, and CNF24G	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist

KEY	DESCRIPTION
~	Sample number preceded by 16491 on chain-of-custody
^	Field screening was conducted using ENSYS PCB test kits for soil. Field screening was generally conducted at 1, 10, and 50 ppm levels for each soil sample.
#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
AREA 5						
SS84	8/4/01	Area 5, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF25	8/6/01	Area 5, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF26	8/6/01	Area 5, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF26B	8/7/01	Area 5, Main Excavation (See Figures 2 and 3)	1.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF26C	8/8/01	Area 5, Main Excavation (See Figures 2 and 3)	2.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF26D	8/10/01	Area 5, Main Excavation (See Figures 2 and 3)	3.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF26E	8/12/01	Area 5, Main Excavation (See Figures 2 and 3)	4.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF28	8/6/01	Area 5, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF29	8/6/01	Area 5, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF29B	8/7/01	Area 5, Main Excavation (See Figures 2 and 3)	1.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF29D	8/10/01	Area 5, Main Excavation (See Figures 2 and 3)	3.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF29E	8/12/01	Area 5, Main Excavation (See Figures 2 and 3)	4.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 5	8/13/01	CNF25, CNF26E, CNF28, and CNF29E	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
Area 25	8/13/01	Duplicate of Sample Area 5	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 6						
SS71	8/3/01	Area 6, Main Excavation (See Figures 2 and 3)	0.1	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS77	8/4/01	Area 6, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS92	8/4/01	Area 6, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF1	8/3/01	Area 6, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF27	8/6/01	Area 6, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF27B	8/11/01	Area 6, Main Excavation (See Figures 2 and 3)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF30	8/6/01	Area 6, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist

KEY	DESCRIPTION
~	Sample number preceded by 16491 on chain-of-custody
^	Field screening was conducted using ENSYS PCB test kits for soil. Field screening was generally conducted at 1, 10, and 50 ppm levels for each soil sample.
#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
CNF31	8/6/01	Area 6, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 6	8/13/01	CNF1, CNF27B, CNF30, and CNF31	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 7						
SS78	8/4/01	Area 7, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS85	8/4/01	Area 7, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS86	8/4/01	Area 7, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF32	8/6/01	Area 7, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF32B	8/7/01	Area 7, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF33	8/6/01	Area 7, Main Excavation (See Figures 2 and 3)	0.2	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF36	8/6/01	Area 7, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF36B	8/8/01	Area 7, Main Excavation (See Figures 2 and 3)	1.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF36C	8/12/01	Area 7, Main Excavation (See Figures 2 and 3)	2.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 7	8/13/01	CNF32B, CNF33, and CNF36C	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 8						
SS90	8/4/01	Area 8, Main Excavation (See Figures 2 and 3)	0.1	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF2	8/4/01	Area 8, Main Excavation (See Figures 2 and 3)	1.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF34	8/6/01	Area 8, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF34B	8/11/01	Area 8, Main Excavation (See Figures 2 and 3)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF35	8/6/01	Area 8, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF37	8/6/01	Area 8, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF38	8/6/01	Area 8, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF38B	8/10/01	Area 8, Main Excavation (See Figures 2 and 3)	1.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 8	8/13/01	CNF34B, CNF35, CNF37, and CNF38B	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist

KEY	DESCRIPTION
~	Sample number preceded by 16491 on chain-of-custody
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#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
AREA 9						
SS79	8/4/01	Area 9, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS80	8/4/01	Area 9, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS87	8/4/01	Area 9, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF3	8/4/01	Area 9, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF4	8/5/01	Area 9, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF39	8/6/01	Area 9, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF39B	8/8/01	Area 9, Main Excavation (See Figures 2 and 3)	2.0	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF39C	8/12/01	Area 9, Main Excavation (See Figures 2 and 3)	3.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF44	8/8/01	Area 9, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF45	8/8/01	Area 9, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 9	8/13/01	CNF39C, CNF44, and CNF45	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 10						
SS89	8/4/01	Area 10, Main Excavation (See Figures 2 and 3)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
CNF5	8/5/01	Area 10, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF5B	8/11/01	Area 10, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF5C	8/12/01	Area 10, Main Excavation (See Figures 2 and 3)	2.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF5D	8/12/01	Area 10, Main Excavation (See Figures 2 and 3)	2.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF17	8/5/01	Area 10, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF17B	8/11/01	Area 10, Main Excavation (See Figures 2 and 3)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF40	8/6/01	Area 10, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF40B	8/12/01	Area 10, Main Excavation (See Figures 2 and 3)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF41	8/6/01	Area 10, Main Excavation (See Figures 2 and 3)	0.2	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist

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#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
CNF41B	8/12/01	Area 10, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 10	8/13/01	CNF5D, CNF17B, CNF40B, and CNF41B	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 11						
SS81	8/4/01	Area 11, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS88	8/4/01	Area 11, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SSC103	8/7/01	Area 11, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF42	8/6/01	Area 11, Main Excavation (See Figures 2 and 3)	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF42B	8/8/01	Area 11, Main Excavation (See Figures 2 and 3)	1.5	>1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF42C	8/12/01	Area 11, Main Excavation (See Figures 2 and 3)	2.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF42D	8/12/01	Area 11, Main Excavation (See Figures 2 and 3)	2.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF46	8/8/01	Area 11, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF46B	8/12/01	Area 11, Main Excavation (See Figures 2 and 3)	2.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF46C	8/13/01	Area 11, Main Excavation (See Figures 2 and 3)	2.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF57	8/11/01	Area 11, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF57B	8/12/01	Area 11, Main Excavation (See Figures 2 and 3)	2.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF62	8/12/01	Area 11, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 11	8/13/01	CNF42D, CNF46C, CNF57B, and CNF62	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 12						
SSC104	8/8/01	Area 12, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF56	8/11/01	Area 12, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF56B	8/12/01	Area 12, Main Excavation (See Figures 2 and 3)	1.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF59	8/12/01	Area 12, Main Excavation (See Figures 2 and 3)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF60	8/12/01	Area 12, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF61	8/12/01	Area 12, Main Excavation (See Figures 2 and 3)	1.0	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist

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Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
CNF61B	8/13/01	Area 12, Main Excavation (See Figures 2 and 3)	1.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 12	8/13/01	CNF56B, CNF59, CNF60 and CNF61B	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 13						
SSC93	8/6/01	Area 13, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
SSC94	8/6/01	Area 13, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
SSC95	8/6/01	Area 13, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
SSC96	8/6/01	Area 13, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF47	8/11/01	Area 13, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF48	8/11/01	Area 13, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF49	8/11/01	Area 13, Main Excavation (See Figures 2 and 3)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 13	8/13/01	SSC94, CNF47, CNF89, and CNF49	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 14						
SSC97	8/6/01	Area 14, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
SSC98	8/6/01	Area 14, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
SSC100	8/6/01	Area 14, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
SSC101	8/6/01	Area 14, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF50	8/11/01	Area 14, Main Excavation (See Figures 2 and 3)	1.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF51	8/11/01	Area 14, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF53	8/11/01	Area 14, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF54	8/11/01	Area 14, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 14	8/13/01	CNF50, CNF51, CNF53, and CNF54	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 15						
SSC99	8/6/01	Area 15, Main Excavation (See Figures 2 and 3)	0.1	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
SSC102	8/6/01	Area 15, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist

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Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
CNF52	8/11/01	Area 15, Main Excavation (See Figures 2 and 3)	0.5	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF52B	8/11/01	Area 15, Main Excavation (See Figures 2 and 3)	1.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF52C	8/12/01	Area 15, Main Excavation (See Figures 2 and 3)	2.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF55	8/11/01	Area 15, Main Excavation (See Figures 2 and 3)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF58	8/12/01	Area 15, Main Excavation (See Figures 2 and 3)	0.2	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF58B	8/12/01	Area 15, Main Excavation (See Figures 2 and 3)	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF63	8/12/01	Area 15, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 15	8/13/01	CNF52C, CNF55, CNF58B, and CNF63	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
AREA 16						
CNF64	8/12/01	Area 16, Main Excavation (See Figures 2 and 3)	0.1	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF64B	8/13/01	Area 16, Main Excavation (See Figures 2 and 3)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF65	8/12/01	Area 16, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF66	8/12/01	Area 16, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CNF67	8/12/01	Area 16, Main Excavation (See Figures 2 and 3)	0.1	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Area 16	8/13/01	CNF64B, CNF65, CNF66, and CNF67	NA	<1	Composite*	Brown, slightly silty, sandy GRAVEL; moist
Staging Area						
G1	8/14/01	Area G1, Staging Area (See Figures 2 and 4)	0.5	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS44	8/2/01	Area G2, Staging Area (See Figures 2 and 4)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G2	8/14/01	Area G2, Staging Area (See Figures 2 and 4)	0.5	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
G3	8/14/01	Area G3, Staging Area (See Figures 2 and 4)	0.5	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist

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#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
SS45	8/2/01	Area G4, Staging Area (See Figures 2 and 4)	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS55	8/3/01	Area G4, Staging Area (See Figures 2 and 4)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G4	8/14/01	Area G4, Staging Area (See Figures 2 and 4)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
G5	8/14/01	Area G5, Staging Area (See Figures 2 and 4)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
G6	8/14/01	Area G6, Staging Area (See Figures 2 and 4)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS46	8/2/01	Area G7, Staging Area (See Figures 2 and 4)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G7	8/14/01	Area G7, Staging Area (See Figures 2 and 4)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
G8	8/14/01	Area G8, Staging Area (See Figures 2 and 4)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS48	8/2/01	Area G9, Staging Area (See Figures 2 and 4)	0.1	<1		Brown, slightly silty, sandy GRAVEL; moist
SS58	8/3/01	Area G9, Staging Area (See Figures 2 and 4)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G9	8/14/01	Area G9, Staging Area (See Figures 2 and 4)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS43	8/2/01	Area G10, Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G10	8/14/01	Area G10, Staging Area (See Figures 2 and 4)	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS53	8/2/01	Area G11, Staging Area (See Figures 2 and 4)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G11	8/14/01	Area G11, Staging Area (See Figures 2 and 4)	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS40	8/2/01	Area G12, Staging Area (See Figures 2 and 4)	0.1	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G12	8/14/01	Area G12, Staging Area (See Figures 2 and 4)	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS52	8/2/01	Area G13, Staging Area (See Figures 2 and 4)	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G13	8/14/01	Area G13, Staging Area (See Figures 2 and 4)	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist

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*	Sample was composited from composite samples listed in "Sample Location" column
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Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
SS61	8/3/01	Area G14, Staging Area (See Figures 2 and 4)	0.1	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS62	8/3/01	Area G14, Staging Area (See Figures 2 and 4)	0.1	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS62B	8/4/01	Area G14, Staging Area (See Figures 2 and 4)	0.5	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS62C	8/4/01	Area G14, Staging Area (See Figures 2 and 4)	1.0	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS62D	8/4/01	Area G14, Staging Area (See Figures 2 and 4)	1.5	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G14	8/14/01	Area G14, Staging Area (See Figures 2 and 4)	0.5	>50	Composite	Brown, slightly silty, sandy GRAVEL; moist
G15	8/14/01	Area G15, Staging Area (See Figures 2 and 4)	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS42	8/2/01	Area G16, Staging Area (See Figures 2 and 4)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G16	8/14/01	Area G16, Staging Area (See Figures 2 and 4)	0.5	>50	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS63	8/3/01	Area G17, Staging Area (See Figures 2 and 4)	0.1	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G17	8/14/01	Area G17, Staging Area (See Figures 2 and 4)	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS41	8/2/01	Area G18, Staging Area (See Figures 2 and 4)	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
G18	8/14/01	Area G18, Staging Area (See Figures 2 and 4)	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
G19	8/14/01	Area G19, Staging Area (See Figures 2 and 4)	0.5	>10 but <50	Composite	Brown, slightly silty, sandy GRAVEL; moist
SS54	8/3/01	East of Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS56	8/3/01	East of Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS47	8/2/01	South of Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS57	8/3/01	South of Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS49	8/2/01	West of Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS50	8/2/01	West of Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist

KEY	DESCRIPTION
~	Sample number preceded by 16491 on chain-of-custody
^	Field screening was conducted using ENSYS PCB test kits for soil. Field screening was generally conducted at 1, 10, and 50 ppm levels for each soil sample.
#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
SS51	8/2/01	West of Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS59	8/3/01	West of Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS60	8/3/01	West of Staging Area (See Figures 2 and 4)	0.1	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Outlying Excavation Confirmation Samples						
CS01X	8/4/01	Location of Excavation CSO1X, See Figure 2	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CS101X	8/4/01	Duplicate of Sample CS01X	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CS08X	8/3/01	Location of Excavation CSO8X, See Figure 2	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CS12X	8/4/01	Location of Excavation CS12X, See Figure 2	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CS13X	8/4/01	Location of Excavation CS13X2, See Figure 2	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CS13X2	8/4/01	Location of Excavation CS13X2, See Figure 2	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CS17X	8/4/01	Location of Excavation CSO17X, See Figure 2	0.5	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
CS21X	8/13/01	Location of Excavation CS21X2, See Figure 2	0.5	>1 but <10	Composite	Brown, slightly silty, sandy GRAVEL; moist
CS21X2	8/14/01	Location of Excavation CS21X2, See Figure 2	1.0	<1	Composite	Brown, slightly silty, sandy GRAVEL; moist
Overburden Soil Samples						
SP1	8/9/01	Overburden soil stockpiles	0.5	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SP2	8/9/01	Overburden soil stockpiles	1.0	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SP3**	8/9/01	Overburden soil stockpiles	1.0	>1 but <10	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SP4	8/9/01	Overburden soil stockpiles	1.5	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SP5	8/9/01	Overburden soil stockpiles	1.0	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SP6	8/14/01	Overburden soil stockpiles	0.5	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SP7	8/14/01	Overburden soil stockpiles	0.5	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist

KEY	DESCRIPTION
~	Sample number preceded by 16491 on chain-of-custody
SP3**	The soil represented by this sample was removed from the overburden soil stockpile and placed in supersacks for disposal with the other PCB-impacted material handled during this project.
^	Field screening was conducted using ENSYS PCB test kits for soil. Field screening was generally conducted at 1, 10, and 50 ppm levels for each soil sample.
#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
SP8	8/14/01	Overburden soil stockpiles	1.0	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SP9	8/14/01	Overburden soil stockpiles	1.0	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SP10	8/14/01	Overburden soil stockpiles	1.5	<1	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Supersack Characterization Samples						
SS40	8/3/01	Location of Screening Sample SS40	0.1	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS61	8/3/01	Location of Screening Sample SS61	0.1	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SS62	8/3/01	Location of Screening Sample SS62	0.1	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
PCB1	8/9/01	Location of Screening Sample SS87	0.1	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q1	8/4/01	Location of Screening Sample SS80	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q2	8/5/01	Location of Screening Sample CNF5	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q3	8/6/01	Location of Screening Sample SSC97	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q4	8/7/01	Location of Screening Sample SSC99	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q5	8/7/01	Location of Screening Sample SSC96	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q6	8/7/01	Location of Screening Sample CNF26	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q7	8/10/01	Location of Screening Sample CNF18D	2.5	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q8	8/11/01	Location of Screening Sample CNF52	0.1	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q9	8/12/01	Location of Screening Sample CNF24E	4.5	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Q19	8/12/01	Duplicate of Sample Q9	4.5	>10 but <50	Discrete	Brown, slightly silty, sandy GRAVEL; moist

KEY	DESCRIPTION
~	Sample number preceded by 16491 on chain-of-custody
^	Field screening was conducted using ENSYS PCB test kits for soil. Field screening was generally conducted at 1, 10, and 50 ppm levels for each soil sample.
#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

Sample No. ~	Date	Sample Location	Depth (ft.)	Field Screening Result (ppm) ^	Sample Type #	Sample Classification
Borrow Source Characterization Samples						
BF1	7/30/01	Aniak Gravel Pit - Backfill Source	1.5	NA	Discrete	Brown, slightly silty, sandy GRAVEL; moist
BF2	7/30/01	Aniak Gravel Pit - Backfill Source	1.5	NA	Discrete	Brown, slightly silty, sandy GRAVEL; moist
BF3	7/30/01	Aniak Gravel Pit - Backfill Source	1.5	NA	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Miscellaneous Characterization Samples						
SL27B	8/3/01	Location of former Sample SL27, See Figure 2	0.5	>50	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SL31B	8/3/01	Location of former Sample SL31, See Figure 2	0.5	NA	Discrete	Brown, slightly silty, sandy GRAVEL; moist
SL31C	8/3/01	Location of former Sample SL31, See Figure 3	0.5	NA	Discrete	Brown, slightly silty, sandy GRAVEL; moist
Supersack Storage Area						
SA1	8/3/01	Storage Cell Footprint, See Figure 1	0.5	<1	Discrete	Brown, sandy SILT; moist
SA2	8/3/01	Storage Cell Footprint, See Figure 1	0.5	<1	Discrete	Brown, sandy SILT; moist
SA3	8/3/01	Storage Cell Footprint, See Figure 1	0.5	<1	Discrete	Brown, sandy SILT; moist
SA4	8/3/01	Storage Cell Footprint, See Figure 1	0.5	<1	Discrete	Brown, sandy SILT; moist
Quality Control						
Trip Blank	7/30/01	Accompanied sample jars to/from laboratory	NA	NA	NA	Methanol and Ottawa Sand
Trip Blank	8/13/01	Accompanied sample jars to/from laboratory	NA	NA	NA	Methanol and Ottawa Sand

KEY	DESCRIPTION
~	Sample number preceded by 16491 on chain-of-custody
^	Field screening was conducted using ENSYS PCB test kits for soil. Field screening was generally conducted at 1, 10, and 50 ppm levels for each soil sample.
#	Discrete samples were collected from a single location with an area of less than one square foot. Composite samples were collected from nine locations in general accordance with the guidance provided in EPA 761.289.
Area 1	Bold indicates that the sample was analyzed by the laboratory
*	Sample was composited from composite samples listed in "Sample Location" column
NA	Not Applicable

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS - PCBs

Parameter Tested	Method*	Soil Cleanup Criteria**	Sample Number~ and Depth of Sample in Feet (See Table 1 and Figures 1 through 4) Main Excavation Area 1 ***	Area 2 ***	Area 3 ***	Area 4 ***	Area 5 ***	*Area 25* ***	Area 6 ***	Area 7 ***
Field Screening Results - ppm	ENSYS	-	<1	<1	<1	<1	<1	<1	<1	<1
Total Solids - percent	SM20 2540G	-	97.7	96.5	94.9	96.8	95.4	96.2	95.6	95.7
Polychlorinated Biphenyls (PCBs)										
Aroclor 1260 - ppm	EPA 8082	1	0.0798	0.0722	0.247	0.578	0.633	0.462	<0.0313	0.286
Other PCB analytes - ppm	EPA 8082	1	<0.0311	<0.0309	<0.0316	<0.0311	<0.0314	<0.0312	<0.0313	<0.0313

Parameter Tested	Method*	Soil Cleanup Criteria**	Sample Number~ and Depth of Sample in Feet (See Table 1 and Figures 1 through 4) Main Excavation Area 8 ***	Area 9 ***	Area 10 ***	Area 11 ***	Area 12 ***	Area 13 ***	Area 14 ***	Area 15 ***
Field Screening Results - ppm	ENSYS	-	<1	<1	<1	<1	<1	<1	<1	<1
Total Solids - percent	SM20 2540G	-	97.3	95.9	95.6	96.5	96.3	95.2	96.0	96.1
Polychlorinated Biphenyls (PCBs)										
Aroclor 1260 - ppm	EPA 8082	1	0.709	0.916	0.344	0.218	<0.0312	0.734	0.244	0.260
Other PCB analytes - ppm	EPA 8082	1	<0.0308	<0.0314	<0.0313	<0.0312	<0.0312	<0.0315	<0.0313	<0.0312

KEY	DESCRIPTION
-	Sample not analyzed for this parameter
*	See Appendix B for Limits of Detection
**	Cleanup criteria developed using 40 CFR 261
***	This sample is a composite of several samples. See Table 1 for sample depths
<0.0311	Less Than the Method Detection Limit
ppm	Parts Per Million
~	Sample Number Preceded by 16491 on Chain-of-Custody
14.4	Bold format indicates concentrations above applicable cleanup criteria
CS101X	Samples with Italic font are duplicates of the preceding sample

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS - PCBs

			Sample Number~ and Depth of Sample in Feet (See Table 1 and Figures 1 through 4)							
		Soil	Main	Staging Area Excavation			Outlying Excavations			
		Cleanup	Area 16	G1	G14	G19	CS01X	*CS101X*	CS08X	CS12X
Parameter Tested	**Method***	**Criteria****	***	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Field Screening Results - ppm	ENSYS	-	<1	>10 but <50	>50	>10 but <50	<1	<1	<1	<1
Total Solids - percent	SM20 2540G	-	95.3	93.6	92.7	96.1	96.8	96.0	97.2	97.4
Polychlorinated Biphenyls (PCBs)										
Aroclor 1260 - ppm	EPA 8082	1	0.255	**14.4**	**19.5**	**10.1**	<0.0311	<0.0312	<0.0299	0.426
Other PCB analytes - ppm	EPA 8082	1	<0.0312	<1.61	<1.62	<1.55	<0.0311	<0.0312	<0.0299	<0.0313

			Sample Number~ and Depth of Sample in Feet (See Table 1 and Figures 1 through 4)							
		Soil	Outlying Excavations			Overburden Soil		Supersack Characterization		
		Cleanup	CS13X2	CS17X	CS21X2	SP6	SP10	SS40	SS61	SS62^^
Parameter Tested	**Method***	**Criteria****	1.0	0.5	1.0	0.5	1.5	0.1	0.1	0.1
Field Screening Results - ppm	ENSYS	-	<1	<1	<1	<1	<1	>50	>50	>50
Total Solids - percent	SM20 2540G	-	96.8	97.6	95.4	94.1	93.8	96.6	97.0	97.2
Polychlorinated Biphenyls (PCBs)										
Aroclor 1260 - ppm	EPA 8082	1	0.345	<0.0311	0.250	<0.0319	<0.0320	**8.43**	**13.9**	**29.8**
Other PCB analytes - ppm	EPA 8082	1	<0.0307	<0.0311	<0.0319	<0.0319	<0.0320	<0.0305	<0.0312	<0.0298

KEY	DESCRIPTION
-	Sample not analyzed for this parameter
^^	See Table 3 for additional analytes
*	See Appendix B for Limits of Detection
**	Cleanup criteria developed using 40 CFR 261
***	This sample is a composite of several samples. See Table 1 for sample depths
<0.0311	Less Than the Method Detection Limit
ppm	Parts Per Million
~	Sample Number Preceded by 16491 on Chain-of-Custody
14.4	Bold format indicates concentrations above applicable cleanup criteria
CS101X	Samples with Italic font are duplicates of the preceding sample

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS - PCBs

Parameter Tested	Method*	Soil Cleanup Criteria**	Sample Number~ and Depth of Sample in Feet (See Table 1 and Figures 1 through 4)							
			Supersack Characterization							
			PCB1	Q1	Q2	Q3	Q4	Q5	Q6	Q7
			0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.5
Field Screening Results - ppm	ENSYS	-	>50	>10 but <50	>10 but <50	>10 but <50	>10 but <50	>10 but <50	>10 but <50	>10 but <50
Total Solids - percent	SM20 2540G	-	96.0	96.0	96.1	95.8	95.9	95.2	96.3	95.0
Polychlorinated Biphenyls (PCBs)										
Aroclor 1260 - ppm	EPA 8082	1	**23.9**	**5.43**	**7.16**	**5.36**	**10.5**	**4.04**	**3.33**	**15.6**
Other PCB analytes - ppm	EPA 8082	1	<1.56	<0.624	<0.621	<0.609	<0.627	<0.629	<0.617	<0.632

Parameter Tested	Method*	Soil Cleanup Criteria**	Sample Number~ and Depth of Sample in Feet (See Table 1 and Figures 1 through 4)							
			Supersack Characterization			Backfill Characterization			Misc. Characterization	
			Q8	Q9	*Q19*	BF1^^	BF2^^	BF3^^	SL27B	SL31B
			0.1	4.5	4.5	1.5	1.5	1.5	0.5	0.5
Field Screening Results - ppm	ENSYS	-	>10 but <50	>10 but <50	>10 but <50	-	-	-	>50	-
Total Solids - percent	SM20 2540G	-	97.1	95.9	96.3	87.8	94.8	96.1	92.5	96.5
Polychlorinated Biphenyls (PCBs)										
Aroclor 1260 - ppm	EPA 8082	1	**15.2**	**14.5**	**11.2**	<0.0341	<0.0313	<0.0312	**15.1**	**7.66**
Other PCB analytes - ppm	EPA 8082	1	<0.622	<0.621	<0.621	<0.0341	<0.0313	<0.0312	<0.648	<0.620

KEY	DESCRIPTION
-	Sample not analyzed for this parameter
^^	See Table 3 for results of additional analytes
*	See Appendix B for Limits of Detection
**	Cleanup criteria developed using 40 CFR 261
<0.0311	Less Than the Method Detection Limit
ppm	Parts Per Million
~	Sample Number Preceded by 16491 on Chain-of-Custody
14.4	Bold format indicates concentrations above applicable cleanup criteria
CS101X	Samples with Italic font are duplicates of the preceding sample

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS - PCBs

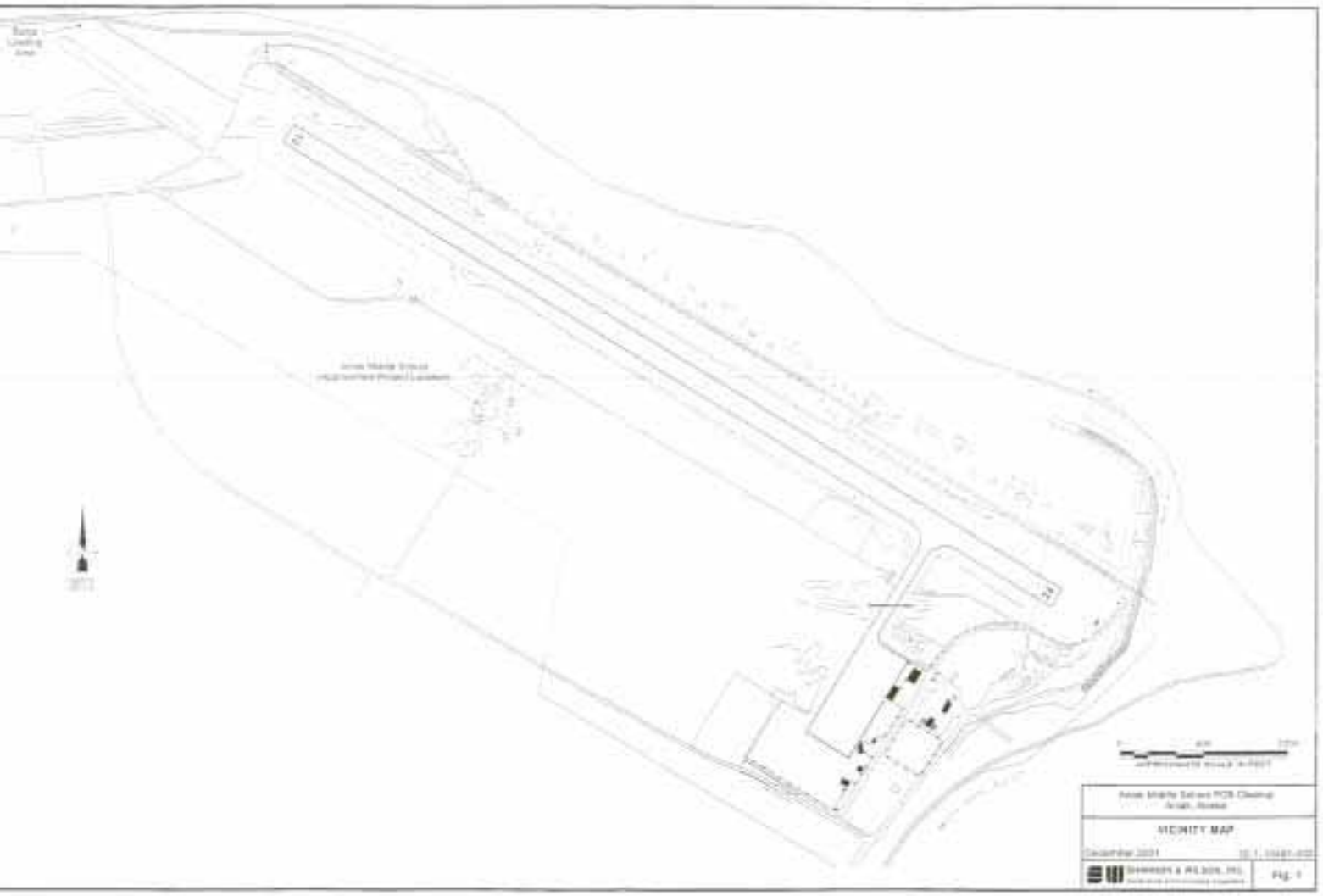
			Sample Number~ and Depth of Sample in Feet (See Table 1 and Figures 1 through 4)							
		Soil	Misc.	Supersack Storage Area				Decontamination Water		
		Cleanup	SL31C	SA1	SA2	SA3	SA4	Decon 1^^		
Parameter Tested	**Method***	**Criteria****	0.5	0.5	0.5	0.5	0.5	-		
Field Screening Results - ppm	ENSYS	-	-	<1	<1	<1	<1	-		
Total Solids - percent	SM20 2540G	-	94.4	90.4	84.1	85.4	87.7	-		
Polychlorinated Biphenyls (PCBs)										
Aroclor 1260 - ppm	EPA 8082	1	**17.1**	<0.0331	<0.0356	<0.0351	<0.0341	0.00252		
Other PCB analytes - ppm	EPA 8082	1	<0.634	<0.0331	<0.0356	<0.0351	<0.0341	<0.000114		

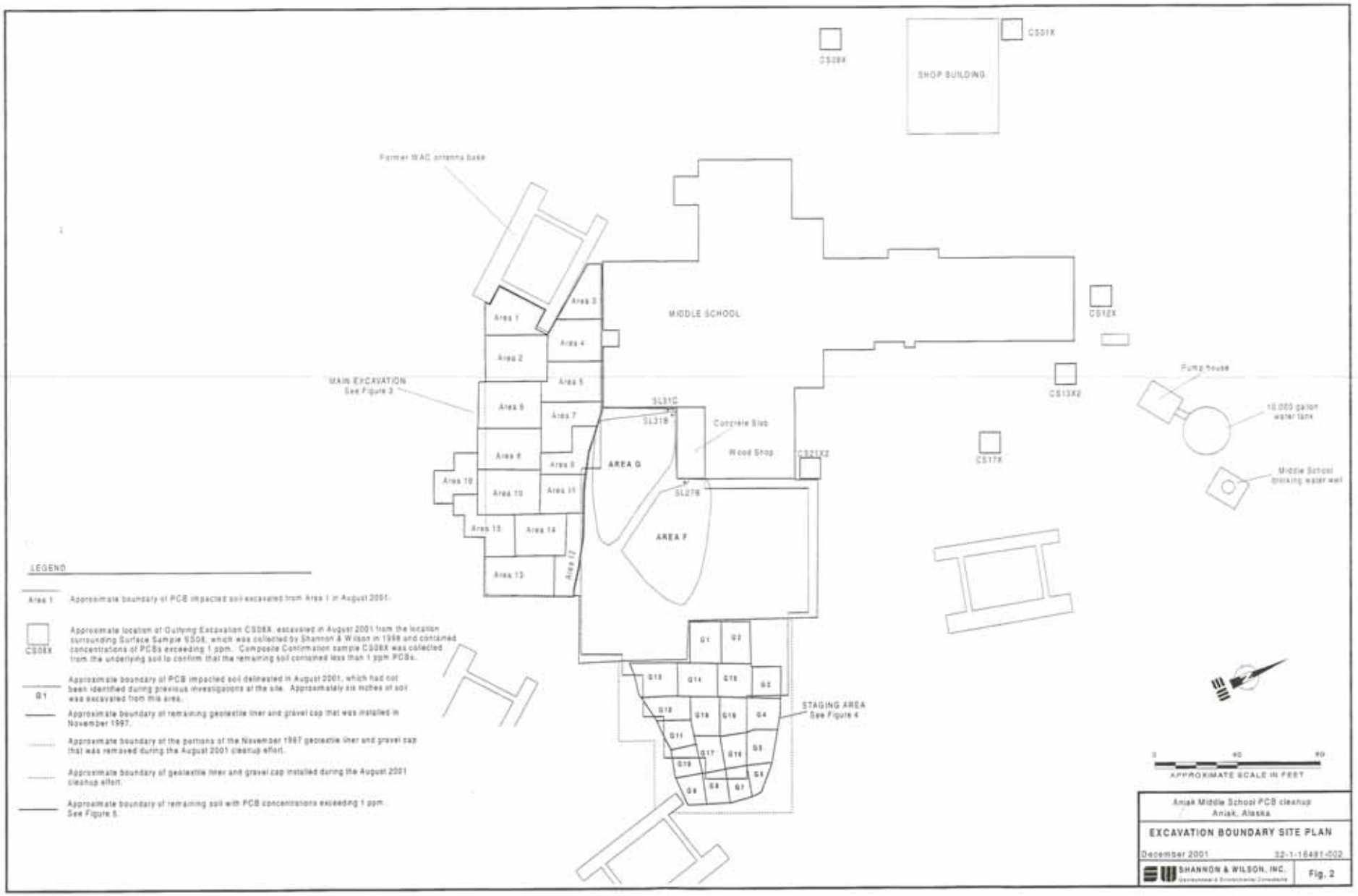
KEY	DESCRIPTION
-	Sample not analyzed for this parameter
^^	See Table 3 for results of additional analytes
*	See Appendix B for Limits of Detection
**	Cleanup criteria developed using 40 CFR 261
<0.0311	Less Than the Method Detection Limit
ppm	Parts Per Million
~	Sample Number Preceded by 16491 on Chain-of-Custody
14.4	Bold format indicates concentrations above applicable cleanup criteria
CS101X	Samples with Italic font are duplicates of the preceding sample

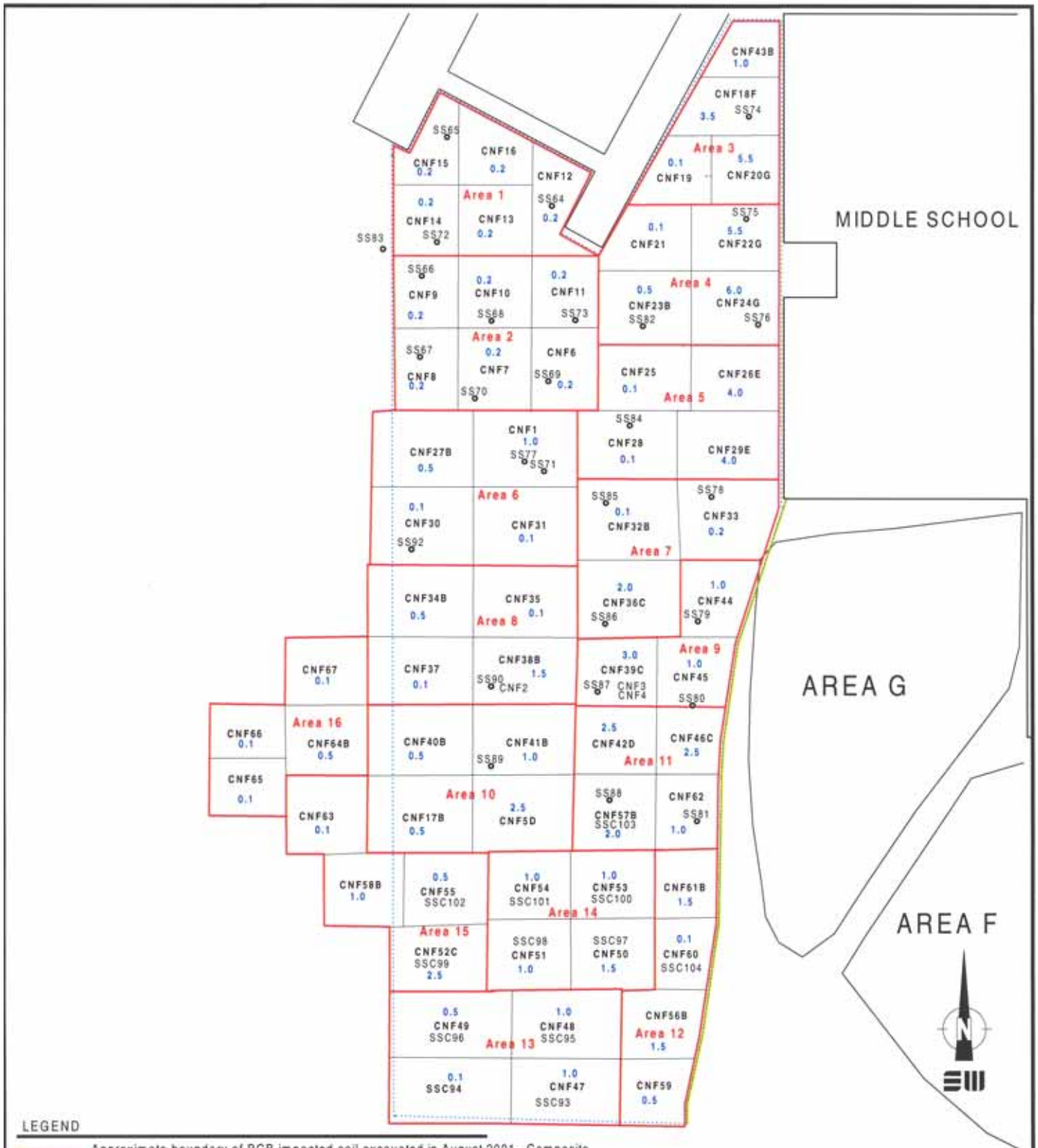
TABLE 3 - SUMMARY OF ANALYTICAL RESULTS - OTHER ANALYTES

		Sample Number~ and Depth in Feet (See Tables 1 & 2)						
Parameter Tested	**Method***	SS62 0.1	BF1 1.5	BF2 1.5	BF3 1.5	Trip Blank	Trip Blank	Decon 1 -
Field Screening Results - ppm	ENSYS	>50	-	-	-	-	-	-
Total Solids - percent	SM20 2540G	92.7	87.8	96.9	96.1	100	100	-
Gasoline Range Organics (GRO) - ppm	AK 101	-	<1.92	<1.74	<2.73	<2.57	<2.55	-
Diesel Range Organics (DRO) - ppm	AK 102	-	<11.3	<10.7	<10.5	-	-	-
Residual Range Organics (RRO) - ppm	AK103	-	<22.7	<21.4	<20.9	-	-	-
Polychlorinated Biphenyls (PCBs)								
Aroclor 1260 - ppm	EPA 8082	**29.8**	<0.0341	<0.0313	<0.0312	-	-	**0.00252**
Other PCB analytes - ppm	EPA 8082	<0.0298	<0.0341	<0.0313	<0.0312	-	-	<0.000114
Aromatic Volatile Organics (BTEX)								
Benzene - ppm	AK101/8021B	-	<0.00958	<0.00871	<0.0137	<0.0128	<0.0128	-
Toluene - ppm	AK101/8021B	-	<0.0383	<0.0348	<0.0547	<0.0513	<0.0510	-
Ethylbenzene - ppm	AK101/8021B	-	<0.0383	<0.0348	<0.0547	<0.0513	<0.0510	-
Xylenes - ppm	AK101/8021B	-	<0.0383	<0.0348	<0.0547	<0.0513	<0.0510	-
Semivolatile Organics	EPA 8270C	ND	-	-	-	-	-	-
Halogenated Volatile Orgaincs								
1,2,4-Trichlorobenzene - ppm	EPA 8260B	0.0262	-	-	-	-	-	-
Other Analytes - ppm - ppm	EPA 8260B	ND	-	-	-	-	-	-
TCLP Metals								
Arsenic - ppm	EPA 1311/7060A	<0.00500	-	-	-	-	-	-
Barium - ppm	EPA 1311/6010B	0.411	-	-	-	-	-	-
Cadmium - ppm	EPA 1311/6010B	<0.0450	-	-	-	-	-	-
Chromium - ppm	EPA 1311/6010B	<0.180	-	-	-	-	-	-
Lead - ppm	EPA 1311/6010B	<0.450	-	-	-	-	-	-
Selenium - ppm	EPA 1311/7740A	<0.00500	-	-	-	-	-	-
Silver - ppm	EPA 1311/7760A	<0.250	-	-	-	-	-	-
Mercury - ppm	EPA 1311/7470A	<0.00200	-	-	-	-	-	-
Total RCRA Metals								
Arsenic - ppm	EPA 6020	-	-	-	-	-	-	<0.00500
Barium - ppm	EPA 6020	-	-	-	-	-	-	0.0302
Cadmium - ppm	EPA 6020	-	-	-	-	-	-	<0.00200
Chromium - ppm	EPA 6020	-	-	-	-	-	-	0.0135
Lead - ppm	EPA 6020	-	-	-	-	-	-	<0.00200
Selenium - ppm	EPA 6020	-	-	-	-	-	-	<0.00500
Silver - ppm	EPA 6020	-	-	-	-	-	-	<0.00200
Mercury - ppm	EPA 245.1	-	-	-	-	-	-	<0.00020

KEY	**DESCRIPTION**
-	Sample not analyzed for this parameter
*	See Appendix B for Limits of Detection
<0.0010	Less Than the Method Detection Limit of 0.0010 ppm
ppm	Parts Per Million
~	Sample Number Preceded By 16491 on Chain-of-Custody
ND	Analyte(s) not detected at concentrations above the laboratory reporting limits
29.8	Bold format indicates concentrations above applicable cleanup criteria


VICINITY MAP
Fig. 1


CS09X
CS01X
SHOP BUILDING
Former WAC antenna base
MIDDLE SCHOOL
CS12X
CS13X2
Pump house
10,000 gallon water tank
Middle School drinking water well
MAIN EXCAVATION See Figure 3
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Area 8
Area 9
Area 10
Area 11
Area 12
Area 13
Area 14
Area 15
AREA G
AREA F
SL31C
SL31B
SL27B
Concrete Slab
Wood Shop
CS21X2
CS17X
G1
G2
G3
G4
G5
G6
G7
G8
G9
G10
G11
G12
G13
G14
G15
G16
G17
G18
STAGING AREA See Figure 4
LEGEND
Area 1
Approximate boundary of PCB impacted soil excavated from Area 1 in August 2001.
CS08X
Approximate location of Outlying Excavation CS08X, excavated in August 2001 from the location surrounding Surface Sample SS08, which was collected by Shannon & Wilson in 1998 and contained concentrations of PCBs exceeding 1 ppm. Composite Confirmation sample CS08X was collected from the underlying soil to confirm that the remaining soil contained less than 1 ppm PCBs.
G1
Approximate boundary of PCB impacted soil delineated in August 2001, which had not been identified during previous investigations at the site. Approximately six inches of soil was excavated from this area.
Approximate boundary of remaining geotextile liner and gravel cap that was installed in November 1997.
Approximate boundary of the portions of the November 1997 geotextile liner and gravel cap that was removed during the August 2001 cleanup effort.
Approximate boundary of geotextile liner and gravel cap installed during the August 2001 cleanup effort.
Approximate boundary of remaining soil with PCB concentrations exceeding 1 ppm. See Figure 5.
0
40
80
APPROXIMATE SCALE IN FEET
Aniak Middle School PCB cleanup
Aniak, Alaska
EXCAVATION BOUNDARY SITE PLAN
December 2001
32-1-16491-002
SHANNON & WILSON, INC.
Fig. 2



LEGEND

Area 1 — Approximate boundary of PCB impacted soil excavated in August 2001. Composite Confirmation Samples Area 1 through Area 16 were collected from the areas shown to confirm that the remaining soil contained less than 1 ppm PCBs.

CNF29E 4.0 — Approximate area and average depth in feet of the subarea represented by Composite Confirmation Sample CNF29E. Composite samples were collected from nine discreet locations within each of the subareas to assess concentrations of PCBs throughout and at the conclusion of excavation activities. Each of the subareas shown above were excavated to the indicated final average depth prior to collecting the corresponding Composite Confirmation Sample indicated in bold font.

Approximate boundary of the portions of the November 1997 geotextile liner and gravel cap that was removed during the August 2001 cleanup effort.

Approximate boundary of remaining geotextile liner and gravel cap that was installed in November 1997.

SSC93 — Approximate area from which Composite Sample SSC93 was collected.

SS88 — Approximate location of discrete surface Sample SS88.

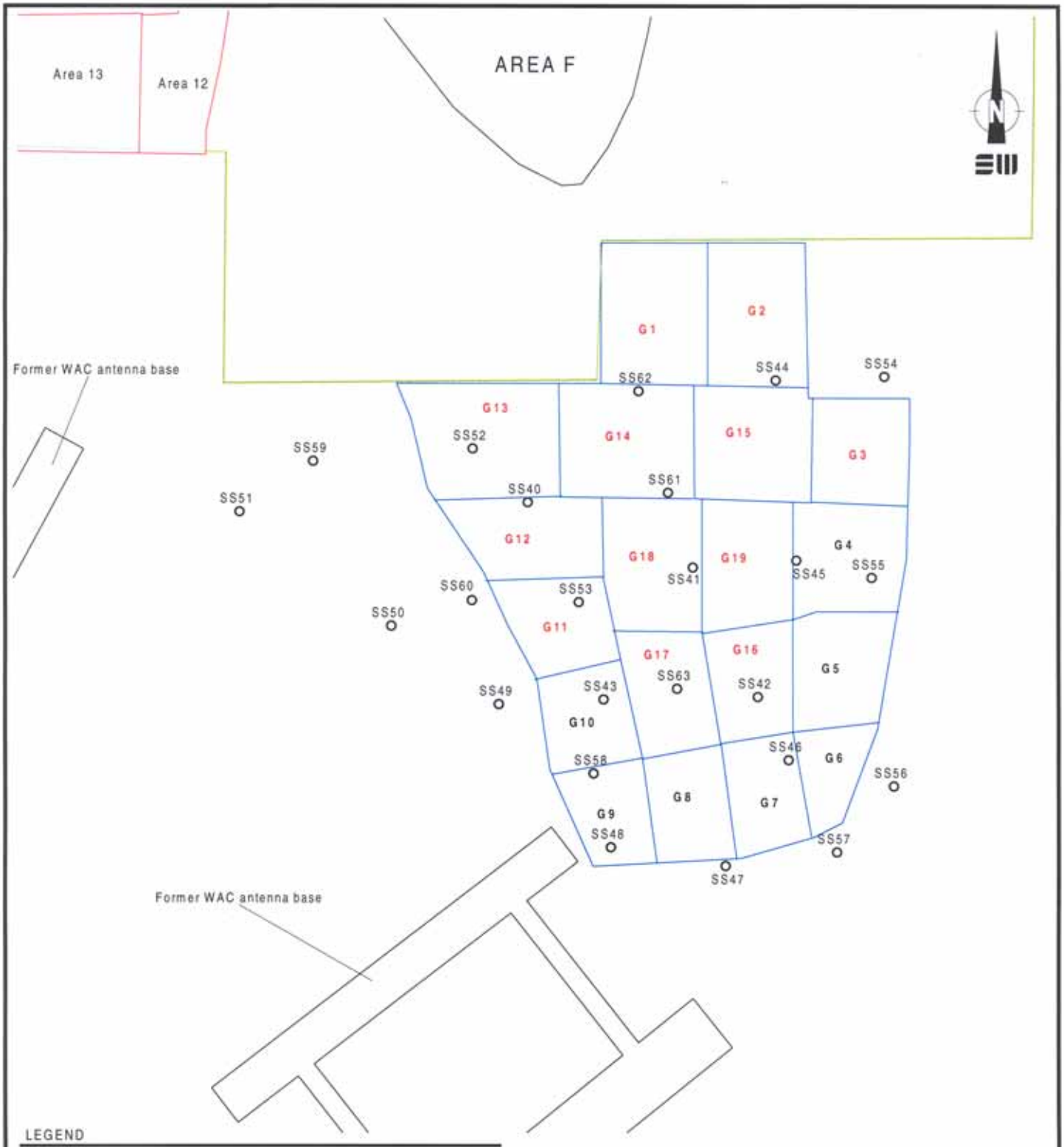
Aniak Middle School PCB Cleanup
Aniak, Alaska

SAMPLING PLAN - MAIN EXCAVATION

December 2001 32-1-16491-002

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 3



LEGEND

Approximate boundary of PCB impacted soil delineated in August 2001, which had not been identified during previous investigations at the site. Approximately six inches of soil was excavated from this area. Composite Samples G1 through G19 were collected from the underlying soil to assess remaining PCB concentrations. This area was covered with a geotextile fabric and capped with a gravel cap in August 2001.

G1 — Approximate area from which Composite Sample G1 was collected. Composite samples with red font contained greater than one ppm PCBs, based on field screening.

SS63 — Approximate location of discrete surface Sample SS88.

Approximate boundary of remaining geotextile liner and gravel cap that was installed in November 1997.

Approximate boundary of the portions of the November 1997 geotextile liner and gravel cap that was removed during the August 2001 cleanup effort.

0 20 40

APPROXIMATE SCALE IN FEET

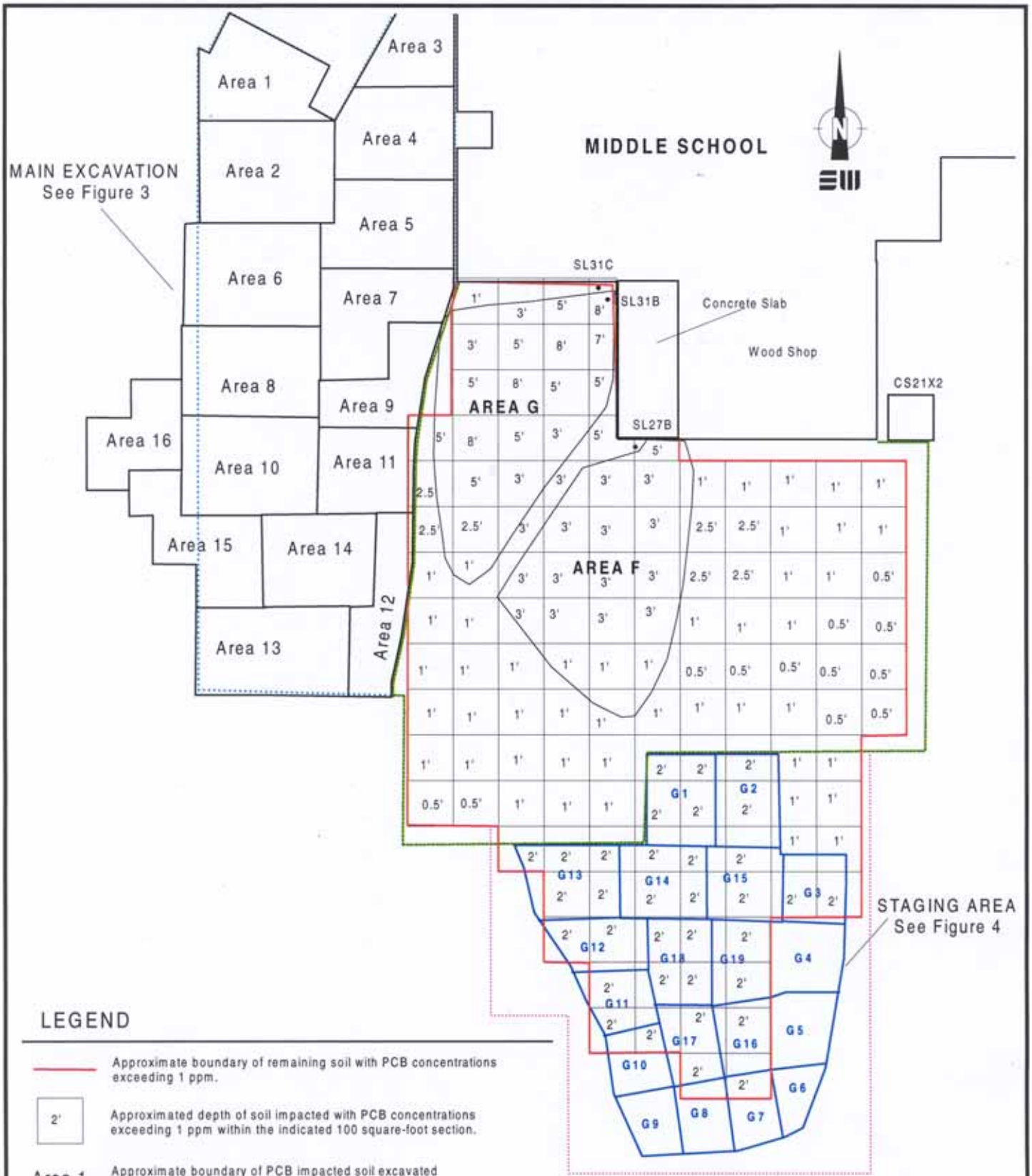
Aniak Middle School PCB Cleanup
Aniak, Alaska

SAMPLING PLAN - STAGING AREA

December 2001 32-1-16491-002

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 4



LEGEND

- Approximate boundary of remaining soil with PCB concentrations exceeding 1 ppm.
- 2' — Approximated depth of soil impacted with PCB concentrations exceeding 1 ppm within the indicated 100 square-foot section.
- Area 1 — Approximate boundary of PCB impacted soil excavated from Area 1 in August 2001.
- G1 — Approximate boundary of PCB impacted soil delineated in August 2001, which had not been identified during previous investigations at the site. Approximately six inches of soil was excavated from this area.
- Approximate boundary of remaining geotextile liner and gravel cap that was installed in November 1997.
- Approximate boundary of the portions of the November 1997 geotextile liner and gravel cap that was removed during the August 2001 cleanup effort.
- Approximate boundary of geotextile liner and gravel cap installed during the August 2001 cleanup effort.

0 30 60

APPROXIMATE SCALE IN FEET

Aniak Middle School PCB Cleanup
Aniak, Alaska

REMAINING PCB-IMPACTED SOIL BOUNDARIES

December 2001 32-1-16491-002

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 5

APPENDIX A

SITE PHOTOGRAPHS

Photo 1: The front end loader is shown placing soil onto the conveyor belt. The work area was covered with a plastic liner. After the supersacks were loaded, the soil collected on the plastic liner was placed in supersacks for disposal.

Photo 2: A forklift was used to support the supersacks while they were being filled with PCB impacted soil.

Aniak Middle School PCB Cleanup Aniak, Alaska	
PHOTOGRAPHS 1 AND 2	
December 2001	32-1-16491-002
SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	Fig. A-1

Photo 3: This photo shows Areas 3, 4, and 5 (back to front) after removing the gravel cap and geotextile liner. A grid was set up over the area to delineate the sub-areas outlined in red paint. Screening samples were collected from each sub-area to evaluate the PCBs concentrations in the soil.

Photo 4: This is a photo of the same area shown in Photo 3 after removing several feet of PCB impacted soil. The doorway shown above is the south entrance to the Aniak Middle School.

Aniak Middle School PCB Cleanup Aniak, Alaska	
PHOTOGRAPHS 3 AND 4	
December 2001	32-1-16491-002
SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	Fig. A-2

Photo 4: At the conclusion of the excavation activities, a decontamination station was set up using a plastic liner. Gravel berms were constructed on the downslope edges of the plastic liner shown above, and the rinsate from washing the equipment was collected and transferred to a 55-gallon drum.

Photo 6: The Aniak Middle School wood shop was used to perform the PCB soil screening tests. The work area surfaces within the wood shop were covered with plastic liners and tarps.

Aniak Middle School PCB Cleanup Aniak, Alaska	
PHOTOGRAPHS 5 AND 6	
December 2001	32-1-16491-002
SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	Fig. A-3

APPENDIX B

MANIFEST TRACKING LOG

Table 1

Manifest Tracking Log
Aniak Middle School Project
Aniak, Alaska

Manifest Number	Manifest Signed by State of Alaska	Manifest Signed by Northland Services	Manifest Signed by Emerald Services	Manifest Signed by Waste Management	Container Seal No. (Aniak)	Seal Number (TSDF)	Manifest Weight (Pounds)	Scale Ticket Number (Produced by Waste Management)	Scale Ticket Weight (Pounds)	Weight Difference (Pounds)
ANI 01	8/16/01	8/31/01	10/24/01	10/24/01	0119323	119323	24,413	454454	24,340	(73)
ANI 02	8/16/01	8/31/01	10/17/01	10/18/01	0119322	N 119322	24,730	453893	24,700	(30)
ANI 03	8/16/01	8/31/01	10/17/01	10/18/01	0119324	N 119324	24,575	453898	24,500	(75)
ANI 04	8/16/01	8/31/01	10/25/01	10/30/01	0119325	NL 119325	23,362	454623	23,060	(302)
ANI 05	8/16/01	8/31/01	10/23/01	10/24/01	0119326	119326	23,118	454451	22,620	(498)
ANI 06	8/16/01	8/31/01	10/17/01	10/18/01	0119327	N 119327	21,790	453891	21,760	(30)
ANI 07	8/16/01	8/31/01	10/25/01	10/30/01	0119328	NL 119328	24,168	454621	23,880	(288)
ANI 08	8/16/01	8/31/01	10/24/01	10/24/01	0119329	119329	24,905	454421	24,800	(105)
ANI 09	8/16/01	8/31/01	10/24/01	10/24/01	0119330	NL 119330	24,648	454441	24,640	(8)
ANI 10	8/16/01	8/31/01	10/25/01	10/30/01	0119331	NL 119331	24,939	454548	24,800	(139)
ANI 11	8/16/01	8/31/01	10/23/01	10/23/01	0119332	119332	23,007	454269	23,020	13
ANI 12	8/16/01	8/31/01	10/19/01	10/25/01	0119333	N 119333	22,881	454081	22,740	(141)
ANI 13	8/16/01	8/31/01	10/23/01	10/23/01	0119334	119334	24,098	454268	24,000	(98)
ANI 14	8/16/01	8/31/01	10/23/01	10/23/01	0119335	119335	23,675	454276	23,660	(15)
ANI 15	8/16/01	8/31/01	10/19/01	10/24/01	0119338	119338	23,568	454079	23,280	(288)
ANI 16	8/16/01	8/31/01	10/22/01	10/24/01	0119339	N 119339	23,449	454170	23,520	71
ANI 17	8/16/01	8/31/01	10/17/01	10/18/01	0119340	N 119340	24,834	453896	24,640	(194)
ANI 18	8/16/01	8/31/01	10/23/01	10/23/01	0119341	119341	24,471	454275	24,400	(71)
ANI 19	8/16/01	8/31/01	10/25/01	10/30/01	0119342	NL 119342	24,541	454545	25,120	579
ANI 20	8/16/01	8/31/01	10/25/01	10/30/01	0119343	NL 119343	24,111	454544	23,920	(191)
ANI 21	8/16/01	8/31/01	10/24/01	(1)	0119344	NL 119344	23,377	454443	23,400	23
ANI 22	8/16/01	8/31/01	10/22/01	10/24/01	0119345	N 119345	21,626	454166	21,660	34
ANI 23	8/16/01	8/31/01	10/17/01	10/18/01	0119346	N 119346	24,890	453899	24,880	(10)
ANI 24	8/16/01	8/31/01	10/24/01	(1)	0119347	119347	24,709	454447	24,680	(29)
ANI 25	8/16/01	8/31/01	10/19/01	10/25/01	0119348	N 119348	23,776	454083	23,740	(36)
ANI 26	8/16/01	8/31/01	10/19/01	10/24/01	0119349	N119349	22,077	454169	22,040	(37)
ANI 27	8/16/01	8/31/01	10/23/01	10/23/01	0119350	119350	24,736	454271	24,700	(36)
ANI 28	8/16/01	8/31/01	10/24/01	10/30/01	0119351	NL 119351	24,987	454622	24,820	(167)
ANI 29	8/16/01	8/31/01	10/17/01	10/18/01	0119352	N 119352	24,758	453894	24,440	(318)
ANI 30	8/16/01	8/31/01	10/23/01	10/24/01	0119353	NL 119353	24,423	454446	24,360	(63)
ANI 31	8/16/01	8/31/01	10/17/01	10/18/01	0119354	N 119354	23,411	453895	23,380	(31)
ANI 32	8/16/01	8/31/01	10/22/01	10/23/01	0119355	119355	24,985	454277	25,000	15
ANI 33	8/16/01	8/31/01	10/24/01	10/24/01	0119356	119356	24,745	454448	24,720	(25)

Table 1 (Continued)

Manifest Tracking Log
Aniak Middle School Project
Aniak, Alaska

Manifest Number	Manifest Signed by State of Alaska	Manifest Signed by Northland Services	Manifest Signed by Emerald Services	Manifest Signed by Waste Management	Container Seal No. (Aniak)	Seal Number (TSDF)	Manifest Weight (Pounds)	Scale Ticket Number (Produced by Waste Management)	Scale Ticket Weight (Pounds)	Weight Difference (Pounds)
ANI 34	8/16/01	8/31/01	10/19/01	10/24/01	0119357	N 119357	24,942	454078	24,920	(22)
ANI 35	8/16/01	8/31/01	10/24/01	10/24/01	0119358	NL 119358	24,880	454439	24,840	(40)
ANI 36	8/16/01	8/31/01	10/25/01	10/26/01	0119359	NL 119359	24,312	454440	24,340	28
ANI 37	8/16/01	8/31/01	10/22/01	10/23/01	0119360	119360	24,628	454273	24,540	(88)
ANI 38	8/16/01	8/31/01	10/25/01	10/30/01	0119361	NL 119361	24,885	454549	24,640	(245)
ANI 39	8/16/01	8/31/01	10/19/01	10/24/01	0119362	N 119362	24,990	454171	24,960	(30)
ANI 40	8/16/01	8/31/01	10/25/01	10/30/01	0119363	NL 119363	23,821	454547	23,680	(141)
ANI 41	8/16/01	8/31/01	10/24/01	10/24/01	0119364	NL 119364	24,728	454438	24,640	(88)
ANI 42	8/16/01	8/31/01	10/17/01	10/24/01	0119365	N 119365	24,371	454085	24,240	(131)
ANI 43	8/16/01	8/31/01	10/23/01	10/23/01	0119366	119366	24,408	454272	24,400	(8)
ANI 44	8/16/01	8/31/01	10/19/01	10/22/01	0119367	119367	24,565	454080	24,320	(245)
ANI 45	8/16/01	8/31/01	10/24/01	10/30/01	0119368	NL 119368	23,604	454550	23,520	(84)
ANI 46	8/16/01	8/31/01	10/18/01	10/29/01	0119369	N 119369	23,145	453989	22,940	(205)
ANI 47	8/16/01	8/31/01	10/19/01	10/24/01	0119370	119370	24,301	454077	24,120	(181)
ANI 48	8/16/01	8/31/01	10/19/01	10/24/01	0119371	N 119371	24,682	454086	24,480	(202)
ANI 49	8/16/01	8/31/01	10/24/01	10/24/01	0119372	NL 119372	24,829	454437	24,780	(49)
ANI 50	8/16/01	8/31/01	10/24/01	10/24/01	0119373	N 119373	24,613	454442	24,640	27
ANI 51	8/16/01	8/31/01	10/24/01	10/30/01	0119374	NL 119374	23,964	454546	23,920	(44)
ANI 52	8/16/01	8/31/01	10/22/01	10/24/01	0119376	119376	24,511	454165	24,520	9
ANI 53	8/16/01	8/31/01	10/19/01	10/25/01	0119377	119377	24,875	454084	24,620	(255)
ANI 54	8/16/01	8/31/01	10/24/01	10/24/01	0119378	NL 119378	24,884	454453	24,580	(304)
ANI 57	8/16/01	8/31/01	10/24/01	10/24/01	0119382	NL 119382	24,918	454455	24,860	(58)
ANI 58	8/16/01	8/31/01	10/25/01	10/30/01	0119383	NL 119383	23,512	454620	23,360	(152)
ANI 59	8/16/01	8/31/01	10/23/01	10/23/01	0119384	119384	23,267	454274	23,240	(27)
ANI 60	8/16/01	8/31/01	10/24/01	10/24/01	0119380	NL 119380	12,113	454449	11,780	(333)
ANI 61	8/16/01	8/31/01	10/22/01	10/24/01	0119385	119385	24,903	454173	24,860	(43)
ANI 62	8/16/01	8/31/01	10/17/01	10/18/01	0119386	N 119386	24,589	453892	23,920	(669)
ANI 63	8/16/01	8/31/01	10/17/01	10/18/01	0119387	N 119387	24,151	453897	24,120	(31)
ANI 64	8/16/01	8/31/01	10/24/01	10/26/01	0119388	NL 119388	24,195	454450	24,160	(35)
ANI 65	8/16/01	8/31/01	10/22/01	10/24/01	0119389	N 119389	24,603	454168	24,660	57
ANI 66	8/16/01	8/31/01	10/24/01	(1)	0119390	NL 119390	24,717	454445	24,720	3
ANI 67	8/16/01	8/31/01	10/25/01	10/30/01	0119229	NL 119229	24,407	454543	24,420	13
ANI 68	8/16/01	8/31/01	10/24/01	(1)	0119391	119391	23,854	454444	23,840	(14)

Table 1 (Continued)

Manifest Tracking Log
Aniak Middle School Project
Aniak, Alaska

Manifest Number	Manifest Signed by State of Alaska	Manifest Signed by Northland Services	Manifest Signed by Emerald Services	Manifest Signed by Waste Management	Container Seal No. (Aniak)	Seal Number (TSDF)	Manifest Weight (Pounds)	Number (Produced by Waste Management)	Scale Ticket Weight (Pounds)	Weight Difference (Pounds)
ANI 69	8/16/01	8/31/01	10/17/01	10/18/01	0119392	N 119392	24,907	453901	24,900	(7)
ANI 70	8/16/01	8/31/01	10/24/01	10/24/01	0119393	NL 119393	24,369	454452	24,320	(49)
ANI 71	8/16/01	8/31/01	10/22/01	10/25/01	0119401	119401	24,903	454174	24,660	(243)
ANI 72	8/16/01	8/31/01	10/19/01	10/23/01	0119395	N 119395	24,907	454082	24,760	(147)
ANI 73	8/16/01	8/31/01	10/22/01	10/24/01	0119396	N 119396	24,812	454172	24,700	(112)
ANI 74	8/16/01	8/31/01	10/22/01	10/24/01	0119397	N 119397	24,247	454167	24,240	(7)
ANI 75	8/16/01	8/31/01	10/23/01	10/23/01	0119379	119379	16,912	454270	17,040	128
Total---------->							1,750,007		1,743,420	(6,587)

	Pounds	Tons
Total Manifest Weight	1,750,007	875
Total Scale Ticket Weight	1,743,420	871.71
Weight Difference	(6,587)	(3.29)

Note: 1. TSDF neglected to include date in Block 20 of manifest.

APPENDIX C

RESULTS OF ANALYTICAL TESTING BY

CT&E ENVIRONMENTAL SERVICES, INC.

OF ANCHORAGE, ALASKA

These results are found on this disk under the following Work Orders:

Laboratory Analysis Report for August 9, 2001	**1015089**
Laboratory Analysis Report for August 8, 2001	**1015060**
Laboratory Analysis Report for August 14, 2001	**1015246**
Laboratory Analysis Report for August 20, 2001	**1015355**
Laboratory Analysis Report for August 27, 2001	**1015221**
Laboratory Analysis Report for August 27, 2001	**1015316**
Laboratory Analysis Report for September 1, 2001	**1015532**

APPENDIX D

"IMPORTANT INFORMATION ABOUT YOUR

GEOTECHNICAL/ENVIRONMENTAL REPORT"

Important Information About Your Geotechnical/Environmental Report

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland